

ABSTRACT

A STUDY OF SELECTED INSTITUTIONAL FACTORS AND THEIR RELATIONSHIP TO BREADTH OF THE COLLEGE TRANSFER CURRICULUM IN MISSOURI PUBLIC JUNIOR COLLEGES

by Richard L. Norris

The need for this study has evolved from the rapid development of new junior colleges across the nation and from an expansion of the functions to be served by these institutions. This in turn has made apparent the need for a continual reexamination of the criteria employed for establishment of these institutions. Knowledge of the relationships which exist between institution enrollment size and curriculum breadth may provide one key to rational decisions regarding establishment criteria for new junior colleges.

The purpose of this study was to make a survey and analysis of the breadth of college transfer curriculums in nine Missouri public junior colleges, and to investigate the relationships which existed between curriculum breadth, institution enrollment size and per capita operating costs. These findings were then compared to the opinions of twenty-five administrators in higher education in Missouri. From this information, recommendations were made regarding enrollment criteria for the establishment of new junior colleges in Missouri.

The data upon which this study was based were obtained from the Junior College Division of the Missouri State Board of Education and data obtained from a questionnaire distributed to Presidents and Deans of Missouri public junior and senior colleges as well as to state level administrators. These data were analyzed using the Spearman Rank Order Correlation Coefficient Test to determine the closeness of relationship which existed between various factors.

Major findings from the study included:

1. A coefficient of correlation of .908 between institution enrollment size and the total number of subject areas taught.
2. A coefficient of correlation of .850 between institution enrollment size and the number of subject areas taught at both the freshman and sophomore levels.
3. A coefficient of correlation of .950 between institution enrollment size and the number of semester hours taught in distinct courses.
4. A coefficient of correlation of .217 between institution enrollment size and per capita operating costs.
5. A coefficient of correlation of .217 between per capita operating costs and mean number of semester hours taught per institution.
6. A coefficient of correlation of .325 between per capita operating costs and the number of subject areas taught per institution.
7. A coefficient of correlation of .267 between per capita operating costs and the number of subject areas taught at both the freshman and sophomore levels per institution.

8. Eighty-seven per cent of the administrators included in the sample favored a minimum projected enrollment of 400 or more full-time equivalent students for the establishment of a comprehensive junior college and 30.4 per cent indicated that a minimum projected enrollment should be 1,000 or more FTE students.
9. Ninety-two per cent of the administrators included in the sample recommended a minimum per capita operating level between \$600 and \$999 for Missouri public junior colleges.
10. Eighty per cent of the administrators included in the sample recommended a desirable per capita operating level between \$800 and \$1,199 for Missouri public junior colleges.

Conclusion drawn from the findings of the study

include:

1. There is a close positive relationship between institution enrollment size and breadth of the college transfer curriculum in Missouri public junior colleges as measured by (1) number of subject areas taught, (2) number of semester hours taught in distinct courses, and (3) number of subject areas taught at both the freshman and sophomore levels.
2. There appeared to be little positive relationship between per capita operating costs and (1) mean number of semester hours taught per institution, (2) number of subject areas taught per institution, (3) number of subject areas taught at both the freshman and sophomore levels per institution, and (4) institution enrollment size.
3. The majority of administrators included in the sample for this study felt that Missouri public junior colleges were operating at a minimum per capita operating level at the time of this study.
4. That a projected enrollment of at least 400 full-time equivalent students in the college transfer curriculum be required for the establishment of public junior colleges in Missouri, and that this requirement be higher in proportion to the extent that other types of programs are to be offered.

It was also concluded as a result of this study that further investigation was needed to determine the relationships which exist between the college transfer curriculum and other curriculums in the public junior college and the effect of these relationships in the determination of a minimum projected enrollment size for public junior colleges.

Those findings in this study which are based upon the opinions of administrators may be subject to change since the opinions of each person are subject to change with changing conditions. Similarly, any redefinition of the role of the public junior college would necessitate a re-examination of the data upon which the findings of this study are based.

A STUDY OF SELECTED INSTITUTIONAL FACTORS
AND THEIR RELATIONSHIP TO BREADTH OF THE
COLLEGE TRANSFER CURRICULUM IN MISSOURI
PUBLIC JUNIOR COLLEGES

By

Richard L. Norris

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

College of Education

1968

ACKNOWLEDGMENTS

In the course of planning and executing a study of this type, many persons make contributions to the final results. It is difficult to recognize by name all those who have been of assistance to the writer, however, it is hoped that all those who have contributed to the successful completion of this study will understand that the writer is grateful for their contributions and genuinely appreciates their help.

The writer wishes to express his sincere appreciation to the chairman of his guidance committee, Dr. Max S. Smith, and to the guidance committee members, Dr. Max Raines, Dr. Jay Artis, and Dr. Lawrence Borosage for their inspiration, encouragement, and helpful criticism in the completion of this study and during the planning and progress of the entire program of studies.

The writer wishes to express a special thanks to the Office of Community College Cooperation at Michigan State University for lending its institutional support to the study, and to the Kellogg Foundation for sponsoring the writer during his academic pursuits at Michigan State University.

The writer is also greatly indebted to his fellow Kellogg Fellows for their associations and encouragements

during the program of studies, and especially to Ernest Dear and Robert Harris for their aid, advice, criticisms, and suggestions during the completion of this study.

A very special thanks is due the writer's wife, Peggy, and two children, Susan and Sandra, without whose understanding, support, and personal sacrifices the entire program of graduate studies and the writing of this study could not have been completed.

June, 1968

Richard L. Norris

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	ii
LIST OF TABLES	vii
LIST OF APPENDICES	xii
 Chapter	
I. INTRODUCTION	1
Statement of the Problem	1
Purpose of the Study.	1
Assumptions.	3
Need for the Study	3
Definition of Terms	7
Limitations of the Study	11
Overview of the Study	14
II. REVIEW OF LITERATURE.	16
Summary	33
III. DESIGN AND METHODOLOGY	34
Introduction	34
Sample	35
Source of Data	37
Instrumentation	38
Method of Analysis	40
Summary	43
IV. SURVEY AND ANALYSIS OF COLLEGE TRANSFER PROGRAMS	44
Introduction	44
Subject Areas Present in the Curriculums of All Institutions	47
Subject Areas Present in the Curriculums of More Than Seventy-Five Per Cent But Less Than One Hundred Per Cent of The Institutions	66
Subject Areas Present in the Curriculums of Fifty-One Through Seventy-Five Per Cent of The Institutions	79

Chapter	Page
Subject Areas Present in the Curriculums of Twenty-Six through Fifty Per Cent of the Institutions	87
Subject Areas Present in the Curriculums of Less than Twenty-Six Per Cent of the Institutions	96
Subject Areas Taught in Only One Institution	102
Summary	102
V. INVESTIGATION OF APPARENT RELATIONSHIPS BETWEEN INSTITUTION ENROLLMENT SIZE AND KIND, NUMBER, AND LEVEL OF SUBJECT AREAS TAUGHT, MEAN CLASS SIZE, AND PER CAPITA COST	106
Institution Enrollment Size and the Presence of Certain Subject Areas in the Curriculum	106
Institution Enrollment Size and Number of Subject Areas Taught	115
Institution Enrollment Size and Level at which Subject Areas were Taught	119
Institution Enrollment Size and Curriculum Breadth in Number of Semester Hours Taught.	122
Institution Enrollment Size and Mean Class Size	126
Per Capita Cost and Institution Enrollment Size, Semester Hours Taught, Subject Areas Taught, and Level Taught.	129
Summary	134
VI. AN ANALYSIS OF THE RESPONSES OF JUNIOR COLLEGE ADMINISTRATORS, FOUR-YEAR COLLEGE ADMINISTRATORS, AND STATE LEVEL ADMINIS- TRATORS TO QUESTIONS PERTAINING TO INSTITUTION SIZE, OPERATING COSTS, AND CURRICULUM BREADTH IN MISSOURI PUBLIC JUNIOR COLLEGES.	143
Introduction	143
Description of the Opinion Sample	144
Analysis of Opinions of Administrators Regarding Per Capita Operating Costs.	145
Analysis of Opinions of Administrators Regarding Minimum Projected Enrollment for Missouri Public Junior Colleges	153
Analysis of Opinions of Administrators Regarding Minimum College Transfer Program for Missouri Public Junior Colleges	157
Summary	166

Chapter	Page
VII. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS. .	171
Summary	171
The Purpose	171
Limitations	172
Related Literature.	172
Methodology	174
Findings	176
Conclusions.	181
Recommendations	183
Observations	184
Recommendations for Further Research . .	187
BIBLIOGRAPHY	190
APPENDICES.	195

LIST OF TABLES

Table		Page
1.	Minimum Junior College Enrollment Suggested or Required in the Regulations of Thirteen States	22
2.	Minimum Junior College Program as Suggested by Texas Junior College Administrators . . .	29
3.	Number and Per Cent of Institutions Teaching, Level Taught, in Subject Areas Present in the Curriculums of One Hundred Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	48
4.	Ranges and Means in Number of Semester Hours Taught in Subject Areas Present in the Curriculums of One Hundred Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	49
5.	Class Size Ranges and Means in Subject Areas Present in the Curriculums of One Hundred Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	50
6.	Number and Per Cent of Institutions Teaching, Level Taught, in Subject Areas Present in the Curriculums of More Than Seventy-Five Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	67
7.	Ranges and Means in Number of Semester Hours Taught in Subject Areas Present in the Curriculums of More Than Seventy-Five Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	69
8.	Class Size Ranges and Means in Subject Areas Present in the Curriculums of More Than Seventy-Five Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	70

Table		Page
9.	Number and Per Cent of Institutions Teaching, Level Taught, in Subject Areas Present in the Curriculums of Fifty-One through Seventy-Five Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	80
10.	Ranges and Means in Number of Semester Hours Taught in Subject Areas Present in the Curriculums of Fifty-One through Seventy- Five Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	81
11.	Class Size Ranges and Means in Subject Areas Present in the Curriculums of Fifty-One through Seventy-Five Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	83
12.	Number and Per Cent of Institutions Teaching, Level Taught, in Subject Areas Present in the Curriculums of Twenty-Six through Fifty Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	88
13.	Ranges and Means in Numbers of Semester Hours Taught in Subject Areas Present in the Curriculums of Twenty-Six through Fifty Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	89
14.	Class Size Ranges and Means in Subject Areas Present in the Curriculums of Twenty-Six through Fifty Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	90
15.	Number and Per Cent of Institutions Teaching, Level Taught, in Subject Areas Present in the Curriculums of Less than Twenty-Six Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	97
16.	Ranges and Means in Number of Semester Hours Taught in Subject Areas Present in the Curriculums of Less than Twenty-Six Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	99

Table		Page
17.	Class Size Ranges and Means in Subject Areas Present in the Curriculums of Less than Twenty-Six Per Cent of Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	100
18.	Distribution of Twenty-One Subject Areas Taught in Nine Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	107
19.	Mean Per Cent of Institutions in Three Enrollment Size Groups Teaching Subject Areas in Four Subject Area Groups, Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	110
20.	Mean Per Cent of Institutions in Four Enrollment Size Groups Teaching Subject Areas in Four Subject Area Groups, Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	112
21.	Basic Subject Areas Taught in Institutions in Three Enrollment Size Groups, Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	114
22.	Ranges and Means in Subject Areas Taught in Four Enrollment Size Groups, Fall and Spring Semesters, 1966-1967	117
23.	Number of Subject Areas Taught at Both the Freshman and Sophomore Levels in Missouri Public Junior Colleges, Fall and Spring, Semesters, 1966-1967	120
24.	Mean Number of Semester Hours Taught Per Institution in Four Institution Size Groups, Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	124
25.	Mean Class Size Per Institution in All Subject Areas and Mean Semester Hours Taught Per Institution in All Subject Areas by Institution Size Groups, Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967	128

Table	Page
26. Mean Per Capita Cost Per Institution, Mean Semester Hours Taught Per Institution, Mean Number of Subject Areas Taught Per Institution, and Mean Number of Subject Areas Taught at Both Freshman and Sophomore Levels for Four Institution Size Groups, Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967 . . .	132
27. Distribution of Questionnaires and Responses Received from Administrators of Higher Education, Missouri, November, 1967-January, 1968.	146
28. Minimum Per Capita Operating Level for Missouri Public Junior Colleges as Suggested by Twenty-Five Missouri Administrators . .	146
29. Desirable Per Capita Operating Level for Missouri Public Junior Colleges as Suggested by Twenty-Five Missouri Administrators . .	149
30. Opinions of Twenty-Three Administrators Regarding Proportion of Current Operating Costs for Missouri Public Junior Colleges to be Secured from State Funds	151
31. Opinions of Twenty-Three Administrators Regarding Proportions of Current Operating Costs for Missouri Public Junior Colleges to be Secured from Local Funds	151
32. Opinions of Twenty-Four Administrators Regarding Proportion of Current Operating Costs for Missouri Public Junior Colleges to be Secured from Student Tuition. . . .	153
33. Minimum Full-Time Equivalent Student Enrollment Required for Establishment of New Junior Colleges in Missouri as Suggested by Twenty-Three Missouri Administrators . .	154
34. Ranges and Means in Semester Hours for Eight Subject Areas Suggested by Missouri Administrators as Comprising a Minimum College Transfer Curriculum for Public Junior Colleges in That State.	159

Table	Page
35. Minimum Course Offerings for a College Transfer Curriculum for Missouri Public Junior Colleges as Suggested by Two Groups of Administrators Compared with Semester Hours Actually Taught in these Subject Areas in Selected Junior Colleges, Fall and Spring Semesters, 1966-1967.	164

LIST OF APPENDICES

Appendix	Page
A. Missouri Junior Colleges Included in This Study and Their Full-Time Equivalent Enrollment, Number of Subject Areas Taught, Number of Semester Hours Taught, and Mean Class Size, Fall and Spring Semesters, 1966-1967.	196
B. Subject Areas Ranked by Mean Number of Semester Hours Taught and Semester Hour Range Among Institutions Teaching	197
C. Subject Areas Ranked by Mean Class Size for All Colleges Combined and Mean Class Size Range Among Institutions Teaching. . .	198
D. Total Educational and General Expenditure, Enrollment in Full-Time Equivalent Students, and Per Capita Cost, Fall and Spring Semesters, 1966-1967	199
E. Portion of Total Enrollment Included in Each Subject Area Group Appearing in the Study, Missouri Public Junior Colleges, Fall and Spring Semesters, 1966-1967 . . .	200
F. Correlation Matrix Showing Correlations Among Six Factors Included in the Study . .	201
G. Questionnaire for Administrators in Missouri Higher Education Agencies	202
H. Semester Hours Suggested by 20 Administrators in Eight Subject Areas Comprising a Suggested Minimum College Transfer Program for Missouri Public Junior Colleges.	209
I. Correspondence to Administrators in Missouri Higher Education Agencies	210

CHAPTER I

INTRODUCTION

Statement of the Problem

This study is aimed at the investigation of the present status of offerings in the college transfer curricula in existing public junior colleges in Missouri as to breadth of subject area offerings and level of offerings. This study will also compare the present curricular offerings with the opinions of college administrators on a basic college transfer program. The findings from this study are compared to the opinions of college administrators on a minimum size for establishment of future public junior colleges in Missouri. It is hoped that this information will provide guidelines for future planning in the development of new public junior colleges in Missouri.

Purpose of the Study

It is the purpose of this study to make a survey and critical analysis of curriculum breadth in college transfer programs of the public junior colleges in Missouri. Special emphasis will be placed on exploration of the relationships between institution enrollment size and the breadth of the curriculum based on certain criteria of measurement. The study also includes an analysis and

comparison of the opinions of junior college administrators, four-year college administrators and administrators in the Junior College Division of the Missouri State Board of Education on questions pertaining to institution enrollment size and breadth of college transfer curricula. More specifically, this study is concerned with:

1. Institution enrollment size and number of subject areas actually taught.
2. Institution enrollment size and level of subject areas taught.
3. Institution enrollment size and curriculum breadth in number of subject semester hours taught in distinct courses.
4. Comparison of mean class size in all subject areas and institution enrollment size.
5. Comparison of mean class size and mean number of semester hours taught.
6. Comparison of mean class sizes by institution size groups and subject area groups.
7. Comparison of opinions expressed by junior college administrators regarding curricula and actual curriculum practices during the period encompassed by this study.
8. Comparison of the per capita cost of operating each junior college and the comprehensiveness of the programs being offered.

Assumptions

The major assumptions underlying the study are as follows:

1. Course offerings in the college transfer programs during the period encompassed by the study are representative of recent offerings; i.e., no major social or economic influences peculiar to this period caused the programs not to be representative.
2. There is a minimum of conflict between catalogue descriptions of the various courses taught and actual course content as presented in the classroom. (The validity of the various measures of curriculum breadth utilized in this study depend upon this assumption.)
3. The opinions expressed by administrators responsible for public junior college education, even though not supported by quantitative data, will reflect realistic economic and student population levels at which a public junior college can operate an effective program for those it serves.

Need for the Study

There exists a nationwide need for more community colleges to make available at the local level post high

school educational opportunities for more of our young people and to provide unique educational programs of specialized training to prepare youth and adults for jobs requiring highly specialized skills at a technical level.

Many states now recognize this need and are taking steps to provide for the establishment of comprehensive community colleges. However, the establishment of these institutions is no assurance that they will be able to fulfill those functions for which they were intended unless adequate criteria are established which will assure a financial and population base large enough to support the activities and programs of the college. If the population base is too small to provide enrollment in a substantial variety of course offerings or if the college district lacks an adequate tax base to support a comprehensive curriculum it may drain off financial resources of the state without providing a sound program for its students.

A major problem that arises in regard to establishment of new institutions is that of determining what should be the minimum potential enrollment size for the establishment of a comprehensive community college, and what enrollment size is necessary to provide the breadth of curriculum essential to meet the diverse needs of students in a rapidly changing technological society. The President's Committee on Education Beyond the High

School cautioned against the establishment of small, inefficient junior colleges that may fail to serve the purpose for which they were created. Their recommendation was:

Recognizing that community colleges are uniquely equipped to meet the particular needs of the individual community and to be responsive to the diverse interests of its citizens, the Committee recommends that communities anticipating substantial growth in student population consider the 2-year college as a possible solution of some of the problems of providing additional educational opportunities. However, the Committee also urges that this possibility be approached with caution. Careful planning is essential to ensure success for this kind of educational program. There are already many colleges too small to be economical. Community planning must be closely related to State and regional planning in order to avoid the possibility of developing still more small, uneconomic units. The errors that were made in developing too many small high schools should not be repeated in the development of community colleges. Any community college program should be financed in such fashion as not to weaken financial support of the community's elementary and secondary schools. Without sound planning, what might have become a major community asset may become a community disappointment.¹

Since the beginning of the junior college movement, much attention has been given to determining the role of the junior college in the nation and in various states. As the junior college comes to be recognized as an institution that is playing an increasingly important role in post secondary education in this country, the necessity for defining its role and coordinating its development

¹The President's Committee on Education Beyond the High School, Second Report to the President (Washington, D. C.: U. S. Government Printing Office, July, 1957), p. 72.

with that of other institutions has become paramount. The resources of few, if any, states are adequate to meet the increasing demands placed by its educational system without careful and continuous appraisal of the contribution of each segment of the educational system.

Recognition of the necessity for state-level attention to the development of the junior college and its coordination with other institutions has been evidenced by increasing interest of state legislatures in statewide studies and legislation affecting the junior college. In the 1960-61 biennium, forty-one states considered proposals pertaining to junior colleges, and thirty-five of these enacted laws in this area. An almost equal number of proposals were considered and laws enacted during each of the two preceding biennial periods.²

Knowledge concerning the present curricular offerings of the public junior colleges and possible relationships between institution enrollment size and various measures of curriculum breadth is one of the essentials for sound decisions regarding the role of the public junior colleges in meeting educational needs of the future. The problems of defining the role of the community junior college and the creation of minimum criteria for their establishment which will offer some assurance

²S. V. Martorana and James K. Palmer, "Legislation Affecting Junior Colleges," Junior College Journal, XXXII (February, 1962), pp. 316-330.

of the ability of the junior college to fulfill its role appear to be inseparable. For example, it does not seem likely that a junior college with fewer than 200 full-time equivalent students could be expected to provide curricula in all prebaccalaureate degree areas offered in a state's four-year colleges. If, however, the junior college were expected to provide only courses in general education, its enrollment might prove adequate. Therefore, it seems important for those responsible for determining future use of educational resources of the state to have some knowledge of what may be expected of the junior colleges under present operating conditions. It is hoped that the findings of this study will permit logical decisions in defining the role of the comprehensive junior college and the creation of minimum criteria for their establishment than would be possible without this information.

As shown in Chapter II of this report, no previous study has concentrated on a detailed analysis of curriculum breadth in public junior colleges in Missouri nor upon a possible relationship between institution enrollment size and curriculum breadth.

Definition of Terms

The definitions which follow are intended to clarify the meaning of certain terms as they are used in this study:

Occupational Programs: Used to denote ". . . all organized junior college programs of study, of whatever length, that combine appropriate proportions of technical, manipulative, general, and elective courses to prepare the student for employment upon the successful completion of the course."³ Used synonymously with technical-vocational programs in this study.

College Transfer Program: The composite of all courses approved for transfer credit to public four-year colleges and universities within the State of Missouri by The University of Missouri Accreditation Committee.

Institution Enrollment Size: Institution size as measured by the number of full-time student equivalents enrolled in the fall and spring semesters of the academic year 1966-1967.

Full-Time Student Equivalent: The sum of all students enrolled for twenty-four or more semester hours of credit during the fall and spring semesters, 1966-1967, plus the total number of semester hours credit carried by students enrolled for less than twenty-four semester hours credit during the academic year divided by twenty-four. (This formula is used by the Missouri Commission on Higher Education to compute full-time student equivalents and yields an FTE number comparable to that for State colleges and universities in Missouri.)

³Thornton, James W., The Community Junior College (New York: John Wiley and Sons, Inc., 1966), p. 180.

Semester Hour Credit: One semester hour of college credit is equivalent to sixty minutes of classroom time each week for one semester (eighteen weeks). This is a uniform measure among all public junior colleges, state colleges, and universities in Missouri.

Curriculum Breadth: For purposes of this study, curriculum breadth is measured by (1) the number of subject areas taught in the college transfer curriculum, (2) the number of subject areas taught at both the freshman and sophomore levels in the college transfer curriculum, and (3) the number of subject semester hours taught in distinct courses in the college transfer curriculum.

Level of Offering: For purposes of this study, the level at which a course is taught refers to the classification of the course as either a freshman level course or a sophomore level course as determined by the institution offering the course.

Subject Area: Used to denote subject matter groups, such as business administration, sociology, mathematics, English, Spanish, etc.

Distinct Courses: Refers to specific courses taught within a subject area, for example, English Composition, American Literature, and English Literature are distinct courses which would be grouped under the subject area--English.

Subject Semester Hours: Refers to the number of semester hours of credit taught in distinct courses within a subject area.

Per Capita Cost: The total operational expenditure of a public junior college divided by the number of full-time equivalent students. This figure represents the cost of operation of the institution for each FTE student, exclusive of capital outlay costs.

Semester Hours Taught: The semester hour value of distinct courses actually taught during the period encompassed by this study.

Mean Class Size: The sum of students enrolled in a course divided by the number of sections used to determine that sum. On an institution-wide basis, the sum of the students enrolled in all courses divided by the number of courses used to determine the sum.

Junior College: An educational institution providing, primarily for all persons above the twelfth grade age level and primarily for those within commuting distance, collegiate and non-collegiate level education including area vocational education programs which may result in the granting of diplomas and certificates including those known as associate degrees but not including baccalaureate or higher degrees. Used synonymously with community college in this study.

Limitations of the Study

This study was confined to the public junior colleges in Missouri which were in operation for two years or longer at the time of the study and to the college transfer program in each institution. Restricting the study to the public junior colleges in Missouri has eliminated several uncontrollable factors which may have been present had institutions in other states been included. Colvert⁴ in a study of official external influences on the curriculums of public junior colleges found considerable variation among the states in the kind and extent of such influences. Types of organization and control of junior colleges, including state laws, regulations pertaining to the curriculum, and source and basis of financial support are among these influences. It was assumed that the factors listed above probably would have enough unmeasurable effect on curriculum practices in the institutions involved that the value of this study would have been substantially decreased had junior colleges in other states been included.

Private junior colleges in the state were excluded for reasons similar to those given above. In Missouri, as in many other states, the private junior colleges receive their financial support primarily from private sources. In most cases the role of these institutions

⁴C. C. Colvert, "A Study of Official External Influences on the Curriculums of Public Junior Colleges," Junior College Journal (December, 1960), 31:210-213.

differ from those of public junior colleges which would cause a different emphasis in programs of instruction offered. Boze,⁵ in a study of public junior colleges in Texas, reported that the curricular offerings of public and private institutions differ due to a contrast in functions of these institutions. Private junior colleges are also relatively free of state controls and influences. Therefore, it was decided that the characteristics of private junior colleges prohibited their comparison with public junior colleges in a study of this nature.

There were several reasons for restricting the study to the college transfer programs in the public junior colleges. All of the public junior colleges in Missouri offer a college transfer program, while there is a wide variation in the type and extent of other programs offered. It is in the area outside the college transfer program that the greatest diversity among junior colleges occur, for it is in these areas that junior colleges are most sensitive to the diverse needs peculiar to their localities. The college transfer program, by definition, is intended to satisfy the needs of students who plan to transfer from the junior college to four-year institutions to complete their undergraduate studies. While the needs of local junior college students may vary slightly among different

⁵Floyd D. Boze, "Criteria for the Establishment of Public Junior Colleges in Texas," (unpublished Doctoral dissertation, The University of Tennessee, Knoxville, 1955), p. 49.

sections of the state, it may be assumed that their needs are fairly uniform and that transfer programs in junior colleges should be as broad as circumstances permit. Since the purpose of college transfer programs is common to all public junior colleges in the state this allowed an appraisal of these programs on a comparative, statewide basis.

This study included nine of the ten existing public junior colleges in operation in Missouri at the time of the study. A list of the institutions included appears in Appendix A of this report. The one institution not included in this study had been in operation less than one year and was excluded to avoid the possibility that data from an institution in the developmental stage would decrease the validity of the findings.

That portion of the study concerned with the analysis of the opinions of college administrators is limited in several ways. The present findings depend upon the perceptions of the respondents during the period from November, 1967 through January, 1968. Since the opinions of each person are subject to change with changing conditions, the opinions reported may not remain consistent with future opinions. The limitations inherent in a structured instrument in securing data are recognized in the present study. This study is limited to the accuracy of interpretation by each respondent because of the

semantic difficulties which occur in the interpretation of words by different respondents.

Overview of the Study

The present chapter has dealt with a description of the research problem, the establishment of need for conducting the study, definition of terms and limitations of the study.

Chapter II contains a review of the literature and research findings related to this study.

Chapter III presents the planning and conducting of the study. This includes the methodology in the construction and distribution of instruments and in the collection of the data, and the procedures used in the analysis of the data.

Chapter IV presents the findings of the survey and analysis of subject areas present in the curriculums of the nine junior colleges included in this study.

Chapter V presents the results of various statistical analyses of the apparent relationships mentioned in Chapter IV between institution size and (1) number and percent of institutions in which each subject area was taught, (2) levels at which each subject area was taught, (3) number of semester hours taught in distinct courses in each subject area, and (4) mean class size in each subject area.

Chapter VI presents the data and analyzes the findings of the questionnaires completed by junior college administrators, four-year college administrators, and administrators in the Missouri State Department of Education. Also, the findings of the opinions expressed on these questionnaires are compared with the findings from Chapters IV and V.

Chapter VII summarizes the findings, draws conclusions, makes recommendations, and suggests desirable directions for future research on this topic.

CHAPTER II

REVIEW OF LITERATURE

A comprehensive survey of the literature in the junior college field revealed no similar study specifically concerned with an analysis of curriculum breadth in junior colleges in Missouri and the possible relationships between curriculum breadth and institution enrollment size.

The survey did reveal two studies of curriculum analysis in the junior college field. The first of these, a study conducted by Ball in 1963, was concerned with an analysis of college transfer programs in Texas public junior colleges.¹ Ball examined the subject areas taught during the long session (the fall and spring semesters) in the college transfer programs of twenty-eight of the thirty-three public junior colleges in operation in Texas in the 1961-62 school year. The measures of curriculum breadth used by Ball were (1) the kind and number of subject areas taught, (2) the levels at which each subject

¹Wilbur A. Ball, "A Critical Analysis of Curriculum Breadth in Texas Public Junior Colleges," (unpublished Doctoral dissertation, The University of Texas, Austin, 1963).

area was taught, and (3) the number of semester hours taught in distinct courses in each subject area.²

Following an analysis of individual subject areas, Ball attempted to determine whether apparent relationships existed between the above measures of curriculum breadth and institution enrollment size. Using simple linear correlation analysis, Ball found a correlation of .7676 between institution enrollment size and total number of subject areas taught.³ This positive correlation was interpreted as indication of a close positive relationship, the meaningfulness of which was strengthened by the fact that nearly the entire population of junior colleges was included in the analysis. The number of subject semester hours taught in distinct courses was another measure of curriculum breadth compared to institution enrollment size by Ball. Analysis of the data revealed a correlation of .8726 between institution enrollment size and total number of subject semester hours taught, which was taken by Ball as an indication of a close positive relationship.⁴

As a result of his study Ball concluded that certain subject areas of the transfer curriculum tended to be included in the curriculum regardless of institution enrollment size, and that certain other subject areas

²Ibid., p. 9.

³Ibid., p. 163.

⁴Ibid., p. 165.

tended to be added as enrollment increased. He further concluded that although certain subject areas tended to be added to the college transfer curriculum as enrollment increased, the addition of these subject areas appeared to occur almost entirely within the 500 to 970 full-time equated institution enrollment range.⁵ On the basis of his findings Ball recommended:

. . . that an enrollment of at least 500 full-time student equivalents in the college transfer programs be required for the establishment of public junior colleges in Texas, and that this requirement be higher in proportion to the extent that other types of programs are to be offered.⁶

A second study relating to analysis of the junior college curriculum was conducted by Gordon in 1957.⁷ The purpose of this study was to obtain information descriptive of the curricula offered in the ten public junior colleges in Washington. Gordon made an appraisal of the curricula by applying fourteen criteria selected from an extensive review of junior college literature. Data from each of the ten junior colleges relevant to the fourteen criteria were obtained during personal interviews with administrative personnel and from the enrollment records of the colleges for the 1955-56 school year.

⁵Ibid., pp. 161-167.

⁶Ibid., p. 168.

⁷Shirley B. Gordon, "An Appraisal of Certain Aspects of the Curricula of the Community-Junior Colleges in Washington" (unpublished Doctoral dissertation, State College of Washington, Pullman, 1957).

Based upon the findings and the analysis of the data, Gordon concluded that the junior colleges in Washington were fulfilling functions related primarily to the kinds of courses and curricula which should, according to authorities, be available. Gordon found that the six functions mentioned by the majority of the authorities were being fulfilled by the junior colleges in Washington. These functions related to six aspects of the curricula, four of which were mentioned repeatedly in the literature as the four basic functions of junior colleges. These four functions related to adult, terminal, transfer, and general education.⁸

The guidance function, also mentioned by a majority of the authorities, was being fulfilled by the junior colleges. The community service function of the junior colleges, the sixth function mentioned by a majority of the authorities, seemed also to be a definite part of the program in each of the junior colleges, and Gordon's findings indicated that this phase of the program was being studied and expanded.⁹

Gordon found that the ten junior colleges in Washington were not planning and carrying out their programs with the help of the local community nor were they evaluating the programs offered.¹⁰

⁸Ibid., p. 120.

⁹Ibid., p. 120.

¹⁰Ibid., p. 121.

Although Gordon did attempt to establish the comprehensiveness of the curriculum in Washington public junior colleges, her study did not attempt to determine the breadth of curricular offerings in each area nor did it attempt to investigate the possibility of relationships between institution enrollment size, per capita operating costs and curriculum breadth.

In addition to the two studies mentioned above, there is also some literature which is only indirectly related to this study, but does have important implications for this study. This literature is in the general area of criteria for the establishment and operation of public junior colleges. Since enrollment size was one of the important criteria involved, and since a relationship between enrollment size and curriculum breadth had been suggested in several sources, the literature on criteria was examined.

In 1960 Morrison and Martorana¹¹ published the results of a national survey on criteria for the establishment and operation of two-year colleges. The survey included criteria found in state statutes and regulations, in statewide studies published between 1946 and 1959, and in the professional opinions of administrators in the community-junior college field.

¹¹D. G. Morrison and S. V. Martorana, Criteria for the Establishment of 2-Year Colleges (Washington, D. C.: U. S. Government Printing Office, 1960).

Morrison and Martorana found in their survey of criteria in state statutes and regulations that in no state was junior college enrollment, as such, indicated as a criterion for the establishment of junior colleges. However, the statutes of six states include school population in the district as a criterion. In five states, total population of the district was specified, and in three others high school average daily attendance in the service area of the college was considered a criterion.¹² Of the thirty-two states with general statutory provisions for the establishment of junior colleges, nineteen had regulatory criteria in 1959, and in thirteen of these, potential enrollment was considered a necessary criterion.¹³ The thirteen states and a summary statement of their provisions appear in Table 1. In 1961 Arizona amended its regulations relating to requirements for the organization of junior college districts to add that a minimum potential of 320 full-time equivalent students be required for proposed new districts, and in the same year Colorado added the requirement that a proposed new junior college district in that state must have a twelfth-grade school population of 400.¹⁴

¹²Ibid., p. 19.

¹³Ibid., p. 19.

¹⁴S. V. Martorana and James K. Palmer, "Recent State Legislation Affecting Junior Colleges," Junior College Journal (February, 1962), 32:316-330.

TABLE 1.--Minimum junior college enrollment suggested or required in the regulations of thirteen states.

State	Enrollment Required or Suggested
California	Sufficient to justify establishment; 400 suggested.
Colorado	Sufficient to justify establishment; 300 suggested.
Florida	400 full-time students for Priorities One and Two districts; 200 for Priority Three districts.
Georgia	200 full-time equivalent students first year, 300 second year, 350 third year.
Illinois	200 students first full year of operation.
Maryland	No specific enrollment.
Minnesota	50 students first year, 150 students in fourth year.
Mississippi	200 students for minimum program; 400 for a diversified program.
New York	500 potential full-time students in any given year living within a 25 mile com- muting distance.
North Carolina	300 students beginning enrollment; 600 students long term projection.
Oklahoma	25 students for one-year program; 40 students for a two-year program.
Texas	200 full-time equivalent students by beginning of second year.
Washington	100 students enrolled.

Source: D. G. Morrison and S. V. Martorana, Criteria for the Establishment of 2-Year Colleges (Washington, D. C.: U. S. Government Printing Office, 1960), p. 19.

The survey of professional opinion conducted by Morrison and Martorana included college executives, state directors and other persons with experience in administration, supervision and advisement in two-year colleges. The survey showed a wide difference of opinion among the respondents. Over 75 per cent of those respondents who indicated a specific enrollment figure recommended a minimum potential enrollment of between 200 and 600 full-time equivalent students, with slightly more preference being given for the 400-599 interval. The remainder of the college executives recommended potential enrollments between 600 and 2,000 or more full-time equivalent students. Approximately 66 per cent of the state directors responding to the questionnaire recommended 200 to 599 students as a minimum enrollment figure with twice as many favoring the 200 to 399 interval over the 400 to 599 interval. Of all the respondents stating preferences, 80 per cent recommended potential enrollments of between 200 and 599, with a slight preference for the 400-599 interval. Sixteen per cent recommended an enrollment of 600 or more, and 4 per cent felt that an enrollment of less than 200 was adequate.¹⁵

In their review of criteria stated in reports of twenty-eight statewide studies published between 1946 and 1959, Morrison and Martorana found that the criterion

¹⁵Morrison and Martorana, op. cit., p. 34.

most often mentioned was minimum enrollment or minimum potential enrollment. The authors felt that the frequency of appearance of this criterion was not surprising in view of the amount of criticism received by the ineffective, inadequate, and uneconomical operation of two-year colleges with very small enrollments. The range of enrollment sizes recommended in twenty-one of the twenty-eight statewide studies was from 175 in one state to 400 in three states. The median was between 300 and 320 and the arithmetic mean was 300. The authors noted that the recommendations from the statewide studies were nearly identical to those resulting from the opinions of administrators in the junior college field.¹⁶

The conclusions of Morrison and Martorana, based upon all facets of their survey, were that relatively few sources recommended a two-year college of less than 200 students; that the 200-400 range of enrollment for a beginning college was the one most frequently found; and that a potential enrollment of 400 full-time students at the end of five years appeared to be necessary to provide adequate breadth of program for a junior college.¹⁷

In a study conducted in 1952 Eberle attempted to establish a satisfactory student body size necessary to allow a junior college to operate at a reasonable cost

¹⁶Ibid., pp. 52-53.

¹⁷Ibid., p. 61.

per student and provide a program of adequate breadth.¹⁸ The population for the study consisted of 227 junior colleges ranging in enrollment size from below 100 to above 2,000. Eberle determined that the average cost of operation for the colleges involved was 350 dollars per student and that in the average college approximately 8.8 per cent of the total cost of operation was spent for administrative salaries.¹⁹ He found that the total cost for a minimum administrative staff necessary for the operation of a community college in 1950 including secretarial staff was forty-five thousand dollars.²⁰

Based on the per cent that administrative costs are of the average total cost of operating a community college, Eberle concluded that the optimum full-time equivalent student enrollment necessary to justify an administrative staff considered necessary for the adequate performance of the functions characteristic of a satisfactory community college was 1,500 full-time equivalent students, and the minimum size was 1,000.²¹ He observed that the low student-faculty ratios found in institutions with fewer than 200

¹⁸August W. Eberle, "Size of Satisfactory Junior Colleges" (unpublished Doctoral dissertation, The University of Wisconsin, Madison, 1952).

¹⁹Ibid., p. 146.

²⁰Ibid., p. 141.

²¹Ibid., p. 146.

students indicated a high per student cost for a meager program.²² Another conclusion drawn by Eberle was that public junior colleges enrolling more than 500 full-time students tended to meet the needs of their students more adequately than did smaller institutions.²³ Eberle added that there were many areas in the United States which were so sparsely populated that it was impossible for them to be served adequately by community colleges.²⁴

McClain in a study conducted in Missouri in 1961 concluded on the basis of state plans in existence at that time and the opinions of experts concerned with criteria for the establishment of public junior colleges that a minimum anticipated enrollment for a junior college should be 400 full-time day students.²⁵ However, a report published in the same state in 1966 by the Missouri Commission on Higher Education²⁶ recommended a minimum potential enrollment of 750 full-time equivalent students within four years as one of the criteria for the establishment

²²Ibid., p. 16.

²³Ibid., p. 19.

²⁴Ibid., p. 169.

²⁵James C. McClain, "Criteria for the Establishment of Public Junior Colleges in the State of Missouri" (unpublished Doctoral dissertation, University of Missouri, Columbia, 1961).

²⁶Missouri Commission on Higher Education, First Coordinated Plan for Missouri Higher Education (Jefferson City, Missouri: Missouri Commission on Higher Education, 1966), p. 11.

of new comprehensive community colleges in that state. Unfortunately, the information upon which this recommendation was based is not given in the report.

In 1961, L. V. Good, an official of the Colorado State Department of Education concerned with junior colleges told a meeting of similar officials from other states that the minimum size of a junior college depended on the type of program which it offers. He suggested that a two-year college with "a very restricted Liberal Arts program and in association with a good high school: might operate satisfactorily with fewer than 100 students, while at the other extreme an independent community junior college "offering every transfer program commonly known and every terminal program in technical and vocational fields" would be difficult to justify with fewer than 1,000 students. He suggested that a junior college should be large enough to "offer well a minimum of four or five university parallel transfer programs and a reasonable list of technical-vocational programs in keeping with the needs of its local area." For such an institution he recommended a minimum enrollment of 300 students, and, optimally, 400 students.²⁷

²⁷ LeRoy V. Good, "State Criteria for the Establishment of 2-Year Colleges," Proceedings of the State Directors of Junior Colleges and Coordinators of State Systems of 2-Year Colleges, October 18-19, 1961 (Washington, D. C.: U. S. Department of Health, Education and Welfare, OE-57003), p. 5.

In keeping with Mr. Good's thesis that the minimum number of students which an institution should enroll is dependent upon the program which that institution attempts to offer, the staff of the Texas Research League, a privately supported, non-profit, educational corporation engaged in objective research into the operations, programs and problems of Texas government, devised a questionnaire in an attempt to determine what junior college administrators in Texas regarded as a minimum program for a junior college.²⁸ The questionnaire specified that the hypothetical college was not expected to offer much beyond basic college transfer work and virtually nothing in the area of technical-vocational work. Each respondent was then asked to agree or disagree with suggested course offerings by scratching out those offerings considered superfluous and adding in those not included which were considered essential. The respondents were then requested to assign a suggested semester hour credit to each proposed course and to designate whether it was primarily a freshman or sophomore level course. A summary of the twenty responses received to ten subject matter areas is given in Table 2.

The League then used this suggested minimum curriculum to determine the smallest number of students that

²⁸Texas Research League, The State Board and the Local Junior College (Austin, Texas: The Texas Research League, 1964).

TABLE 2.--Minimum junior college program as suggested by
Texas junior college administrators.

Subject Area	Semester Hour Offerings
Business Administration	Range from 20 to 50 semester hours credit; 65% suggested 27 to 32.
English	85% suggested 12 semester hours.
Mathematics	Range from 9 to 21 semester hours; 70% favoring 15 to 18 hours.
Natural Science	Range from 16 to 70 semester hours; median 40 semester hours.
Foreign Language	Range from 6 to 32 semester hours; 80% favoring 12 to 14 hours.
Social Studies	Range 20 to 30 semester hours.
Art	Only 50% of respondents felt it necessary to include art. Range from 3 to 12 semester hours.
Music	Fifty-five per cent felt music should be included. Range from 3 to 19 semester hours.
Physical Education	Sixty-five per cent felt physical education should be included. Range from 3 to 19 semester hours.
Industrial Arts	Thirty-five per cent suggested course offerings in this area. Range from 3 to 21 semester hours.

Source: Texas Research League, The State Board and the
Local Junior College (Austin, Texas: The Texas
Research League, 1964), pp. 23-24.

should be enrolled in order to justify such an offering. The League centered its attention upon the sophomore offerings as being the key to minimum enrollment, operating on the assumption that the enrollment of the college should be large enough to justify the offering of essential sophomore-level courses.

While many courses can be offered at both the freshman and sophomore levels, the League was able to identify six courses (organic chemistry, calculus, advanced physics, economics, accounting and advanced foreign language) which virtually all Texas administrators contacted believed to be primarily sophomore work. This list was reduced to four in number by recognizing that pre-engineering students would take both advanced physics and calculus, while business administration majors would take both economics and accounting.²⁹

It was the opinion of the League's researchers that 15 students per class would be a reasonable average to adhere to for these sophomore courses. Using an average of 15 students per class indicates that the minimum sophomore class would have a total of 60 students. Since those enrolled as sophomores were approximately 24 per cent of all those enrolled in Texas junior colleges in 1963, the League concluded that this would indicate a

²⁹Ibid., p. 26.

minimum enrollment of 250 students for new Texas junior colleges.³⁰

One of the problems with the "minimum" program approach is that it fails to take into account the fact that it is not usually possible to hire teachers who are qualified to teach in several different subject areas. As one begins to think in terms of the teachers actually needed to cover the "essential" course offerings, he is inevitably driven to the conclusion that it will be possible to go beyond the minimum program with no real increase in cost.

Williams reported the result of a survey of opinions of one hundred and nineteen junior college administrators on questions relating to criteria to be followed in creating junior college districts.³¹ Three of the twenty-one criteria drawn from this survey have implications for this study. Williams concluded as a result of his survey that most junior college administrators responding to the questionnaire believed that:

1. The minimum population of a junior college district should be 40,000.
2. The minimum number of post-secondary 18 to 20 year-old potential students in the district should be 1,000.

³⁰Ibid., p. 27.

³¹Glenn D. Williams, "Toward More Effective Junior College Districts," Junior College Journal (March, 1961), 31:305-307.

3. The minimum total school population in the ninth through twelfth grades of the proposed junior college district should be 2,000.³²

In a study conducted in Michigan in 1957, S. V. Martorana concluded that in order to arrive at a base figure of population necessary to support a public junior college ". . . it is necessary to work back from another criterion, namely the number of persons that a post-high-school education program ought to enroll to maintain economy and efficiency of operation and a curriculum of at least minimum scope."³³ He observed that investigations of the minimum enrollment needed to support a defensible post-secondary program of the type usually found in junior colleges differed considerably in their conclusions, however, he concluded that the figure most frequently agreed upon at that time, on the basis of experience, was a full-time equivalent enrollment of 200 students.³⁴

³²Ibid., pp. 305-306.

³³S. V. Martorana, The Community College in Michigan, Staff Study No. 1. The Survey of Higher Education in Michigan (Lansing: Michigan Legislative Study Committee on Higher Education, 1957), p. 96.

³⁴Ibid., p. 96.

Summary

The literature dealing with criteria for the establishment and operation of public junior colleges revealed that enrollment size had been considered an important criterion. In few sources was an enrollment size of less than 200 recommended. Early studies and statements of authorities indicated a smaller enrollment than did the more recent sources. Although the functions of the junior college have seldom been specified along with a recommended enrollment size, the 200-400 range was the most commonly recommended. In the instances in which a junior college with a variety of functions was specified, enrollment size of 400 or above has usually be recommended.

It is readily apparent in the literature cited above that there is a wide range in the recommended enrollment size for the establishment of junior colleges. This may be an indication that enrollment requirements for adequate maintenance of programs vary from region to region or from state to state and also, that optimum enrollment sizes change over a period of time as the expected roles of the institution are redefined. For these reasons it may be that optimum enrollment sizes for newly established junior colleges will have to be determined by studies conducted within each respective area and be periodically replicated to determine if changing conditions call for a change in criteria.

CHAPTER III

DESIGN AND METHODOLOGY

Introduction

The main purpose of this study was to make a survey and critical analysis of curriculum breadth in the college transfer programs of the public junior colleges in Missouri, with special emphasis on exploring possible relationships between institution enrollment size¹ and various measures of curriculum breadth. The findings from this analysis were then compared with the opinions of three groups of Missouri administrators to determine if there was a difference between administrative opinion and actual practice. One group consisted of junior college administrators from the ten operating public junior colleges in Missouri. A second group was made up of four-year college administrators in Missouri, and the third group was composed of those administrators who were concerned with higher education on a state-wide basis in Missouri.

Justification of the study was based on the premise that in order for rational decisions to be made regarding the role of the public junior colleges in meeting higher

¹Throughout this study the measure of institution size was the number of full-time student equivalents enrolled during the fall and spring semesters, 1966-1967.

education needs of the future, it is necessary to have knowledge of present curricular practices and any apparent relationships between institution enrollment size and curriculum breadth. It is also necessary to have knowledge of the differences which exist between present curricular practices and the opinions of educational leaders within the state. A review of related literature revealed that no previous study had been concentrated upon a detailed analysis of curriculum breadth in Missouri public junior colleges nor upon a possible relationship between enrollment size and curriculum breadth in these institutions.

Sample

The study was confined to the public junior colleges of Missouri and to the college transfer program of each institution. Other types of junior colleges and public junior colleges in other states were excluded due to the likelihood that unmeasurable variations in kind and extent of influences on curriculums of these colleges would have seriously reduced the value of the study. Restricting the study to the college transfer programs of the junior colleges included was desirable because of the prominent role of the college transfer program in all colleges, and because of extreme variations among the colleges in the extent of other types of programs offered. This study included nine of the ten Missouri public junior colleges

in operation during the period encompassed by the study. The one institution which was excluded was still in the formative stage.

The sample of administrators who were asked to complete a questionnaire included the Presidents of the eight single campus junior colleges in Missouri and seven Deans of Instruction from these institutions, along with the five Campus Directors from the two multi-campus junior colleges in Missouri. Also included in the questionnaire sample were seven administrators from the five state colleges and the University of Missouri, plus three state level administrators directly concerned with higher education in Missouri. The primary purpose in selecting these three groups was to determine whether there were identifiable differences between actual curriculum practices, as measured by this study, and the opinions held by key administrators in the higher education enterprise in Missouri. A second purpose for selecting these three groups was to determine whether there were identifiable differences of opinion among these groups on questions relating to this study, and conversely, to determine if there was agreement among the three groups on questions relating to this study.

As was indicated above, a total of 30 administrators were asked to complete a questionnaire in connection with this study. A total of 25 responses were received, representing 83.3 per cent of the requests. By groups, this

included 17 out of 20 (85.0%) of the junior college administrators, 5 out of 7 (71.4%) of the four-year college administrators, and 3 out of 3 (100.0%) of the state level administrators. However, some respondents did not reply to all parts of the questionnaire and this resulted in a smaller total number in the analysis of some items of the questionnaire, as is indicated in Chapter VI of this study.

Source of Data

Data on the courses taught in the public junior colleges were made available by the Junior College Division of the Missouri State Board of Education. The immediate source of data was Missouri State Board of Education Form FJC/lb (Annual Report of Administrative Officer to the State Board of Education for Junior College Administrators and Junior College Instructors), which had been completed by each institution for each class section taught in each of the semesters included in this study. Since the study was restricted to the college transfer curriculums of the public junior colleges and since courses in the junior colleges were approved for transfer credit by the University of Missouri as required by law in that state, the courses included in this study were those approved by the University of Missouri and listed by junior college in Colleges, Junior Colleges and Non-Public High Schools

Accredited by the University of Missouri for 1964-65,²
 which was the most current listing of approved transfer
 courses available for all Missouri public junior colleges.
 The author was careful to compare the courses taught among
 the institutions and to classify similar courses under a
 common subject area designation. In the process of gather-
 ing data, the description of each course in the official
 catalogues of the institutions was examined to assure
 accurate classification.

Instrumentation

After determining those factors to be used in
 analyzing the data collected from the Missouri State Board
 of Education, a preliminary draft of the questionnaire to
 be used in obtaining the opinions of college administra-
 tors on these topics was developed. Those factors,
 relevant to this study, upon which the writer desired to
 obtain the opinions of administrators in Missouri were:

- A. A minimum per capita operating level for
 public junior colleges in Missouri.
- B. An optimum (desirable) per capita operating
 level for public junior colleges in Missouri.
- C. Sources from which operating costs should
 be derived, and the proportion of the

²Committee on Accredited Schools and Colleges,
Colleges, Junior Colleges and Non-Public High Schools
Accredited by the University of Missouri for 1964-65
 (Columbia: The University of Missouri Bulletin), Vol.
 66, No. 20, pp. 8-42.

operating costs which should be derived from each source.

- D. The minimum full-time equivalent enrollment size desirable for establishment of a new public junior college in Missouri.
- E. A desirable minimum college transfer program for new public junior colleges in Missouri.

After considerable editing and revising of items pertinent to the above topics, the preliminary draft of the questionnaire was shown to a member of the Division of Institutional Research at Michigan State University and he was asked to make suggestions that might clarify and improve the instrument. Several items were either discarded or revised to facilitate explicit and valid responses. A revised copy of the questionnaire was then submitted to the chairman of the writer's doctoral guidance committee for his suggestions and evaluation. These suggestions were incorporated into the questionnaire and the instrument was then printed.

Since the questionnaire was personally delivered to each administrator and all items were explained to the person who was to respond to the questions, it was decided that a pilot study for the purpose of detecting words or phrases which might have resulted in inconsistent responses was not necessary.

During visits to each junior college and state four-year college campus and during visits to the two state agencies responsible for higher education in Missouri, copies of the questionnaire (see Appendix G) were given to thirty administrators. The purpose of the questionnaire was explained and each administrator was asked to return the questionnaire in a stamped, addressed envelope provided for that purpose. Two weeks after each administrator had received his copy of the questionnaire, those individuals who had not responded were sent a follow-up letter similar to that shown in Appendix I. A second copy of the questionnaire and a stamped, addressed envelope were also included in the package with the follow-up letter.

Method of Analysis

The tangible data collected were tabulated and because of the relatively small number of variables involved, they were analyzed by hand with the aid of a desk calculator.

To determine the breadth of the college transfer programs in the junior colleges, a survey was made of the courses approved by the University of Missouri Accreditation Committee and actually taught in each junior college in the fall and spring semesters of the 1966-1967 school year. In addition to the identification of the subject areas taught in each institution, an analysis was made in terms of (1) the number and per cent of institutions in

which each subject area was taught, (2) the level at which each subject area was taught, and (3) the number of subject semester hours taught in distinct courses in each subject area. Also, the mean class size for each institution in each subject area was determined. In conjunction with this analysis, the colleges were divided into three groups according to enrollment size in full-time equivalent students, and the data for the three groups were compared to determine whether institution enrollment size and each of the four factors involved appeared to be related in each subject area.

Following the analysis of individual subject areas, an investigation was made to determine whether any apparent relationship existed between institution enrollment size in full-time student equivalents and (1) kind of subject areas taught, (2) total number of subject areas taught, (3) level at which subject areas were taught, and (4) total number of subject semester hours taught in distinct courses in all subject areas. Also, an investigation was made to determine whether any apparent relationship existed between per capita cost in each junior college and (1) institution enrollment size, (2) total number of subject semester hours taught, (3) number of subject areas taught, and (4) the level at which subject areas were taught. It was thought that the analysis of the latter set of factors mentioned above might serve to clarify and explain the

findings from the analysis of the first set of factors. Except in the cases of kind of subject areas taught and level at which subject areas were taught, it was possible to determine closeness of relationship between the factors involved by use of the Spearman Rank Order Correlation Coefficient Test. After the coefficients of correlation were obtained, closer examination was made to determine whether any relationships among the various factors appeared to be closer in some enrollemnt size ranges than in others. The division of institutions into groups to accomplish this purpose precluded further use of linear correlation analysis because of the relatively small numbers of institutions involved. Instead, arithmetic means for each factor in each group of colleges were compared.

In analyzing the responses of the administrators on the returned questionnaires, the following calculations were made for each of the three groups of administrators for each item on the questionnaire:

1. The observed frequency.
2. The mean response.
3. The percentage that each group of responses was of the total.

Each item was analyzed using the total number of responses for all three groups, then the item was investigated to determine if there were identifiable differences or similarities in responses among the three groups of

administrators. The findings from this analysis were then compared to the findings from the data on subject areas taught, semester hours taught, level at which subject areas were taught, and per capita cost to determine whether there were differences or similarities between the sets of findings.

All of the personal data available from each questionnaire were not used in the present study but may be useful in future analysis of these data.

Summary

In the present chapter, the general methods used in this study have been presented. This chapter is concerned with the composition of the sample, the source of data, the development of the data gathering instrument, and the procedures used in the analysis of the data.

Chapter IV presents the survey and analysis of the college transfer programs of the Missouri public junior colleges.

CHAPTER IV

SURVEY AND ANALYSIS OF COLLEGE
TRANSFER PROGRAMS

Introduction

This chapter is devoted to a survey of the individual subject areas present in the curriculums of the nine public junior colleges included in this study. In addition to the identification of each subject area taught, an analysis of curriculum breadth was made in terms of (1) number and percent of institutions in which each subject area was taught, (2) the levels at which each subject area was taught, (3) the number of semester hours taught in distinct courses in each subject area, and (4) mean class size in each subject area.

Along with the analysis mentioned in the preceeding paragraph, an attempt was made to determine whether any apparent relationship existed between institution enrollment size¹ and each of the four measures of curriculum breadth mentioned above. A more intensive analysis of the apparent relationships is presented in the following chapters of this report. For the purpose of the analysis

¹Throughout this study enrollment size was measured by the mean number of full-time equivalent students enrolled in each institution during the fall and spring semesters of the 1966-67 academic year.

in this chapter the nine institutions were divided into three relatively broad groups according to institution enrollment size in full-time equivalent (FTE) students. Group I, public junior colleges enrolling fewer than 500 FTE students, was made up of three institutions having a range of 168 to 418 full-time equivalent students. The mean FTE enrollment for the three institutions in Group I was 255.67 students. Group II, public junior colleges enrolling 500 through 1600 FTE students, was made up of four institutions having a range from 710 to 1546 full-time equivalent students. The mean FTE enrollment for the four institutions in Group II was 1006.50 FTE students. Group III was made up of the two largest public junior colleges in the state. These two institutions enrolled 3559 and 6721 full-time equivalent students. The mean FTE enrollment for the two Group III institutions was 5140 FTE students. The institutions which made up these groups and their enrollments are given in Appendix A. Due to the frequency with which the three institution size groups are referred to in this chapter and in subsequent chapters of this study, the groups are identified simply as Group I, Group II, and Group III.

It is noted that where data are presented regarding the mean number of semester hours taught per institution for any of the institution size groups, only the colleges teaching that particular subject area have been included.

For example, the fact that one-third of the colleges in a group did not teach a particular subject area would not lower the mean number of semester hours taught per college in the institutions which did offer the subject area.

The subject areas were divided into five groups according to the per cent of institutions in which they were taught. This was done (1) to facilitate analysis in this chapter and in subsequent chapters, and (2) to permit easy reference between this chapter and subsequent chapters. The five groups of subject areas and the order in which they are presented, according to the per cent of institutions in which they were taught are: 100%; above 75% (excluding those subject areas taught in all colleges); 51-75%; 26-50%; and below 26%. Data pertinent to each group are presented immediately following each subject area group. Reference is made to the tables only in the discussion of the first subject area in each group. This is done to aid the reader in locating the data pertinent to each subject area group and to facilitate reference between the discussion and the data presented in the tables.

Subject Areas Present in the Curriculums
of All Institutions

Biological Science²

Institutions Teaching: Level Taught.--(See Table 3.)

Biology was taught in all nine junior colleges, and was found predominately at the freshman level. It was taught at the freshman level in all nine institutions and at both the freshman and sophomore levels in three institutions. There appeared to be no important relationship between institution enrollment size and the level at which biology was taught.

Semester Hours Taught.--(See Table 4.) The range in number of semester hours taught among the nine junior colleges was from five to forty-one; the mean number of semester hours taught in all institutions was 14.78. The mean of 5.00 semester hours taught in the smaller institutions (Group I) was noticeably lower than the means of 13.75 and 31.50 in the institutions in Groups II and III, respectively. The mean for Group II was also noticeably lower than the mean for Group III. There seemed to be a relationship between institution enrollment size and mean semester hours taught in biology.

Class Sizes.--(See Table 5.) The mean class sizes for biology among all institutions ranged from 21.46 to

²This category includes all courses in the general field of biology with the exception of zoology, where zoology was taught in addition to general biology. This distinction was made to facilitate appraisal of junior college offerings in such fields as medicine and dentistry.

TABLE 3.--Number and per cent of institutions teaching, level taught, in subject areas present in the curriculums of one hundred per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Area	Number Insts. Teaching	Per Cent Insts. Teaching	Number Insts. Teaching - by Level			Per Cent Insts. Teaching		
			Fr. & Soph.	Fr. Only	Soph. Only	Group I	Group II	Group III
Biological Science	9	100.0	3	6	0	100.0	100.0	100.0
Business Administration	9	100.0	7	2	0	100.0	100.0	100.0
Chemistry	9	100.0	7	2	0	100.0	100.0	100.0
Economics	9	100.0	2	6	1	100.0	100.0	100.0
English	9	100.0	8	1	0	100.0	100.0	100.0
History	9	100.0	4	5	0	100.0	100.0	100.0
Mathematics	9	100.0	8	1	0	100.0	100.0	100.0
Music	9	100.0	6	3	0	100.0	100.0	100.0
Physical Education	9	100.0	4	5	0	100.0	100.0	100.0
Physics	9	100.0	3	6	0	100.0	100.0	100.0
Political Science	9	100.0	4	5	0	100.0	100.0	100.0
Sociology	9	100.0	4	5	0	100.0	100.0	100.0
Speech	9	100.0	2	7	0	100.0	100.0	100.0
Zoology	9	100.0	0	3	1	100.0	100.0	100.0

TABLE 4.--Ranges and means in number of semester hours taught in subject areas present in the curriculums of one hundred per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Area	No. Sem. Hrs. Taught - Range Among Insts.	Mean Sem. Hrs. Taught - All Institutions	Mean Semester Hours Taught		
			Group I	Group II	Group III
Biological Science	5 - 14	14.78	5.00	13.75	31.50
Business Administration	6 - 44	26.56	15.00	26.50	44.00
Chemistry	10 - 29	18.67	10.00	21.50	26.50
Economics	3 - 9	6.67	5.67	6.25	9.00
English	6 - 30	19.00	9.00	22.00	28.50
History	6 - 23	13.78	7.00	14.75	22.00
Mathematics	8 - 37	26.33	17.00	28.50	36.00
Music	1 - 26	17.22	6.33	21.00	26.00
Physical Educ.	2 - 12	7.44	4.00	9.00	9.50
Physics	5 - 18	11.67	4.67	16.00	13.50
Political Science	5 - 12	8.89	7.33	9.00	11.00
Sociology	3 - 15	8.56	5.67	9.50	10.50
Speech	3 - 9	4.78	4.00	5.00	5.50
Zoology	3 - 8	5.11	4.33	5.00	6.50

TABLE 5.--Class size ranges and means in subject areas present in the curriculums of one hundred per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Area	Mean Class Size Range Among Insts.	Mean Class Size All Institutions	Mean Class Size		
			Group I	Group II	Group III
Biological Science	21.46 - 60.00	35.60	39.80	35.65	22.13
Business Administration	13.75 - 30.94	23.58	20.48	36.56	28.73
Chemistry	12.00 - 33.90	22.31	17.33	26.57	21.26
Economics	20.83 - 53.83	33.62	23.60	34.50	44.60
English	14.30 - 28.29	22.30	25.09	22.54	16.80
History	25.68 - 61.13	38.10	37.78	35.18	23.44
Mathematics	10.25 - 27.36	19.94	16.38	23.23	21.82
Music	6.00 - 32.50	18.58	14.83	17.79	19.54
Physical Educ.	13.00 - 34.55	23.19	17.74	21.07	18.73
Physics	4.00 - 30.75	15.65	8.33	23.51	17.96
Political Science	17.64 - 68.50	35.03	22.27	36.77	30.99
Sociology	14.00 - 40.67	27.65	24.00	32.51	31.20
Speech	9.41 - 21.32	19.57	20.08	17.38	20.59
Zoology	16.90 - 57.50	35.46	35.40	40.33	20.17

60.00, with 35.60 as the mean for all institutions. The mean class size in biology for Group I was 39.80, Group II 36.65, and 22.13 for Group III. The mean class size for the smallest colleges (Group I) was noticeably larger than the mean class size in the largest colleges (Group III). Closer examination of the data revealed that three of the nine colleges had average class sizes of greater than forty students per section in biology. Two of the three were in the three smallest colleges (Group I). This coupled with the fact that the Group I institutions taught the lowest number of semester hours in biology, at least partially explain the reverse relationship between institution enrollment size and mean class sizes for the three groups of institutions.

Business Administration³

Institutions Teaching: Level Taught.--Courses in business administration were taught in all nine of the junior colleges studied. All of the institutions taught courses in this category at the freshman level and seven also taught courses at the sophomore level. Of the two institutions offering courses in this subject area at the freshman level only, one was in Group II and the other was in Group I. There appeared to be no relationship between

³This category includes all courses in business administration including business English, business statistics, and business mathematics.

level of offering in this subject area and institution enrollment size.

Semester Hours Taught.--The range of semester hours taught among all institutions in this category was from six to forty-four, with a mean for all institutions of 26.56. This was the largest mean number of semester hours taught of any of the subject areas considered in this study, although, only slightly higher than the mean for mathematics. The mean semester hours taught in business administration by institution size group were Group I 15.00, Group II 26.50, and Group III 44.00. There is a noticeable difference between the mean for Group I and Group II, and between Group II and Group III. There seemed to be a positive relationship between institution enrollment size and mean semester hours taught in this category.

Class Sizes.--The mean class size range among all institutions teaching business administration was from 13.75 to 30.94, with the mean class size for all institutions being 23.58. The mean class size for Group I institutions in this category was 20.48, for Group II 35.56, and for Group III 28.73. The Group II institutions had a larger class size mean than Groups III and I, and Group III institutions had a larger class size mean than Group I. There appears to be little relationship between institution enrollment size and mean class size in this category.

Chemistry⁴

Institutions Teaching: Level Taught.--Chemistry was taught in all nine of the public junior colleges included in this study. All institutions taught this subject area at the freshman level and seven institutions also taught courses at the sophomore level. The two colleges teaching chemistry only at the freshman level were in the group of smallest colleges (Group I). This offered some indication that the level at which chemistry was taught may have been related to institution enrollment size.

Semester Hours Taught.--The range of semester hours taught among all institutions was from ten to twenty-nine, with the mean semester hours taught for all institutions being 18.67. The mean semester hours taught by institution size groups were Group I 10.00, Group II 21.50, and Group III 26.50. There is a noticeable increase in the mean number of semester hours taught between Group I and Group II, and between Group II and Group III. This would seem to indicate a relationship between institution enrollment size and semester hours taught in this category.

Class Sizes.--The mean class size range among all institutions was 12.00 to 33.90, with a composite mean class size for all institutions of 22.31. There was a noticeable difference in mean class sizes when viewed by

⁴This category includes, in addition to general chemistry courses, such courses as quantitative and qualitative analysis.

institution size groups. Group I had a mean class size of 17.33, Group II had a mean class size of 26.57, and Group III had a mean class size of 21.26. As in the previous category, Group II had the largest mean class size, followed by Group III. There appeared to be no relationship between institution enrollment size and mean class size in this category.

Economics

Institutions Teaching: Level Taught.--All nine of the junior colleges involved in this study taught economics, which was found predominantly at the freshman level only. In two colleges this subject area was found at both the freshman and sophomore levels and in one college it was taught only at the sophomore level. Of the two colleges teaching this subject area at both the freshman and sophomore levels, one was in Group I (the smallest colleges) and one was in Group II. The one institution teaching economics at the sophomore level only was in Group II. These data seemed to indicate that there was no important relationship between the level at which economics was taught and institution enrollment size.

Semester Hours Taught.--The range of semester hours taught among all institutions was from three to nine, with four of the nine colleges teaching five or six semester hours. The mean number of semester hours taught in economics for all institutions was 6.67. Means for the

three groups of institutions were 5.67 for Group I, 6.25 for Group II, and 9.00 for Group III. There appeared to be some relationship between the mean semester hours taught in economics and institution enrollment size.

Class Sizes.--The range of mean class sizes for this subject area was from 20.83 to 53.83, with a mean class size for all institutions of 33.62. The mean class size for Group I was 23.60, for Group II 34.50, and for Group III 44.60. These data indicate that each group of colleges taught somewhat larger classes in economics than did the colleges of the next smaller size group.

English⁵

Institutions Teaching: Level Taught.--In terms of the total number of students enrolled, English was the largest single offering among the nine junior colleges. It was taught at both the freshman and sophomore levels in eight of the institutions and at the freshman level only in one, the smallest of the nine colleges.

Semester Hours Taught.--The range in semester hours taught in English among the nine institutions was from six to thirty, and the mean for all colleges was 19.00. The mean number of semester hours taught among the three groups of colleges were 9.00, 22.00, and 28.50 for Groups I, II, and III, respectively. These data indicate that

⁵Business English was classified as business administration.

insofar as English was concerned, the curriculums of the larger colleges tend to be broader than those of the smaller colleges.

Class Sizes.--The mean class sizes for the three groups of colleges appeared to vary inversely for English, with the smallest colleges having the largest mean class size. The mean class sizes for the three groups were Group I 25.09, Group II 22.54, and Group III 16.80. This may be explained in part by the fact that the smallest colleges taught the fewest number of semester hours of English and had the fewest sections of English. The range in mean class size among the nine institutions was from 14.30 to 28.29, with the mean class size among all institutions being 22.30.

History

Institutions Teaching: Level Taught.--History was a subject area common to all nine junior colleges and in terms of total number of students enrolled, it was the second largest offering among the colleges. In all nine colleges it was taught at the freshman level and in four institutions it was also offered at the sophomore level. The four colleges offering history at the sophomore level were the largest colleges involved in this study, which may indicate that the level at which history was taught may be related to institution enrollment size.

Semester Hours Taught.--The range of semester hours taught among all institutions was from six to twenty-three, with the mean among all institutions being 13.78. The mean semester hours taught among the three groups of institutions were Group I 7.00, Group II 14.75, and Group III 22.00. These data indicate that each group of colleges taught a somewhat broader curriculum in history than did the next lower size group.

Class Sizes.--As was the case with most subject areas there was a wide range of class sizes among the nine colleges. The class size range in this category was from 25.68 to 61.13, with a composite mean class size among all institutions of 38.10. The mean history class size per institution in Group I was 37.78, in Group II it was 35.18, and in Group III it was 23.44. As with English there appeared to be an inverse relation between enrollment size and mean class size. This may be explained by the fact that the smallest colleges taught the fewest semester hours in history.

Mathematics⁶

Institutions Teaching: Level Taught.--In eight of the nine institutions included in this study mathematics was taught at both the freshman and sophomore levels.

⁶Business mathematics is included under business administration.

In the remaining institution, which ranked in the smallest size group, it was taught at the freshman level only.

Semester Hours Taught.--The range in semester hours taught in mathematics among all institutions was from eight to thirty-seven semester hours, with a mean for all institutions of 26.33. The mean semester hours taught in mathematics was second only to those in business administration. The mean semester hours taught among the three institution size groups were Group I 17.00, Group II 28.50, and Group III 36.00. There was a noticeable apparent relationship between mean semester hours taught and institution enrollment size.

Class Sizes.--The mean class size range among all institutions was from 10.25 to 27.36, with a mean class size among all institutions of 19.94 for this subject area. The mean class size for the three institution size groups were 16.38, 23.23, and 21.82 for Groups I, II, and III, respectively. There appeared to be no relationship between institution enrollment size and mean class size for this subject area.

Music⁷

Institutions Teaching: Level Taught.--Music was taught in all nine of the junior colleges included in

⁷This category included music theory, ensemble, music literature, and applied music where it was offered for college credit.

this study. All institutions taught music at the freshman level and six also taught this subject area at the sophomore level. Two of the three colleges teaching music at the freshman level only were in the group of smallest institutions (Group I).

Semester Hours Taught.--As with other subject areas, there was a wide range of semester hours taught among all institutions in music. The range among all institutions for this category was from one to twenty-six semester hours. The two largest institutions (Group III) each taught twenty-six semester hours of music and the smallest institution included in this study taught two semester hours, while the second smallest college taught only one hour of music. The mean semester hours taught in this subject area for the three institution size groups were Group I 6.33, Group II 21.00, and Group III 26.00. These data presented another instance in which enrollment size seemed to have an important relationship to mean semester hours taught.

Class Sizes.--The range in mean class sizes among all institutions teaching music was from 6.00 to 32.50, with a composite mean class size for all institutions of 18.58. The mean class sizes for the three institution size groups were 14.83, 17.79, and 19.54 for Groups I, II, and III, respectively. These data indicated that insofar as music was concerned, there appeared to be a relationship between mean class size and institution enrollment size.

Physical Education⁸

Institutions Teaching: Level Taught.--Physical education was taught in all nine of the public junior colleges included in this study. Both institutions in Group III (the largest institutions) and two institutions in Group II taught this subject area at both the freshman and sophomore levels. Five colleges taught physical education at the freshman level only. A closer examination of the data revealed that all three of the smallest institutions (Group I) taught this subject area at the freshman level only. This suggested a possible relationship between institution size and the level at which physical education was taught.

Semester Hours Taught.--The mean semester hours taught in physical education among the three institution size groups were Group I 4.00, Group II 9.00, and Group III 9.50, indicating a possible relationship between mean semester hours taught in this subject area and institution enrollment size. The range of semester hours taught among all institutions was from two to twelve semester hours, with the mean semester hours taught among all institutions being 7.44.

Class Sizes.--The mean class size range among all institutions was from 13.00 to 34.55, with a mean class

⁸This category included courses in playground supervision, community recreation, and officiating in various sports.

size among all institutions of 23.19. The mean class sizes among the three institution size groups were 17.74, 21.07, and 18.73 for Groups I, II, and III, respectively. There appeared to be no noticeable relationship between institution size and class size in this category.

Physics⁹

Institutions Teaching: Level Taught.--All nine of the institutions included in this study taught physics. This subject area was found at the freshman and sophomore levels in only three institutions, all of which were in Group II. The remaining six institutions taught this subject area at the freshman level only. These data indicated that there was no apparent relationship between institution size and level at which this subject area was taught.

Semester Hours Taught.--The mean number of semester hours taught in physics was 11.67. The number of semester hours taught among all institutions ranged from five to eighteen. The mean for institutions in Group I was 4.67. For Group II the mean semester hours taught was 16.00, and for Group III it was 13.50. There was a noticeable difference between the mean semester hours taught in Group I and the means for Group II and III.

Class Sizes.--The mean class sizes for all institutions ranged from 4.00 to 30.75, with a composite mean

⁹Engineering physics was included in the category of general engineering.

class size for all institutions of 15.65. The mean class sizes for the three institution size groups were 8.33, 23.51, and 17.96 for Groups I, II, and III, respectively. Although the mean class sizes for Groups II and III were noticeably larger than for Group I, there did not appear to be a relationship between institution enrollment size and mean class size in this subject area.

Political Science¹⁰

Institutions Teaching: Level Taught.--Political science was taught in all nine junior colleges included in this study. It was taught at the freshman level in all institutions and also at the sophomore level in four of the colleges. There did not appear to be any relationship between level taught and institution size, since the four colleges teaching this subject area at the sophomore level were distributed over the three institution size groups.

Semester Hours Taught.--The number of semester hours taught in political science among all institutions ranged from five in the second smallest college (Group I) to twelve in the largest college (Group III). The mean number of semester hours taught among all institutions in this subject area was 8.89. The mean number of semester hours taught among the three institution size groups were Group

¹⁰State law in Missouri requires that all colleges teach state and local government courses and a course dealing with the U. S. Constitution. This would account for the occurrence of this category in all junior colleges. The degree to which this law affects the breadth of offerings in this area is difficult to assess.

I 7.33, Group II 9.00, and Group III 11.00. These data seemed to indicate a relationship between institution size and breadth of offerings in this subject area.

Class Sizes.--The mean class sizes among the three institution size groups in this subject area were Group I 22.27, Group II 36.77, and Group III 30.99. Although the mean class sizes were larger for Groups II and III than for Group I, there did not appear to be a noticeable relationship between institution size and class size in this category. The mean class size range among all institutions in this subject area was from 17.64 to 68.50, with a composite mean class size among all institutions of 35.03.

Sociology

Institutions Teaching: Level Taught.--Sociology was taught in all nine institutions included in this study. All institutions taught this subject area at the freshman level and four also taught it at the sophomore level. The four institutions teaching sociology at the sophomore level were distributed over the three institution size groups. There was no apparent relationship between institution size and the level at which sociology was taught.

Semester Hours Taught.--The range among all institutions in semester hours taught in this category was from three to fifteen, with the mean number of semester hours taught among all institutions being 8.56. The mean

semester hours taught among the three institution size groups were Group I 5.67, Group II 9.50, and Group III 10.50. These data presented another instance in which enrollment size appeared to have an important relationship to semester hours taught.

Class Sizes.--There was a great deal of uniformity in the mean class sizes among the three institution size groups. The mean class size for Group I was 24.00; for Group II it was 32.51; and for Group III the mean was 31.20. The mean class size range among all institutions was from 14.00 to 40.67, with a composite mean class size for all institutions of 27.65. The relative closeness of the class size means among the institution size groups does not suggest a strong relationship between institution size and class size in this subject area.

Speech¹¹

Institutions Teaching: Level Taught.--All nine institutions taught speech at the freshman level and two colleges also taught this subject area at the sophomore level. Of the institutions teaching speech at the sophomore level, one was in the group of largest institutions (Group III) and one was in Group II. There appeared to be no important relationship between institution size and the level at which this subject area was taught.

¹¹Drama is considered as a separate category from speech in this study.

Semester Hours Taught.--The number of semester hours taught among all institutions in this subject area ranged from three in five of the institutions to nine in one institution. The mean semester hours taught among all institutions was 4.78. The mean semester hours taught among the three institution size groups were 4.00, 5.00, and 5.50 for Groups I, II, and III, respectively. These data seem to indicate some positive relationship between institution size and semester hours taught in this subject area.

Class Sizes.--The data concerning mean class sizes showed little difference between class sizes in the larger colleges and the smaller colleges. The mean class sizes for the three institution size groups were Group I 20.08, Group II 17.38, and Group III 20.59. These data would seem to indicate no noticeable relationship between institution size and class size in this category. The mean class size among all institutions ranged from 9.41 to 21.32, with a composite mean class size among all institutions of 19.57.

Zoology

Institutions Teaching: Level Taught.--This subject area was taught in all nine junior colleges included in this study. Zoology was taught predominately at the freshman level. This subject area was taught at the freshman level only in eight institutions and at the sophomore level only in the largest institution included in this study. There appeared to be no relationship between institution enrollment size and the level at which zoology was taught.

Semester Hours Taught.--The number of semester hours taught in zoology among all institutions ranged from three in the smallest institution (Group I) to eight in the largest institution (Group III). The mean semester hours taught among all institutions in this subject area was 5.11. The mean semester hours of zoology taught among the three institution size groups were 4.33, 5.00, and 6.50 for Groups I, II, and III, respectively. These data show that the mean semester hours taught in this subject area were only slightly greater in the larger institutions than in the smaller colleges. This would suggest little relationship between institution size and number of semester hours taught in this category.

Class Sizes.--The mean class size among all institutions ranged from 16.90 to 57.50, with a composite mean class size for all institutions teaching zoology of 35.46. The mean class sizes among the three institution size groups were Group I 35.40, Group II 40.33, and Group III 20.17. There seemed to be no noticeable relationship between institution size and class size in this subject area.

Subject Areas Present in the Curriculums of
More Than Seventy-Five Per Cent but Less Than
One Hundred Per Cent of the Institutions

Art¹²

Institutions Teaching: Level Taught.--(See Table 6.)

Eight of the nine junior colleges included in this study

¹²Advertising design, or commercial art, was indicated as a separate category in this study. This category included

TABLE 6.--Number and per cent of institutions teaching, level taught, in subject areas present in the curriculums of more than seventy-five per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.*

Subject Area	Number Insts. Teaching	Per Cent Insts. Teaching	Number Insts. Teaching - By Level			Per Cent Insts. Teaching		
			Fr. & Soph.	Fr. Only	Soph. Only	Group I	Group II	Group III
Art	8	88.9	6	2	0	66.7	100.0	100.0
Business Education	8	88.9	2	6	0	66.7	100.0	100.0
Education	8	88.9	2	3	3	66.7	100.0	100.0
Engineering Drawing	8	88.9	3	5	0	66.7	100.0	100.0
Engineering, General	7	77.8	3	4	0	33.3	100.0	100.0
Psychology	7	77.8	2	4	1	33.3	100.0	100.0
Spanish	8	88.9	6	2	0	66.7	100.0	100.0

* Does not include those subject areas present in the curriculums of all junior colleges in Missouri.

taught art. The one institution which did not teach art was in the smallest institution size group (Group I). This subject area was taught at both the freshman and sophomore levels in six institutions. Of the two institutions teaching art at the freshman level only, one was in the smallest institution size group (Group I) and the other was in Group II. In the largest institution size group (Group III), one hundred per cent of the colleges taught art at both the freshman and sophomore levels. Seventy-five per cent of the institutions in Group II taught this subject area at both levels, and fifty per cent of the institutions teaching art in Group I taught this subject at both levels. These data seem to indicate a positive relationship between institution size and the level at which art was taught.

Semester Hours Taught.--(See Table 7.) The number of semester hours of art taught among the eight junior colleges ranged from seven in the smallest institution to fifty-nine in the largest college, with the mean number of semester hours taught among all institutions being 24.13. The mean semester hours taught by institution size group were Group I 14.00, Group II 21.50, and Group III 39.50. These data indicate a positive relationship between curriculum breadth in this subject area and institution enrollment size.

Class Sizes.--(See Table 8.) The mean class size among the eight institutions teaching art ranged from

data on art courses intended primarily for students majoring in education.

TABLE 7.--Ranges and means in number of semester hours taught in subject areas present in the curriculums of more than seventy-five per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.*

Subject Area	No. Sem. Hrs. Taught - Range Among Insts.	Mean Sem. Hrs. Taught - All Institutions	Mean Semester Hours Taught		
			Group I	Group II	Group III
Art	7 - 59	24.13	14.00	21.50	39.50
Business Education	15 - 39	21.63	15.00	17.50	36.50
Education	2 - 6	4.63	3.00	5.50	4.50
Engineering Drawing	4 - 26	11.50	12.00	8.25	17.50
Engineering, General	3 - 33	12.43	10.00	6.00	27.50
Psychology	3 - 9	5.14	6.00	4.50	6.00
Spanish	10 - 22	14.00	10.00	13.00	20.00

* Does not include those subject areas present in the curriculums of all junior colleges in Missouri.

TABLE 8.--Class size ranges and means in subject areas present in the curriculums of more than seventy-five per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.*

Subject Area	Mean Class Size Range Among Insts.	Mean Class Size All Institutions	Mean Class Size		
			Group I	Group II	Group III
Art	15.86 - 28.29	21.85	21.00	24.02	19.41
Business Education	5.67 - 24.89	16.29	13.45	18.96	19.48
Education	12.00 - 38.80	24.02	23.50	32.56	25.24
Engineering Drawing	5.50 - 21.33	15.46	8.38	18.70	16.09
Engineering, General	5.00 - 18.26	11.49	5.00	10.00	15.65
Psychology	31.69 - 112.00	46.06	33.11	44.74	33.04
Spanish	6.50 - 20.83	13.96	12.00	10.39	16.00

* Does not include those subject areas present in the curriculums of all public junior colleges in Missouri.

15.86 to 28.29, with a composite mean class size among the eight colleges of 21.85 for this subject area. The mean class size for the three institution size groups showed little variation, with no apparent pattern being noticeable. The mean class size for the three institution size groups were 21.00, 24.02, and 19.41 for Groups I, II, and III, respectively. There appeared to be no relationship between institution size and mean class size in this subject area.

Business Education¹³

Institutions Teaching: Level Taught.--Business education was taught in eight of the nine junior colleges included in this study. Six of the eight institutions taught this subject area at the freshman level only. The two largest institutions (Group III) taught business education at both the freshman and sophomore levels. The one institution included in this study which did not teach this subject area was in the smallest institution size group (Group I). There appeared to be no relationship between the occurrence of this subject area in the curriculum and institution size, however, there was some indication that the level at which this subject area was taught was related to institution enrollment size.

¹³This category included courses in secretarial science. To the extent that students in these courses were on terminal rather than transfer programs, the data on class size would be distorted for this category.

Semester Hours Taught.--The range among all institutions in semester hours taught in this subject area was from fifteen to thirty-nine, with the mean semester hours taught among all institutions being 21.63. For the three institution size groups the mean number of semester hours taught were 15.00, 17.50, and 36.50 for Groups I, II, and III, respectively. There appeared to be a noticeable relationship between institution size and semester hours taught in this category.

Class Sizes.--The mean class size range among all institutions teaching this subject area was from 5.67 to 24.89, with a composite mean class size among the eight institutions of 16.29. The mean class size among the three institution size groups for this subject area were Group I 13.45, Group II 18.96, and Group III 19.48. These data seem to indicate a positive relationship between institution size and mean class size for this subject area.

Education¹⁴

Institutions Teaching: Level Taught.--Courses in education were taught in eight of the nine institutions included in this study. The only institution not teaching courses in this subject area was in the smallest institution size group (Group I). Two colleges taught courses

¹⁴Courses in educational psychology were included in this category where they were identified as such by the individual institutions.

in education at both the freshman and sophomore levels. Three institutions taught courses in this subject area at the freshman level only, and three colleges taught courses in this category at the sophomore level only. Education courses were taught at the freshman level only in the smallest institution size group (Group I). These data seem to indicate there may be a positive relationship between level taught and institution size in this subject area.

Semester Hours Taught.--The number of semester hours taught in education among the eight institutions ranged from two to six, with a mean among the eight colleges of 4.63. The mean semester hours taught among the three institution size groups were Group I 3.00, Group II 5.50, and Group III 4.50. These data indicate that the offerings in this subject area were fairly well standardized among all institutions.

Class Sizes.--The mean class size among the eight institutions teaching education ranged from 12.00 to 38.80, with a composite mean class size among the eight colleges of 24.02. The mean class sizes among the three institution size groups were 23.50, 32.56, and 25.24 for Groups I, II, and III, respectively. There was no noticeable relationship between class size and institution size in this category.

Engineering Drawing¹⁵

Institutions Teaching: Level Taught.--Engineering drawing was taught in eight of the nine institutions included in this study. The only institution not teaching this subject area was in the smallest institution size group (Group I). One-half of the institutions teaching this subject area in Group I taught it at both the freshman and sophomore levels. One-fourth of the colleges in Group II taught engineering drawing at both levels, and one-half of the institutions in Group III taught this subject area at both levels. Engineering drawing was taught at the freshman and sophomore levels in a total of three institutions, and at the freshman level only in five institutions. These data indicate no noticeable relationship between institution size and level taught in this category.

Semester Hours Taught.--As with most other subject areas there was a wide range in semester hours among the institutions teaching this subject area. The number of semester hours taught in this category among the eight colleges ranged from four in a single institution in Group II to twenty-six in the second largest institution (Group III). The mean number of semester hours taught among all institutions was 11.50. The mean number of semester hours taught among the three institution size groups were Group

¹⁵In addition to engineering drawing, this category included descriptive geometry and engineering graphics. Architectural drawing was included in the category of architecture.

I 12.00, Group II 8.25, and Group III 17.50. There appeared to be little relationship between institution size and semester hours taught in this category.

Class Sizes.--The mean class size among the institution size groups in this subject area were 8.38, 18.70, and 16.09 for Groups I, II, and III, respectively. It was noted that the mean class sizes in Groups II and III were approximately twice that of Group I, which may indicate a relationship between institution size and class size in this subject area. The composite mean class size among the eight institutions teaching engineering drawing was 15.46, with the mean class size among the eight colleges ranging from 5.50 to 21.33.

Engineering, General¹⁶

Institutions Teaching: Level Taught.--Engineering was taught in seven of the nine institutions included in this study. The two smallest junior colleges did not teach courses in this subject area, which may indicate a relationship between the appearance of this subject area in the curriculum and institution size. Three colleges taught engineering at both the freshman and sophomore levels, and four taught courses in this subject area at the freshman level only.

¹⁶Engineering physics was included in this category.

Semester Hours Taught.--The mean semester hours taught in this subject area among the three institution size groups were 10.00, 6.00, and 27.50 for Groups I, II, and III, respectively. The number of semester hours taught among the seven institutions for this subject area ranged from three to thirty-three, with the mean semester hours taught among the seven colleges being 12.43. There appeared to be little relationship between semester hours taught in this category and institution size.

Class Sizes.--The mean class size range among the seven colleges for this subject area was from 5.00 to 18.26, with a composite mean class size for the seven institutions of 11.49. The mean class size among the three institution size groups were Group I 5.00, Group II 10.00, and Group III 15.65. These data seem to indicate a relationship between class size and institution size in this subject area.

Psychology¹⁷

Institutions Teaching: Level Taught.--Psychology was taught in seven of the nine junior colleges included in this study. Neither of the two smallest colleges (Group I) taught courses in this subject area, which may be an indication of a possible relationship between institution size and the appearance of this subject area

¹⁷Educational psychology was included in the category of education in this study.

in the curriculum. Two colleges, both in Group II, taught psychology at both the freshman and sophomore levels. Four institutions taught this subject area at the freshman level only, and one college, the largest included in this study (Group III), taught psychology at the sophomore level only. There seemed to be little relationship between level taught and institution size in this category.

Semester Hours Taught.--The number of semester hours taught among the seven institutions for this category ranged from three to nine, with the mean number of semester hours taught among the seven colleges being 5.14. The mean semester hours taught in this subject area among the three institution size groups were Group I 6.00, Group II 4.50, and Group III 6.00. It was noted that the number of semester hours taught in this subject area was fairly standard among the seven institutions.

Class Sizes.--The mean class size range among the institutions teaching psychology was greater than the range in any other subject area. The mean class size range for this category was from 31.69 to 112.00, with a composite mean class size among the seven institutions of 46.06. The large class size mean of 112.00 can be explained by the fact that this institution (Group II) taught only two sections of psychology with each section employing the large lecture group technique for teaching

these courses. The mean class sizes by institution size group in this subject area were 33.11, 44.74, and 33.04 for Groups I, II, and III, respectively. These data indicate no apparent relationship between institution size and class size in this category.

Spanish

Institutions Teaching: Level Taught.--Eight of the nine institutions included in this study taught Spanish. All eight of the junior colleges taught Spanish at the freshman level, and six also taught this subject area at the sophomore level. Only the smallest institution included in this study did not teach courses in this subject area.

Semester Hours Taught.--The number of semester hours taught in this subject area ranged from ten to twenty-two, with the mean number of semester hours among the eight colleges being 14.00. The mean semester hours taught among the three institution size groups were 12.00, 10.39, and 16.00 for Groups I, II, and III, respectively. The mean class size range among the eight colleges was from 6.50 to 20.83, with the composite mean class size for the eight colleges being 13.96. There seemed to be no noticeable relationship between institution size and class size in this subject area.

Subject Areas Present in the Curriculums
of Fifty-One Through Seventy-Five
Per Cent of the Institutions

Architecture

Institutions Teaching: Level Taught.--(See Table 9.)

Five of the nine junior colleges included in this study (55.6%) taught architecture. None of the colleges in the smallest institution size group (Group I) taught courses in this subject area. Three of the four institutions (75.0%) in Group II taught courses in this category, and both of the colleges in Group III taught courses in this subject area. These data seem to indicate a positive relationship between institution size and the appearance of this subject area in the curriculum. Only the largest institution included in this study taught architecture at both the freshman and sophomore levels. The other four institutions taught courses in this subject area at the freshman level only.

Semester Hours Taught.--(See Table 10.) The number of semester hours taught in architecture ranged from two to thirteen among the five colleges, with the mean semester hours taught among the five colleges being 6.40. The mean semester hours taught in the two institution size groups teaching courses in this subject area were Group I 4.00, and Group II 10.00. There was noticeable indication of a positive relationship between institution size and semester hours taught in this category.

TABLE 9.--Number and per cent of institutions teaching, level taught, in subject areas present in the curriculums of fifty-one through seventy-five per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Area	Number Insts. Teaching	Per Cent Insts. Teaching	Number Insts. Teaching - By Level			Per Cent Insts. Teaching		
			Fr. & Soph.	Fr. Only	Soph. Only	Group I	Group II	Group III
Architecture	5	55.6	1	4	0	00.0	75.0	100.0
Drama	5	66.7	0	6	0	33.3	75.0	100.0
French	6	66.7	4	2	0	33.3	75.0	100.0
Geography	6	66.7	1	5	0	33.3	75.0	100.0

TABLE 10.--Ranges and means in number of semester hours taught in subject areas present in the curriculums of fifty-one through seventy-five per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Area	No. Sem. Hrs. Taught - Range Among Insts.	Mean Sem. Hrs. Taught - All Institutions	Mean Semester Hours Taught		
			Group I	Group II	Group III
Architecture	2 - 13	6.40	0.00	4.00	10.00
Drama	5 - 11	8.00	5.00	9.00	8.00
French	10 - 22	15.17	10.00	13.67	20.00
Geography	3 - 7	4.17	3.00	3.00	6.50

Class Sizes.--(See Table 11.) The mean class sizes among the two institution size groups teaching courses in this subject area were 13.75 and 15.07 for Groups II and III, respectively. These data indicate a relationship between class size and institution size in this subject area. The mean class size among the five institutions in this subject area ranged from 8.00 to 19.00, with a composite mean class size among the five colleges of 12.62.

Drama¹⁸

Institutions Teaching: Level Taught.--Drama was found in six (66.7%) of the nine junior colleges included in this study. Two of the three institutions not teaching this subject area were in Group I, the group of smallest colleges. Drama was taught exclusively at the freshman level in all six colleges. Thus, institution size did not appear to have any relationship to level taught in this category. However, the appearance of this subject area in the curriculum seemed to be related to institution size.

Semester Hours Taught.--The number of semester hours taught in this subject area ranged from five to eleven, with the mean number of semester hours taught among the six institutions being 8.00. The mean number of semester hours taught among the three institution size groups for

¹⁸Speech was indicated as a separate category in this study.

TABLE 11.--Class size ranges and means in subject areas present in the curriculums of fifty-one through seventy-five per cent of Missouri public junior colleges, fall and spring semesters, 1966 - 1967.

Subject Area	Mean Class Size Range Among Insts.	Mean Class Size All Institutions	Mean Class Size		
			Group I	Group II	Group III
Architecture	8.00 - 19.00	12.62	0.00	13.75	15.07
Drama	8.57 - 22.13	14.15	13.00	13.94	15.50
French	13.90 - 17.00	14.88	17.00	13.50	15.45
Geography	16.60 - 52.00	30.06	34.00	28.10	24.78

this subject area were 5.00, 9.00, and 8.00 for Groups I, II, and III, respectively. Although there was a greater number of semester hours taught in Groups II and III than in Group I, there appeared to be little noticeable relationship between institution size and semester hours taught in this subject area.

Class Sizes.--The mean class sizes for the three institution size groups in this subject area were Group I 13.00, Group II 13.94, and Group III 15.50. These data seem to indicate a positive relationship between class size and institution size in this subject area. The mean class size range among the six institutions teaching drama was from 8.57 to 22.13, with a composite mean class size among the six institutions of 14.15.

French

Institutions Teaching: Level Taught.--French was taught in six (66.7%) of the nine institutions included in this study. One (33.3%) of the three colleges in the group of smallest institutions (Group I) taught French. Three (75.0%) of the four institutions in Group II taught this subject area, and 100% of the institutions in Group III taught French. These data seem to indicate that the appearance of this subject area in the curriculum may be related to institution size. All six institutions taught French at the freshman level and four also taught this subject area at the sophomore level. There appeared to

be no relationship between the level at which French was taught and institution size.

Semester Hours Taught.--The number of semester hours taught in French among the six institutions ranged from ten to twenty-two, with a mean number of semester hours taught among the six institutions of 15.17. The mean semester hours taught among the three institution size groups in this subject area were Group I 10.00, Group II 13.67, and Group III 20.00. There was a noticeable increase in semester hours taught as institution size increased, indicating a positive relationship between these two factors.

Class Sizes.--The mean class size among the six institutions teaching French ranged from 13.90 to 17.00, with a composite mean class size for the six colleges of 14.88. The mean class sizes by institution size group for this subject area were 17.00, 13.50, and 15.45 for Groups I, II, and III, respectively. There was no noticeable relationship between institution size and class size for this category.

Geography

Institutions Teaching: Level Taught.--Geography was taught in six (66.7%) of the nine junior colleges included in this study. The per cent of institutions teaching this subject area by institution size groups were Group I 33.3%, Group II 75.0%, and Group III 100%. The appearance of

this subject area in the curriculum appeared to be related to institution size. All six colleges taught geography at the freshman level and one college, the largest institution included in this study, also taught geography at the sophomore level. There was no noticeable relationship between institution size and level taught in this subject area.

Semester Hours Taught.--The mean number of semester hours taught among the three institution size groups in the subject area were Group I 3.00, Group II 3.00, and Group III 6.50. The range of semester hours taught among the six institutions in this category was from three to seven, with a mean for all six institutions of 4.17. These data indicate that the number of semester hours taught in this subject area were fairly standard among all six institutions.

Class Sizes.--The mean class size among the six colleges teaching geography ranged from 16.60 to 52.00, with a composite mean class size among the six colleges of 30.06. The mean class sizes among the three institution size groups for this subject area were Group I 34.00, Group II 28.10, and Group III 24.78. The apparent negative relationship between institution size and class size may be partially explained by the fact that only one college in Group I taught geography, and that college offered only one section in this subject area over the two semester period of this study.

Subject Areas Present in the Curriculums
of Twenty-Six Through Fifty Per Cent
of the Institutions

Anthropology

Institutions Teaching: Level Taught.--(See Table 12.) Anthropology was taught in four (44.4%) of the nine institutions studied. This subject area was taught at the freshman level only in all four institutions. In Group I 33.3% of the institutions taught anthropology, 25.0% of those in Group II did so, and 100% of the institutions in Group III taught this subject. These data indicate that the presence of anthropology in the curriculum and the level at which it was taught did not appear to be a function of enrollment size.

Semester Hours Taught.--(See Table 13.) The range in semester hours taught among the four institutions involved was from three to six; the mean for all colleges combined was 3.75. The mean semester hours taught per institution in Groups I and II was 3.00. The mean for Group III was 4.50. In the colleges in which anthropology was taught, institution size did not appear to be related to number of semester hours taught.

Class Sizes.--(See Table 14.) The mean class sizes in anthropology ranged from 9.50 to 39.00. The mean class size among the four institutions teaching this subject area was 23.98. The mean class sizes among the three institution size groups were 9.50, 39.00, and 22.83 for

TABLE 12.--Number and per cent of institutions teaching, level taught, in subject areas present in the curriculums of twenty-six through fifty per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Area	Number Insts. Teaching	Per Cent Insts. Teaching	Number Insts. Teaching - By Level			Per Cent Insts. Teaching		
			Fr. & Soph.	Fr. Only	Soph. Only	Group I	Group II	Group III
Anthropology	4	44.4	0	4	0	33.3	25.0	100.0
Advertising Design	3	33.3	1	2	0	00.0	25.0	100.0
Geology	4	44.4	1	3	0	66.7	00.00	100.0
German	3	33.3	3	0	0	00.0	25.0	100.0
Home Economics	3	33.3	0	3	0	33.3	00.0	100.0
Philosophy	3	33.3	1	1	1	00.0	25.0	100.0

TABLE 13.--Ranges and means in numbers of semester hours taught in subject areas present in the curriculums of twenty-six through fifty per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Area	No. Sem. Hrs. Taught - Range Among Insts.	Mean Sem. Hrs. Taught - All Institutions	Mean Semester Hours Taught		
			Group I	Group II	Group III
Anthropology	3 - 6	3.75	3.00	3.00	4.50
Advertising Design	3 - 19	8.33	0.00	3.00	11.00
Geology	5 - 12	7.50	5.00	0.00	10.00
German	13 - 18	15.67	0.00	13.00	17.00
Home Economics	9 - 23	17.00	9.00	0.00	21.00
Philosophy	3 - 11	6.67	0.00	3.00	8.50

TABLE 14.--Class size ranges and means in subject areas present in the curriculums of twenty-six through fifty per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Area	Mean Class Size Range Among Insts.	Mean Class Size All Institutions	Mean Class Size		
			Group I	Group II	Group III
Anthropology	9.50 - 39.00	23.98	9.50	39.00	22.83
Advertising Design	17.67 - 20.00	19.06	0.00	20.00	19.34
Geology	12.00 - 25.75	21.11	21.00	0.00	24.69
German	10.50 - 16.00	13.44	0.00	10.50	14.60
Home Economics	8.50 - 20.18	14.32	8.50	0.00	17.23
Philosophy	29.00 - 36.00	32.09	0.00	36.00	30.05

Groups I, II, and III, respectively. The large difference between the mean class size for Group I and those in Groups II and III suggest that enrollment size may be related to class size in this subject area.

Advertising Design¹⁹

Institutions Teaching: Level Taught.--Advertising design was taught in three (33.3%) of the nine colleges included in this study. This subject area was taught only in the three largest colleges. All three colleges taught courses in this category at the freshman level, and the largest college also taught courses in this subject area at the sophomore level. The presence of this subject area in the curriculum appeared to be a function of institution enrollment size.

Semester Hours Taught.--The range in number of semester hours taught in this subject area among the three institutions involved was from three to nineteen, with the mean number of semester hours taught among the three institutions being 8.33. The mean number of semester hours taught in Group III was 11.00, which was nearly four times greater than the mean of 3.00 for Group II. This suggests that curriculum breadth in this category has a positive relationship to institution size.

¹⁹Advertising design was also called commercial art in some of the colleges.

Class Sizes.--Mean class size range among the three institutions involved in this subject area was from 17.67 to 20.00, with a mean for all three colleges of 19.06. The mean class size for Group II was 20.00 and for Group III it was 19.34. This suggests that factors other than enrollment size were important determiners of class size in this subject area.

Geology

Institutions Teaching: Level Taught.--Geology was taught in four (44.4%) of the nine junior colleges included in this study. This subject area was taught at the freshman and sophomore levels in the largest college included in this study, and at the freshman level only in the other three colleges. Two out of three or 66.7 per cent of the colleges in Group I, the smallest colleges, taught this subject area. Both colleges in the group of largest colleges (Group III) taught geology, no institutions in Group II taught this subject area. These data indicate that factors other than institution size accounted for the presence of this subject area in the curriculums of the colleges involved.

Semester Hours Taught.--The range of semester hours taught among the four institutions involved in this subject area was from five to twelve, with a mean among all institutions involved of 7.50. The mean semester hours taught in Group I was 5.00, and in Group II the mean was

10.00. There was a noticeable difference between the semester hours taught in these two institution size groups, which may indicate a relationship between enrollment size and curriculum breadth in this subject area.

Class Sizes.--The mean class size for Group I was 21.00, and for Group II it was 24.69, which was only slightly larger. The mean class size range among the four institutions was from 12.00 to 25.75, with a mean class size for all institutions of 21.11. It appeared that class size was only slightly related to institution enrollment size in this subject area.

German

Institutions Teaching: Level Taught.--German was taught in only the three largest institutions included in this study, two colleges in Group III and one in Group II. In all three colleges German was taught at both the freshman and sophomore levels. The fact that only the largest institutions taught this subject area offered a strong indication that the appearance of this subject area in the curriculum was closely related to institution size.

Semester Hours Taught.--The range of semester hours taught in German among the three colleges was from thirteen to eighteen, with the mean number of semester hours taught among the three institutions being 15.67. The mean number of semester hours taught in the two institution size groups concerned were Group II 13.00 and Group III 17.00.

Although the number of institutions was small there appeared to be evidence that breadth of curriculum in this subject area was related to institution size.

Class Sizes.--The mean class size range among the three colleges teaching German was from 10.50 in the smallest college to 16.00 in the largest, with the second largest institution having a mean class size of 13.81. These data seem to indicate a positive relationship between institution size and class size in this subject area.

Home Economics

Institutions Teaching: Level Taught.--Home economics was taught in three (33.3%) of the nine colleges included in this study. Two of the institutions were in the group of largest colleges (Group III) and one was in the group of smallest colleges (Group I). No colleges in Group II taught courses in this subject area. All three of the institutions concerned with this subject area taught courses at the freshman level only. The appearance of this subject area in the curriculum and the level at which it was taught appeared to be the result of factors other than enrollment size.

Semester Hours Taught.--The number of semester hours taught in home economics in the three institutions ranged from nine in the smallest college to twenty-three in the largest institution, with the second largest college teaching nineteen semester hours. Although the number of

institutions involved was small there appeared to be a positive relationship between institution size and curriculum breadth in this subject area.

Class Sizes.--Mean class sizes for the three institutions teaching courses in this subject area ranged from 8.50 in the smallest college to 20.18 in the second largest college, with the largest institution having a mean class size of 14.56. The absence of any clear pattern of class size along with the small number of institutions teaching home economics precluded drawing any conclusions concerning a relationship between enrollment size and class size in this subject area.

Philosophy

Institutions Teaching: Level Taught.--Philosophy was taught in only the three largest institutions included in this study. The second largest institution taught courses at both the freshman and sophomore levels, while the other two institutions involved taught courses at the freshman level only. The occurrence of this subject in the curriculum seems related to institution size, however, the level at which it was taught seems to be the result of factors other than enrollment size.

Semester Hours Taught.--The number of semester hours taught in the three colleges teaching this subject area ranged from three in the smallest institution to eleven in the second largest college, with the largest college

teaching six semester hours in this subject area. The mean number of semester hours for the three colleges was 6.67. The lack of a definite pattern of semester hours taught combined with the small number of colleges involved in this subject area precluded drawing any conclusions about the relationship between institution size and semester hours taught in this category.

Class Sizes.--The mean class sizes among the three colleges teaching this subject area ranged from 29.00 in the second largest college to 36.00 in the smallest institution, with the largest college having a mean class size of 31.38. The composite mean class size for the three institutions was 32.09. The small number of colleges involved and the lack of a definite pattern precluded drawing any conclusions about the relationship between institution size and enrollment size in this subject area.

Subject Areas Present in the Curriculums
of Less Than Twenty-Six Per Cent
of the Institutions

Industrial Arts²⁰

Institutions Teaching: Level Taught.--(See Table 15.) Industrial art was taught in 22.2 per cent or two of the nine, colleges included in this study. Both of

²⁰This subject area was distorted to some extent by the inclusion of data on courses in technician's training, which were in many cases not distinguishable from traditional industrial arts courses. This category might be considered as a combination of industrial arts and technician training.

TABLE 15.--Number and per cent of institutions teaching, level taught, in subject areas present in the curriculums of less than twenty-six per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Area	Number Insts. Teaching	Per Cent Insts. Teaching	Number Insts. Teaching - By Level			Per Cent Insts. Teaching		
			Fr. & Soph.	Fr. Only	Soph. Only	Group I	Group II	Group III
Humanities	1	11.1	0	1	0	00.0	00.0	50.0
Industrial Arts	2	22.2	0	2	0	00.0	00.0	100.0
Journalism	2	22.2	0	2	0	00.0	25.0	50.0
Russian	2	22.2	1	1	0	00.0	00.0	100.0

the colleges teaching this subject area were in the group of largest institutions (Group III). In both colleges this subject area was taught at the freshman level only.

Semester Hours Taught.--(See Table 16.) The larger college involved taught twenty-eight semester hours in this subject area, while the smaller of the two colleges taught three.

Class Sizes.--(See Table 17.) The smaller college involved taught a total of four sections in industrial arts, with a mean class size of 12.25. The larger college taught a total of eighteen sections with a mean class size of 11.22.

Journalism

Institutions Teaching: Level Taught.--Journalism was taught in two (22.2%) of the nine junior colleges studied. One of these institutions was in the group of largest colleges (Group III) and the other was in Group II. It was noted that the college in Group II was the largest in that group. In both institutions, journalism was taught at the freshman level only.

Semester Hours Taught.--The larger college involved taught five semester hours of journalism and the smaller of the two institutions taught only one semester hour. While there appears to be a pattern here in number of semester hours taught between the two institutions, there were not sufficient numbers of colleges involved to warrant

TABLE 16.--Ranges and means in number of semester hours taught in subject areas present in the curriculums of less than twenty-six per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Area	No. Sem. Hrs. Taught - Range Among Insts.	Mean Sem. Hrs. Taught - All Institutions	Mean Semester Hours Taught		
			Group I	Group II	Group III
Humanities*	8 -	8.00	0.00	0.00	8.00
Industrial Arts	3 - 28	15.50	0.00	0.00	15.50
Journalism	1 - 5	3.00	0.00	1.00	5.00
Russian	8 - 16	13.00	0.00	0.00	13.00

* Humanities was taught in only one institution.

TABLE 17.--Class size ranges and means in subject areas present in the curriculums of less than twenty-six per cent of Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Area	Mean Class Size Range Among Insts.	Mean Class Size All Institutions	Mean Class Size		
			Group I	Group II	Group III
Humanities*	36.70 -	36.70	0.00	0.00	36.70
Industrial Arts	11.22 - 12.25	11.24	0.00	0.00	11.24
Journalism	11.29 - 19.50	15.36	0.00	19.50*	11.29*
Russian	6.50 - 11.50	9.00	0.00	0.00	9.00

* Taught in one institution.

any conclusions regarding relationships between enrollment size and number of semester hours taught.

Class Sizes.--The smaller of the two institutions taught a total of two sections with a mean class size of 19.50. The larger college taught a total of seven sections with a mean class size of 11.29. The fact that the smaller institution restricted the number of sections taught to a total of two, probably accounts for the larger mean class size in that institution.

Russian

Institutions Teaching: Level Taught.--Russian was taught in two (22.2%) of the nine junior colleges studied. Both of these institutions were in the group of largest colleges (Group III). In the smaller of the two colleges Russian was taught at the freshman level only. In the larger college, Russian was taught at both the freshman and sophomore levels.

Semester Hours Taught.--The smaller of the two institutions teaching Russian, taught a total of ten semester hours, while the larger of the two institutions taught Russian at both the freshman and sophomore levels and taught sixteen semester hours. Considering the data given below regarding class sizes, it is likely that the teaching of Russian on the sophomore level in either of the colleges would have resulted in small mean class sizes.

Class Sizes.--The larger of the two institutions taught a total of four sections, with a mean class size of 6.50 per section. The smaller of the two colleges taught a total of two sections with a mean class size of 11.50. The relatively higher mean in the smaller college probably was the result of restricting courses in this subject area to the freshman level only.

Subject Areas Taught in Only
One Institution

Humanities

Humanities was taught in only one college among the nine studied. Although a total of eight semester hours was taught in this subject, the courses were restricted to the freshman level. A total of ten sections were taught in humanities with a mean class size per section of 36.70 students. The institution involved in this subject area was the largest of the nine colleges studied.

Summary

The purpose of this chapter was to examine separately the subject areas taught in the public junior colleges regarding certain aspects of curriculum breadth and to discover any tendencies for each of the aspects to be related to institution enrollment size.

A total of thirty-five different subject areas, offering college transfer credit, were taught among the

nine public junior colleges studied. There was considerable variation among the subject areas in the per cent of institutions in which each was taught. Fourteen, or forty per cent, of the thirty-five subject areas (Table 3) were present in the curriculums of all nine junior colleges. Seven other subject areas (Table 6) were taught in more than seventy-five per cent of the colleges. Four subject areas (Table 9) were present in fifty-one through seventy-five per cent of the colleges, six (Table 12) were present in twenty-six through fifty per cent of the colleges, and four (Table 15) were present in less than twenty-six per cent of the college curriculums. Thus, only sixty per cent of the subject areas were present in the curriculums of more than seventy-five per cent of the colleges studied, and fewer than three-fourths (71.43%) of the subject areas were present in the curriculums of more than fifty per cent of the colleges. In many instances, the data suggested a positive relationship between institution size and the presence of the subject area in the curriculum. The extent of this relationship will be explored in Chapter V along with a comparison of the total number of subject areas taught in each institution size group.

The levels at which various subject areas were taught varied considerably among the subject areas and among the institutions. These variations in some subject areas appeared to be related to institution size, whereas, the

opposite was true in other subject areas. A further analysis will be made in Chapter V to determine whether enrollment size was related to the variations in the levels at which subject areas were taught.

In the analysis of the number of semester hours taught in each subject area, two observations were made. One of these was that there appeared to be a strong positive relationship between institution size and the number of semester hours taught in the individual subject areas. The other observation was that there was a broad range in number of semester hours taught in the various subject areas. In Chapter V a closer examination will be made of these two observations.

It was also observed during the analysis of individual subject areas that there was a wide range in mean class sizes among the various institutions in many of the subject areas. There were indications also of a possible relationship between institution enrollment size and mean class sizes in some of the subject areas. This possibility will be explored further in Chapter V.

The data in this chapter have been presented in table form by groups of subject areas ranked according to the per cent of institutions in which they were taught. These same data are summarized in Appendices B and C, with the subject areas ranked in Appendix B by the mean number of semester hours taught per institution, and in Appendix C

by mean class size for all colleges combined. These data are presented in this form as a means of summarization and as a source of easy reference for the remaining chapters of this study.

CHAPTER V

INVESTIGATION OF APPARENT RELATIONSHIPS BETWEEN INSTITUTION ENROLLMENT SIZE AND KIND, NUMBER, AND LEVEL OF SUBJECT AREAS TAUGHT, MEAN CLASS SIZE, AND PER CAPITA COST

Institution Enrollment Size and the Presence of Certain Subject Areas in the Curriculum

One of the results of the analysis in Chapter IV was the indication that in several subject areas there appeared to be a positive relationship between institution size and the presence of certain subject areas in the curriculum. The purpose of this section of Chapter V is to explore this relationship by ranking the subject areas by groups according to the per cent of institutions in which the subject areas were taught (see Table 18) and by comparing the per cent of institutions in each enrollment size group teaching the individual subject area. As was pointed out in Chapter IV, fourteen subject areas were taught in all institutions. Thus, any relationship between institution size and the presence of certain subject areas in the curriculum was necessarily restricted to the remaining twenty-one subject areas. Table 18 shows in graphic form the frequency with which individual subject areas and groups of subject areas were taught in the individual institutions and in groups

TABLE 18.--Distribution of twenty-one subject areas taught in nine Missouri public junior colleges, fall and spring semesters, 1966-1967 (subject areas and institutions by groups).*

	Subject Areas	Institutions								
		Group I			Group II				Group III	
		1	2	3	4	5	6	7	8	9
Group A	Humanities									x
	Russian								x	x
	Journalism							x		x
	Industrial Arts								x	x
Group B	Philosophy							x	x	x
	Home Economics			x					x	x
	German							x	x	x
	Advertising Design							x	x	x
	Geology		x	x					x	x
	Anthropology		x					x	x	x
Group C	Architecture					x	x	x	x	x
	Geography			x	x		x	x	x	x
	French	x			x		x	x	x	x
	Drama			x		x	x	x	x	x
Group D	Psychology		x	x	x	x	x	x	x	x
	Engineering, General			x	x	x	x	x	x	x
	Spanish		x	x	x	x	x	x	x	x
	Engineering Drawing	x		x	x	x	x	x	x	x
	Education	x		x	x	x	x	x	x	x
	Business Education	x		x	x	x	x	x	x	x
	Art	x		x	x	x	x	x	x	x

The marked areas identify each instance in which a particular subject area was taught in a particular institution.

*Subject area groups, according to range in per cent of institutions in which individual subject areas were taught, are: Group A, 11.1-25%; Group B, 26.0-50.0%; Group C, 51.0-75.0%; Group D, 76.0-88.8%.

Institution groups, according to range in institution enrollment in full-time equivalent students, are: Group I, 168-418 FTES; Group II, 710-1546 FTES; Group III, 3559-6721 FTES.

of institutions. The twenty-one subject areas, none of which were taught in all institutions, are ranked in ascending order from the top of the table to the bottom according to the number of institutions in which they were taught. These groups were formed to allow summarization of results which might reveal patterns not apparent in the overall summary.

The nine junior colleges in this study were ranked from left to right in Table 18 in ascending order according to their enrollment size in full-time equivalent students. The nine institutions were divided into three enrollment size groups, as described in Chapter IV, to allow comparison of practices among the three groups of institutions. The subject areas and institutions were ranked and arranged in Table 18 in the manner described to provide (1) a visual picture of the possible relationships between institution size and the number and kind of subject areas taught, and (2) a detailed account of the subject areas taught in each institution as well as the institutions in which each subject area was taught.

To simplify the interpretation of Table 18, the term "teaching instance" is utilized to represent each instance in which a particular subject area was taught in a particular institution. Each teaching instance is identified in Table 18 by a lined square.

An examination of Table 18 reveals a heavy concentration of teaching instances toward the bottom and toward the right of the table, and a lessening of this concentration toward the right and toward the upper portion of the table. This pattern indicated that the institutions in Group I taught fewer subject areas per institution than did those in Groups II and III. This may also be described as a tendency for each subject area and group of subject areas to be taught in a larger per cent of the larger institutions than in the smaller ones. Second, this pattern indicated a tendency for all three groups of institutions to teach a core of common subject areas, with this core being expanded, or broadened, in Group II as compared to Group I, and in Group III as compared to Group II.

The extent of the two tendencies described above is represented in Table 19. Each percentage shown in Table 19 presents in quantitative form the frequency with which the subject areas in a particular subject area group were taught in a particular institution size group. The percentages in Table 19 may also be described as the per cent of possible teaching instances actually taught in each subject area group-institution size group. For example, in Subject Area Group D-Institution Group I there were seven subject areas and three institutions (see Table 18), producing twenty-one possible teaching instances. Twelve, or 57.11 per cent, of the possible teaching instances were

taught. Since Table 19 parallels Table 18, the percentages in Table 19 are arranged in the same order as the various subject area-institution groups in Table 18.

TABLE 19.--Mean per cent of institutions in three enrollment size groups teaching subject areas in four subject area groups, Missouri public junior colleges, fall and spring semesters, 1966-1967.*

Subject Area Groups	Institution Groups**		
	Group I	Group II	Group III
Group A	00.00	6.25	75.00
Group B	22.22	16.67	100.00
Group C	25.00	75.00	100.00
Group D	57.11	100.00	100.00
All Subject Areas	30.16	53.57	95.24

*The statistic given in the table may also be described as the per cent of possible teaching instances actually taught in each subject area group-institution group.

** See Table 18, page 107, for subject areas and institutions included in each group.

An examination of Table 19 reveals two important facts. First, in every instance except two the frequency with which the subject areas in each group were taught was greater in institution Group II than in Group I, and greater in Group III than in Group II. The exceptions were in Subject Group B, in which the frequency for

Institution Group II was less than for Group I, and in Subject Group D where the frequencies for Institution Groups II and III were the same. Second, in each institution group there was an increase in frequency of subject areas taught in each Subject Area Group from Group A through Group D, with the exception of Institution Group III where Subject Area Groups B, C, and D were the same.

Since in the literature reviewed in Chapter II of this study the most frequently suggested enrollment sizes for new community junior colleges were 200 and 400 full-time equivalent students, it was decided to examine the data in Table 18 to determine if there were any important differences in these institution sizes as compared to the previously selected institution size groups. The institutions in Group I were divided into those with full-time equivalent enrollemnts below two hundred (168 and 181 FTE students) and the one institution with an enrollment greater than two hundred (418 FTE students). These institution size groups were designated as Groups I-A and I-B, respectively.

A comparison of the data for Groups I-A, I-B, II, and III is presented in Table 20. In all subject area groups except Group A, the institution in Group I-B taught a much greater per cent of the possible teaching instances than did institution Group I-A. The difference in percentages between Groups I-A and I-B for all subject

TABLE 20.--Mean per cent of institutions in four enrollment size groups teaching subject areas in four subject area groups, Missouri public junior colleges, fall and spring semesters, 1966-1967*

Subject Area Groups	Institution Groups**		
	Group I-A	Group I-B	Group II
Group A	00.00	00.00	6.25
Group B	16.67	33.33	16.67
Group C	12.50	50.00	75.00
Group D	35.71	100.00	100.00
All Subject Areas	19.05	52.38	53.57

*The statistic given in the table may also be described as the per cent of possible teaching instances actually taught in each subject area group-institution group.

** See Table 18 for subject areas and institutions included in each group.

areas combined was 33.33. On the other hand, the difference between the percentages for Groups I-B and II was only 1.19.

In summary, among the institutions from 418 to 1546 students there appeared to be little relationship between institution enrollment size and the per cent of possible teaching instances actually taught. However, the percentage for the group of institutions of less than 200 (Group I-A) was appreciably lower than that for Group I-B, and the percentage for Group III (3559-6721 students) was appreciably larger than for Group II (710-1546 students). The data suggest that in the three institution size groups there was a strong positive relationship between institution enrollment size and per cent of possible teaching instances taught.

As has been stated, the data in Tables 19 and 20 showed a tendency for all three groups of institutions to teach a core of common subject areas with the core being expanded, or broadened, in Group II as compared to Group I, and in Group III as compared to Group II. A comparison among the three groups of institutions in kind and number of subject areas which are considered the basic, or core, offering of each group of colleges is represented in Table 21. Comparing the institution groups regarding the number of subject areas taught in all institutions in each group, Group I (the smallest colleges) had fourteen

TABLE 21.--Basic subject areas taught in institutions in three enrollment size groups, Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Areas		
Institution Group I*	Institution Group II*	Institution Group III*
Biological Science	Biological Science	Biological Science
Business Administration	Business Administration	Business Administration
Chemistry	Chemistry	Chemistry
Economics	Economics	Economics
English	English	English
History	History	History
Mathematics	Mathematics	Mathematics
Music	Music	Music
Physical Education	Physical Education	Physical Education
Physics	Physics	Physics
Political Science	Political Science	Political Science
Sociology	Sociology	Sociology
Speech	Speech	Speech
Zoology	Zoology	Zoology
	Art	Art
	Business Education	Business Education
	Education	Education
	Engineering Drawing	Engineering Drawing
	Engineering, General	Engineering, General
	Psychology	Psychology
	Spanish	Spanish
		Anthropology
		Advertising Design
		Architecture
		Drama .
		French
		Geography
		Geology
		German
		Home Economics
		Industrial Arts
		Philosophy
		Russian

* See Table 18 for enrollment size range encompassed by each institutional group.

subject areas, Group II had twenty-one, and Group III had thirty-three. These data indicated important differences among the three groups of colleges in the number of basic subject areas taught. It was noted that the difference of seven subject areas between Groups I and II was not as great as that of twelve between Groups II and III. The first fourteen subject areas listed in each column are those taught in all colleges. The subject areas are listed in this manner to demonstrate the tendency for the subject areas taught in all colleges to be extended in institution Groups II and III to involve subject areas not taught at all or taught in a smaller per cent of institutions in the group of next smaller institutions.

Institution Enrollment Size and
Number of Subject Areas Taught

The preceding section of this chapter was concerned with the relationships between institution size and the presence of certain subject areas and groups of subject areas in the curriculum. Although the number of subject areas taught was involved, the emphasis was on the kinds of subject areas taught. The purpose of this section is to provide a clearer picture of any possible relationships between institution size and number of subject areas taught.

Appendix A shows the number of subject areas taught in each of the nine junior colleges included in this study. The institutions are numbered and ranked in ascending order

by full-time equivalent students. The data in Appendix A reveal a wide variation among the junior colleges in the number of subject areas taught. To arrive at an overall view of an apparent positive relationship between institution size and number of subject areas taught, the data presented in Appendix A were subjected to the Spearman Rank Order Correlation Coefficient Test. This test produced a correlation coefficient of .908 between institution enrollment size and number of subject areas taught. This correlation coefficient was significant at the .01 level. The fact that the sample of junior colleges included in this study was, in effect, the total population strengthened the correlation coefficient.

The range among the institutions in number of subject areas taught was seventeen to thirty-five, with a mean among the nine institutions of 25.56. The median for all institutions was 23.0.

Since the data presented earlier in this chapter indicated that the apparent relationship described above might be closer in institutions of certain enrollment sizes than in others, further analysis of the data shown in Appendix A was undertaken. The groups utilized earlier in this chapter were again employed in this analysis. Group I was sub-divided into groups designated I-A and I-B. Table 22 contains the four enrollment size groups with data on number of subject areas taught in the colleges in each group.

TABLE 22.--Ranges and means in subject areas taught in four enrollment size groups, Missouri public junior colleges, fall and spring semesters, 1966-1967.

Institution Group*	Range in Subject Areas Taught	Mean Subject Areas Taught
Group I-A	17 - 19	18.00
Group I-B	25 - **	25.00
Group II	23 - 30	25.25
Group III	33 - 35	34.00

*The ranges in enrollment size among the institution size groups were:

Group I-A, 168-181,	Group II, 710-1,546
Group I-B, 418-	Group III, 3,559-6,721

**This institution size group contained only one institution.

In Table 22 two definite stages are evident in the apparent relationship between institution enrollment size and number of subject areas taught. Among the colleges with fewer than 200 full-time student equivalents there appeared to be no relationship. The institutions ranged in size from 168 to 181 full-time equivalent students, with the larger college teaching two less subject areas than the smaller college. It is evident from an examination of the data in Table 22 that the institution designated as Group I-B is more like those colleges in institution size Group II in number of subject areas taught than it is like those institutions in Group I-A.

The four institutions with a full-time student equivalent enrollment of between 710 and 1546 (Group II) presented a different pattern than that found in the institutions below 200 full-time student equivalents. The range in subject areas taught was from 23 to 30, with a mean among the four institutions of 25.25. The mean of 25.25 represents an increase of 7.25 subject areas over those in Group I-A.

The pattern in number of subject areas taught in the colleges in Group III is similar to that in colleges under 200 full-time student equivalents (Group I-A). The range in subject areas taught in Group III was from 33 to 35, with a mean of 34.00 among the two institutions in this size group. The larger institution in this size group taught only two subject areas more than the smaller institutions. The mean of 34 subject areas for Group III, however, represented an increase of approximately nine subject areas over Group II.

In summary, the larger institutions in Group I-A and III taught about the same number of subject areas as did the smaller institutions in these two groups. Further, the smallest institution in Group III taught only three subject areas more than did the largest institution in Group II. The implication of this pattern is that there was a tendency for a minimum number of subject areas to be taught in the colleges in Group I-A regardless of limitations in enrollment size. Similarly, a maximum number of subject areas taught per institution in Group II was exceeded only slightly in colleges of substantially larger enrollment

size. The enrollment size range 710-1546 (Group II) was the range within which there was a relatively steady increase in number of subject areas taught in relation to increase in enrollment size.

Institution Enrollment Size and Level
At Which Subject Areas Were Taught

In the analysis in Chapter IV of this study, considerable variation was noted among institutions in the levels at which the 35 subject areas were taught. As was noted in Chapter IV the nature of these variations seemed to warrant further analysis to determine whether the level taught appeared to be related to institution enrollment size. Since the question of enrollment size and the offering of certain subject areas has been explored in the preceding section of this chapter, the measure of curriculum breadth concerning the level taught was whether the subject areas involved were taught at both the freshman and sophomore levels. The purpose of this section was to determine whether there was an apparent relationship between institution size and the presence of certain subject areas at both levels in the curriculum.

To arrive at an overall view of any apparent relationship between institution enrollment size and the level at which certain subject areas were taught, the data shown in Table 23 were subjected to the Spearman Rank Order Correlation Coefficient Test. This test on the data shown in Table 23 produced a correlation coefficient of .850, which

TABLE 23.--Number of subject areas taught at both the freshman and sophomore levels in Missouri public junior colleges, fall and spring semesters, 1966-1967.

Institution*	Number of Subject Areas Taught at Both Freshman and Sophomore Levels
1	3
2	2
3	9
4	14
5	6
6	12
7	13
8	19
9	21

* Institutions are ranked from top to bottom in ascending order of institution enrollment size.

had a probability of significance at the .01 level of confidence. The fact that the sample of junior colleges used in this study was, in effect, the total population strengthened the coefficient of correlation obtained.

Since an overall relationship appeared to exist between institution enrollment size and levels at which certain subject areas were taught, a further investigation was made to determine what apparent relationships existed between the institution enrollment size groups defined in Chapter IV of this study and levels at which certain subject areas were taught. First, the institutions in each size group teaching the subject area were identified, and the per cent of those colleges teaching the subject area at both levels was determined. For example, if two of the three colleges

in a particular group of colleges taught a certain subject area, and one of the two taught it at both levels, the institution size group would be given a rating of 50.00 per cent for that subject area. The composite means for each of the three groups in all subject areas involved were then compared.

It was immediately apparent that many of the subject areas taught would have to be excluded from the analysis, since some subject areas were taught in such a small per cent of the institutions that they were not taught in any college in one or more of the institution enrollment size groups. This made comparison among these subject areas impossible.

The subject areas included in the analysis were those taught at both the freshman and sophomore levels in at least one institution in each institution size group. These subject areas were art, business administration, chemistry, engineering drawing, English, mathematics, music, political science, sociology, and Spanish.

The statistic utilized to compare the three institution groups was the mean per cent of institutions involved teaching the subject areas involved at both the freshman and sophomore levels. The mean percentages for the three institution size groups were:

Group I - 48.33%

Group II - 70.00%

Group III - 90.00%

An inspection of these data reveals that there was an apparent relationship between institution enrollment size and the presence of certain subject areas at both the freshman and sophomore levels in the curriculum. Closer examination of the data shows that while there was an appreciable difference between Groups II and III, the difference between Groups I and II was even greater. The implication is that as the junior colleges increased in enrollment size, the tendency to teach certain subject areas at both the freshman and sophomore levels increased at a fairly constant rate from an enrollment size below five hundred full time student equivalents to above six thousand.

Institution Enrollment Size and Curriculum
Breadth in Number of Semester Hours Taught

There were two primary measures of curriculum breadth with which this study was concerned; the number of subject areas included in the curriculum and the total number of semester hours taught in distinct courses within the subject areas. An analysis of the possible relationships between enrollment size and the kind, number and level of subject areas taught was described in the previous sections of this chapter. The present section describes the analysis of the possible relationship between enrollment size and the number of semester hours taught in distinct courses.

Appendix A shows the institutions included in this study and the total number of semester hours taught in each

for the thirty-five subject areas included in this study. With the junior colleges ranked according to enrollment size in full-time student equivalents as they are in Appendix A, it is evident that there is a wide range among the colleges in number of semester hours taught and that there are substantial differences between the larger and smaller institutions. To secure an exact indication of the extent to which institution enrollment size and number of semester hours taught varied together, the data for these two factors were subjected to the Spearman Rank Order Correlation Coefficient Test. The result was a coefficient of correlation of .950, which had a probability of significance at the .01 level of confidence. The fact that the sample of junior colleges included in this study was, in effect, the total population strengthened the coefficient of correlation.

The correlation just described left unanswered the question of whether the apparent relationship between institution size and number of semester hours taught was stronger in particular institution size ranges than in others. In an attempt to answer this question, the nine institutions were divided into four enrollment size groups, and the mean number of semester hours taught per group was determined. The data resulting are shown in Table 24, along with the difference between the mean for each institution size group and the mean for the next lower size group.

TABLE 24.--Mean number of semester hours taught per institution in four institution size groups, Missouri public junior colleges, fall and spring semesters, 1966-1967.

Institution Group*	Mean Semester Hours Per Institution All Subject Areas	Difference in Means**
I-A	116	---
I-B***	247	131
II	312	65
III	581	269

* Range in full-time student equivalents in the four institution groups were:

Group I-A, 168-181	Group II, 710-1,546
Group I-B, 418-	Group III, 3,559-6,721

** The difference shown for each institution group is the difference between the mean for that group and the mean for the next lower size group.

*** Institution size group I-B contained only one institution.

An examination of Table 24 reveals that the colleges in each enrollment size group taught a larger number of semester hours per institution than did the colleges in the next lower size group. An examination of the differences in the means shows a difference of 131 semester hours between Groups I-A and I-B; a difference of 65 semester hours between Groups I-B and II; and a difference of 269 semester hours between Groups II and III. The implications of these data are that among the junior colleges below 500

full-time student equivalents and those above 3,000 full-time student equivalents there appears to be a strong positive relationship between institution enrollment size and breadth of curriculum measured by number of semester hours taught. In the institution size range between 700 full-time equivalent students and 1,600 full-time equivalent students this relationship does not appear to be as strong as in the other institution size ranges.

It was noted that the pattern among the institution size groups in number of semester hours taught was similar to that discovered regarding the number of subject areas taught (see Table 22). An attempt was made to determine the extent of the apparent relationship between these two measures of curriculum breadth. The data shown in Appendix A for subject areas taught and semester hours taught were tested by use of the Spearman Rank Order Correlation Coefficient Test. The result was a coefficient of correlation of .900, which had a probability of significance at the .01 level of confidence. It was noted that this coefficient of correlation was greater than that of .850 obtained in a comparison of institution enrollment size and subject areas taught, and smaller than that of .950 obtained in a comparison of institution enrollment size and semester hours taught. Considering both of these coefficients of correlation, it may be concluded that there was an apparent strong positive tendency for the three factors to vary together, that is, for each of the factors to increase in size with increases in either of the other two factors.

Institution Enrollment Size
and Mean Class Size

The purpose of this portion of the study is to explore the possible relationship between mean class size and institution enrollment size. Although institutional mean class size was not considered primarily a function of institution enrollment size, it was thought that these two factors were more closely related in some institution size groups than in others and that the curriculums of relatively small institutions might have been restricted in order to maintain class sizes comparable to those in larger colleges. It was recognized that mean class sizes were probably affected to some extent by such factors as administrative restrictions and the popularity of individual instructors, although it was not possible to include these factors in this study.

To investigate the possibility of a relationship between institution enrollment size and mean class size in all subject areas combined, the data concerning these two factors (see Appendix A) were subjected to the Spearman Rank Order Correlation Coefficient Test. This test on the data shown in Appendix A produced a correlation coefficient of .700, which had a probability of significance at the .05 level of confidence. This coefficient of correlation indicated an apparent positive relationship of some strength between mean class size and institution enrollment size.

To determine whether the apparent positive relationship between institution enrollment size and mean class size was stronger in some institution size ranges than in others, the nine junior colleges were divided into four institution size groups according to enrollment in full-time equivalent students. The four groups along with the enrollment size represented by each and the mean class size per institution in each group are shown in Table 25. Also shown are the mean semester hours in distinct courses taught per institution in each group. Mean semester hours taught was the measure of curriculum breadth selected to be compared with mean class sizes among the institution size groups because this measure represented a more accurate reflection of the number of distinct courses taught than did the number of subject areas taught.

An examination of Table 25 shows that the mean class sizes per college in institution Groups I-A and I-B (the two groups of smallest colleges) were 21.33 and 20.63, respectively. The mean class size per institution in Group II was 25.61, which was 3.28 above the mean class size for institution Group I-A. The mean class size for the group of largest colleges (Group III) was 22.94, or 2.67 below the mean class size for Group II and only 1.61 greater than the mean class size for the group of smallest colleges (Group I-A).

TABLE 25.--Mean class size per institution in all subject areas and mean semester hours taught per institution in all subject areas by institution size groups, Missouri public junior colleges, fall and spring semesters, 1966-1967.

Institution Group*	Mean Class Size Per Institution	Mean Semester Hours Per Institution All Subject Areas
I-A	21.33	116
I-B**	20.63	247
II	25.61	312
III	22.94	581

* Size ranges in full-time equivalent students for each institution group were:

Group I-A, 168-181

Group II, 710-1,546

Group I-B, 418-

Group III, 3,559-6,721

** Institution size group I-B contained only one institution.

Except for the fact that the two groups of colleges with the smallest enrollments also had the smallest mean class sizes, there was little indication that the apparent relationship between institution enrollment size and mean class size per institution was stronger in any institution enrollment size range than in others. The implication of this is that there were other factors which influenced mean class size more than did institution enrollment size.

It has been shown in a previous section in this chapter that there appeared to be a strong positive relationship between institution size and number of semester

hours taught per institution. This relationship is evident in Table 25. However, despite the fact that the institutions in each enrollment size group taught a greater number of semester hours than did those in the next smaller group, the mean class size in each enrollment size group remained nearly constant. This phenomenon prompted speculation on the part of the writer that the smaller colleges may have restricted curriculum breadth in both number of semester hours taught in distinct courses and in subject areas taught in order to maintain class sizes comparable to those in larger institutions.

Per Capita Cost and Institution Enrollment
Size, Semester Hours Taught, Subject
Areas Taught, and Level Taught

The purpose of this section of the study is to explore the possible relationship between per capita cost¹ of operation and institution enrollment size. A study conducted through Michigan State University showed "that the costs for current operations vary for community colleges within a state, and are not necessarily lower with increased enrollment or higher with a small enrollment."² Although

¹Per capita cost was computed by dividing the total educational and general expenditure of an institution by the full-time equivalent students (see Appendix D).

²Final Report of the Three County Community College Study, Coordinated by The Office of Community College Cooperation, Michigan State University (East Lansing: The Steering Committee for the Study), July, 1961, p. 133.

per capita cost was not considered primarily a function of institution enrollment size, it was thought that these two factors might be more closely related in some institution size groups than in others. While per capita cost was not considered a measure of curriculum breadth, it was thought that an examination of this factor and its relationship to the three primary measures of curriculum breadth used in this study (number of semester hours taught, number of subject areas, and level at which subject areas were taught) might help to explain some of the phenomena observed in the investigation of those measures of curriculum breadth and institution enrollment size. It was also recognized that per capita cost is dependent upon factors other than the breadth of offerings in the college transfer curriculum. Breadth of offerings in the technical-occupational programs of the junior college, the comprehensiveness of student personnel services, and location of the institution in rural or urban settings are examples of the types of factors which may affect per capita cost, and while these factors are recognized as influencing per capita cost it was not possible in this study to include an investigation of these factors.

To investigate the possibility of a relationship between institution enrollment size and per capita cost among all institutions included in this study, the data concerning these two factors (see Appendix D) were

subjected to the Spearman Rank Order Correlation Coefficient Test. This test on the data shown in Appendix D produced a coefficient of correlation of .217, this very low coefficient of correlation seemed to indicate no apparent relationship between institution size and per capita cost.

To determine whether there was an apparent stronger positive relationship between institution enrollment size and per capita cost in some institution size ranges than in others, the nine junior colleges included in this study were divided into four institution size groups according to enrollment in full-time equivalent students. The four groups along with the enrollment size represented by each and the mean per capita cost per institution size group are shown in Table 26. Also shown are the mean semester hours taught per institution size group, mean number of subject areas taught per institution size group, and the mean number of subject areas taught at both the freshman and sophomore levels per institution size group. It was decided that per capita cost would be compared with each of these three measures of curriculum breadth to determine if there were any tendencies for these three factors to vary with per capita cost.

An examination of Table 26 reveals that per capita cost per college in institution Group I-A (the group of smallest colleges) was \$596.00 per student, the lowest per

TABLE 26.--Mean per capita cost per institution, mean semester hours taught per institution, mean number of subject areas taught per institution, and mean number of subject areas taught at both freshman and sophomore levels for four institution size groups, Missouri public junior colleges, fall and spring semesters, 1966-1967.

Institution Group*	Mean Per Capita Cost Per Inst.**	Mean Sem. Hrs. Per Inst.	Mean Subj. Areas Per Institution	Mean No. Subj. Areas Fr. and Soph. Levels Per Institution
I-A	\$596	116	18.00	2.5
I-B	\$836	247	25.00	9.0
II	\$714	312	25.25	11.25
III	\$775	581	34.00	20.00

* Size ranges in full-time equivalent students for each institution size group were: Group I-A, 168-181; Group I-B, 418-; Group II, 710-1,546; Group III, 3,559-6,721.

** Per capita costs were rounded to the nearest dollar.

capita cost among the four institution size groups. The per capita cost in institution Group I-B (the second smallest group of colleges) was \$836.00 per student, which was the highest per capita cost among the four institution size groups. Institution Groups II and III had per capita costs of \$714.00 and \$775.00, respectively. These data indicate that each institution size group had a higher per capita cost than the next lower institution size group with the exception of Group II.

To determine if any apparent relationship existed between per capita cost and mean number of semester hours taught per institution, mean number of subject areas taught per institution, and number of subject areas taught at both the freshman and sophomore levels per institution, the data in Appendix A and Appendix D were subjected to the Spearman Rank Order Correlation Coefficient Test. This test produced coefficients of correlation of .217 between per capita cost and number of semester hours taught per institution, .325 between per capita cost and number of subject areas taught per institution, and .267 between per capita cost and number of subject areas taught at both levels per institution. These relatively low coefficients of correlation indicate that factors other than per capita cost account for the apparent close relationship between institution size and these three measures of curriculum breadth. Conversely, it appears from these

data presented above and the data in Table 26 that factors other than institution size are more responsible for per capita cost than are the three measures of curriculum breadth used in this study.

Summary

The purpose of this chapter was to describe an analysis of possible relationships between institution enrollment size³ and (1) the kind of subject areas taught, (2) the number of subject areas taught, (3) the levels at which certain subject areas were taught, (4) the number of semester hours taught, (5) the mean class size per institution, and (6) per capita cost per institution.

In Table 21 are shown the subject areas taught in all of the institutions in each of the three institution enrollment size groups. Fourteen of the thirty-five subject areas involved in this study were taught in all institutions. These same fourteen subject areas were the only ones taught in all colleges in Group I (the smallest colleges). Twenty-one subject areas were taught in all colleges in Group II, and thirty-three subject areas were taught in all institutions in Group III (the largest colleges). The implication is that certain subject areas tended to be included in the curriculum regardless of enrollment size, and that certain

³Throughout this study the measure of institution size was the number of full-time equivalent students enrolled.

other subject areas tended to be added as enrollment increased.

In the analysis of the kind of subject areas taught, the data suggested a positive relationship between institution enrollment size and total number of subject areas taught. To determine the extent of this possible relationship, Spearman Rank Order correlation analysis was made of the data. The result was a coefficient of correlation of .908, which had a probability of significance at the .01 level of confidence. The data were analyzed further to determine whether the apparent relationship was closer in institutions in certain enrollment size ranges than in others. Three definite stages were discovered in the apparent relationship between institution enrollment size and number of subject areas taught. Those colleges with an enrollment of fewer than two hundred full-time equivalent students taught considerably fewer subject areas than did the college enrolling approximately four hundred full-time equivalent students. On the other hand, those colleges enrolling between seven hundred and sixteen hundred full-time equivalent students taught approximately the same number of subject areas as the college enrolling four hundred students, and those colleges enrolling 3,500 to 6,700 full-time equivalent students taught a considerably greater number of subject areas than did those colleges with enrollments between seven hundred and sixteen hundred

full-time equivalent students. The implication is that there was a tendency for a minimum number of subject areas to be included in the curriculum regardless of limitations in enrollment. This minimum number was increased considerably as the institution size approached four hundred. Thus, although certain subject areas tended to be added to the curriculum as enrollment size increased, the addition of these subject areas occurred almost entirely within the four hundred full-time equivalent enrollment size group. Beyond the institution size of sixteen hundred full-time equivalent students there again appeared to be a considerable number of subject areas added to the curriculum.

Another element of the analysis described in the present chapter was the investigation of a possible relationship between institution enrollment size and the presence of certain subject areas at both the freshman and sophomore levels, which was considered a measure of curriculum breadth. To determine the extent of this possible relationship, Spearman Rank Order correlation analysis was made of the data. The result was a coefficient of correlation of .850, which had a probability of significance at the .01 level of confidence. Further analysis was made to determine whether this apparent close relationship was stronger among certain institution enrollment size groups than others. The subject areas included were those represented in all institution groups and taught at both

levels in at least one-third of the colleges in which they were present. The statistic used to compare the three institution groups was the mean per cent of colleges involved teaching the subject areas at both the freshman and sophomore levels. The mean percentages for the three groups of colleges were Group I 48.33%, Group II 70.00%, and Group III 90.00%. The implication of these data is that as the junior colleges increase in enrollment size, the tendency to teach certain subject areas at both levels increased, with a slightly greater increase between Group I and Group II than between Group II and Group III.

Another facet of the analysis described in the present chapter was the investigation of a possible relationship between institution enrollment size and curriculum breadth in number of semester hours taught in distinct courses. To determine the extent of the possible relationship between these two factors, Spearman Rank Order correlation analysis was made of the data. The result was a coefficient of correlation of .950, which had a probability of significance at the .01 level of confidence. To determine if this apparent relationship was stronger between certain institution enrollment size groups than others, the junior colleges included in this study were divided into four institution size groups as shown in Table 24. The comparison of mean number of semester hours taught per institution among the four institution size groups showed the greatest

increases in semester hours taught were between those institutions enrolling less than 200 full-time equivalent students and the institution with an enrollment of approximately 400 full-time equivalent students and those institutions enrolling more than 3,500 full-time equivalent students. The implications of these data were (1) that there was a tendency for a minimum number of semester hours in distinct courses to be taught regardless of comparatively small institution size and that this minimum was exceeded to an appreciable extent as enrollment size approached an enrollment of 400 full-time equivalent students, (2) that a maximum number of semester hours taught in distinct courses was approached in groups of institutions of above 3,500 full-time equivalent students, and (3) that between 400 and 1,600 full-time equivalent students there was relatively little increase among the institutions in number of semester hours taught in distinct courses.

A coefficient of correlation of .900 was obtained in a comparison of the number of semester hours taught in distinct courses and the number of subject areas taught, which suggested a close positive relationship between these two measures of curriculum breadth.

Another area of analysis described in the present chapter was the possible relationship between institution enrollment size and mean class size among the junior

colleges included in this study. While mean class size was not considered a measure of curriculum breadth, it was thought that a comparison of this factor with institution size and semester hours taught might help to explain the restriction in curriculum breadth among the smaller institutions.

The coefficient of correlation between mean class size and institution enrollment size was .700, which had a probability of significance at the .05 level of confidence. Closer examination of this apparent relationship was made by grouping the institutions according to enrollment size, as shown in Table 25, and comparing the mean class sizes among the various groups. An examination of these data showed little indication that the apparent relationship between mean class size and institution enrollment size was stronger in any institution size range than in others.

The data concerning mean class size were compared with the data on mean number of semester hours taught in distinct courses to determine if an apparent relationship existed between these two factors. The data in Table 25 show that despite the fact that the institutions in each enrollment size group taught a greater number of semester hours than did those in the next smaller group, the mean class size in each enrollment size group remained nearly constant. Thus, it appeared probable that the smaller colleges may have restricted curriculum breadth in order

to maintain class sizes comparable to those in larger institutions.

The final area of analysis described in this chapter was the possible relationship between per capita cost in each institution and institution enrollment size, number of semester hours taught, number of subject areas taught, and the level at which certain subject areas were taught. While per capita cost was not viewed as a measure of curriculum breadth, it was thought that an investigation of the relationship between this variable and certain measures of curriculum breadth might provide an explanation of the apparent restriction of curriculum breadth in the smaller colleges included in this study.

The coefficient of correlation between institution enrollment size and per capita cost was .217. Closer examination of this apparent low relationship was made by grouping the institutions according to enrollment size, as shown in Table 26, and comparing the per capita cost among the various groups. Aside from the fact that the group of smallest institutions had the lowest per capita cost, an examination of these data showed little indication that the apparent low relationship between per capita cost and institution enrollment size was stronger in any institution size range than in others.

When coefficients of correlation were computed between per capita cost and each of the three measures of curriculum breadth used in this study, the results were:

1. A correlation of .217 between per capita cost and mean number of semester hours taught per institution.
2. A correlation of .325 between per capita cost and number of subject areas taught per institution.
3. A correlation of .267 between per capita cost and number of subject areas taught at both the freshman and sophomore levels.

These data indicated a low positive relationship between per capita cost and these three measures of curriculum breadth. When the data for these three measures of curriculum breadth were grouped by institution size groups as shown in Table 26 it was noted that the group of smallest institutions (Group I-A) had the lowest per capita cost, the smallest mean number of semester hours taught per institution, the smallest mean number of subject areas taught per institution, and the smallest mean number of subject areas taught at both the freshman and sophomore levels per institution. Aside from this one relationship there appeared to be no noticeable relationship among the other institution size groups and per capita cost when compared to the three measures of curriculum breadth. On the basis of these data it appeared probable that factors other than per capita cost accounted for the apparent close relationship between institution size and these three

measures of curriculum breadth, and conversely, it appeared that factors other than institution enrollment size accounted for the variations in per capita cost among the nine junior colleges included in this study.

CHAPTER VI

AN ANALYSIS OF THE RESPONSES OF JUNIOR COLLEGE ADMINISTRATORS, FOUR-YEAR COLLEGE ADMINISTRATORS, AND STATE LEVEL ADMINISTRATORS TO QUESTIONS PERTAINING TO INSTITUTION SIZE, OPERATING COSTS, AND CURRICULUM BREADTH IN MISSOURI PUBLIC JUNIOR COLLEGES

Introduction

In Chapters IV and V of this study a detailed analysis was made of certain measures of curriculum breadth of the college transfer curriculums of nine public junior colleges in Missouri and the relationships of these measures of curriculum breadth to institution enrollment size and per capita cost. This chapter provides an analysis of the opinions of persons in positions of leadership in the junior college movement in Missouri as expressed in their response to a questionnaire (see Appendix G) containing items similar to those investigated in Chapters IV and V of this study. This survey of opinion was undertaken on the assumption that informed judgments would add meaningfully to the conclusions drawn from previous chapters in this study. The validity of the opinions expressed by these leaders is basically related to their cumulative experience, especially to their experience in the creation and development of junior colleges. The generalizations

which can be drawn from their collective judgments should, therefore, be of value in assessing the findings from Chapters IV and V of this study.

Expressions of opinion based on personal experience and observation are by their nature subjective. They do not lend themselves to refined or exhaustive statistical analysis. In analyzing the results of the questionnaire used for this portion of this study, therefore, an attempt has been made to identify the level of general acceptance of opinions on certain questions by the use of descriptive statistics such as mean, median, and range rather than subjecting the responses to rigorous statistical tests.

Description of the Opinion Sample

The opinion sample included the Presidents of the eight single campus junior colleges in Missouri and seven Deans of Instruction for these institutions along with the five Campus Directors from the two multi-campus junior colleges in Missouri. Also included in the opinion sample were administrators from the five four-year state colleges in Missouri and three state level administrators directly concerned with higher education in Missouri. The purpose in selecting these three groups was to determine if there were identifiable differences of opinion among these groups on questions relating to this study, and conversely, to determine if there was agreement among these groups on questions relevant to this study. Questionnaires were

given to the administrators involved during visits to each of the ten public junior colleges and five four-year colleges, and during visits to the two state agencies.

As is shown in Table 27, questionnaires were given to twenty junior college administrators, seven four-year college administrators, and three state level administrators. Responses were received from seventeen (or 85%) of the junior college administrators, five (or 71.4%) of the four-year college administrators, and three (or 100%) of the state level administrators. Of the thirty questionnaires given out, twenty-five (or 83.3%) of these were returned. In terms of institutions represented, all ten of the currently operating public junior colleges in Missouri were represented by the seventeen questionnaires returned by junior college administrators, and three of the five state four-year colleges were represented by the seven questionnaires returned by four-year college administrators. The two state agencies concerned with higher education in Missouri were represented by the three questionnaires returned by state level administrators.

Analysis of Opinions of Administrators
Regarding Per Capita Operating Costs

There was considerable variation in the opinions expressed by the administrators regarding what a minimum per capita operating level should be for Missouri public junior colleges (see Table 28). This was not surprising

TABLE 27.--Distribution of questionnaires and responses received from administrators of higher education, Missouri, November, 1967 - January, 1968.

	Junior College Administra- tors	4-Year College Administra- tors	State Level Administra- tors	Total
Number of Requests	20	7	3	30
Number of Responses	17	5	3	25
Per Cent of Responses	85.0	71.4	100.0	83.3

TABLE 28.--Minimum per capita operating level for Missouri public junior colleges as suggested by twenty-five Missouri administrators.

Dollars	Administrative Groups			Total
	Junior College Adminis- trators	4-Year College Adminis- trators	State Level Adminis- trators	
400-599	1	1	-	2
600-799	9	2	-	11
800-999	7	2	3	12
Total	17	5	3	25

in view of the many factors involved in arriving at a per capita cost figure. Some institutions share facilities in

part or in full with high schools, moreover, some institutions have greater diversity in their offerings than others. If the greater diversity includes a considerable number of technical programs, the cost per student may be higher. It may be assumed that the per capita figure chosen by most junior college administrators was based on the operation of their present institution.

As is shown in Table 28 the minimum per capita operating levels as expressed by the twenty-five administrators ranged from \$400-\$599 to \$800-\$999, with nearly equal numbers choosing the \$600-\$799 level and the \$800-\$999 level. Among the three groups of administrators, only one junior college administrator and one four-year college administrator chose the \$400-\$599 support level. Slightly more than one-half (52.9%) of the junior college administrators and forty per cent of the four-year college administrators expressed the opinion that \$600-\$799 was a minimum per capita operating level for Missouri public junior colleges. All three of the state level administrators involved in this sample said that the minimum per capita operating level for Missouri public junior colleges should be \$800-\$999. Seven of the seventeen, or 41.2 per cent of the junior college administrators agreed with this choice, and nearly the same proportion (40.0%) of the four-year college administrators chose this operating level.

A comparison of the data presented in Table 28 with that presented in Appendix D shows that the range of per capita operating costs in Missouri junior colleges in 1966-1967 closely approximates what Missouri administrators considered to be a minimum per capita operating level. In other words, these twenty-five Missouri administrators considered that the junior colleges in that state were presently being operated at a minimum support level.

When asked what they would consider an optimum, or desirable, per capita operating level for Missouri public junior colleges, these same administrators expressed a wider variation of opinion (see Table 29) than they did on minimum per capita operating levels. As is shown in Table 29 the opinions expressed on desirable per capita operating level ranged from \$600-\$799 to more than \$1,200, with the most frequently chosen bracket being \$1,000-\$1,199. Slightly more than one-third (35.3%) of the junior college administrators and twenty per cent of the four-year college administrators chose \$800-\$999 as a desirable per capita operating cost, while two-thirds of the state level administrators felt this was a desirable operating level for Missouri public junior colleges. Sixty per cent of the four-year college administrators expressed the opinion that \$1,000-\$1,199 was a desirable per capita operating cost for public junior colleges and 41.2 per cent of the junior college administrators and 33.3 per cent of the state level administrators were in agreement with this choice.

TABLE 29.--Desirable per capita operating level for Missouri public junior colleges as suggested by twenty-five Missouri administrators.

Dollars	Administrative Groups			Total
	Junior College Adminis- trators	4-Year College Adminis- trators	State Level Adminis- trators	
600- 799	1	1	-	2
800- 999	6	1	2	9
1000-1199	7	3	1	11
1200 +	3	-	-	3
Total	17	5	3	25

A comparison of the data shown in Table 29 with that presented in Appendix D shows that ninety-two per cent of the administrators responding to this question felt that a desirable per capita operating level would be higher than the current per capita operating level of all but two of Missouri's public junior colleges, and fifty-six per cent felt that a desirable per capita operating level would be higher than the current per capita operating level of any of the public junior colleges in Missouri.

When asked what proportions of operating costs should be derived from state funds, local funds, and student tuition, there was a great deal of unanimity among the responses given by the administrators. As is shown in

Table 30, sixteen of the twenty-three (69.6%) administrators responding to this question felt that one-half of the operating costs of Missouri public junior colleges should be derived from state funds, while 26.1 per cent felt that one-third of the operating cost should be derived from this source. Among the three groups of administrators, 68.8 per cent of the junior college administrators felt that the state should provide one-half of the operating cost, while fifty per cent of the four-year college administrators and all of the state level administrators were in agreement with this amount. Twenty-five per cent of the junior college administrators and fifty per cent of the four-year college administrators felt that the state should provide one-third of the operating costs.

As shown in Table 31, nearly three-fourths (73.9%) of the twenty-three administrators responding to this question were in agreement that the local district should provide one-third of the operating costs of Missouri public junior colleges. Among the three groups of administrators, seventy-five per cent of the junior college administrators, fifty per cent of the four-year college administrators, and one hundred per cent of the state level administrators agreed that one-third of the operating costs should be derived from local sources.

On the question of the proportion of operating costs to be derived from the student, there was a greater range

TABLE 30.--Opinions of twenty-three administrators regarding proportion of current operating costs for Missouri public junior colleges to be secured from state funds.

State Share of Operating Costs	Administrative Groups			Total
	Junior College Adminis- trators	4-Year College Adminis- trators	State Level Adminis- trators	
1/3	4	2	-	6
1/2	11	2	3	16
2/3	1	-	-	1
Total	16	4	3	23

TABLE 31.--Opinions of twenty-three administrators regarding proportions of current operating costs for Missouri public junior colleges to be secured from local funds.

Local Share of Operating Costs	Administrative Groups			Total
	Junior College Adminis- trators	4-Year College Adminis- trators	State Level Adminis- trators	
1/4	2	1	-	3
3/8	1	-	-	1
1/3	12	2	3	17
1/2	1	1	-	2
Total	16	4	3	23

of opinion among the administrators than that expressed on the other sources of operating funds. As is shown in Table 32, the opinions of the administrators regarding the proportion of operating funds to be derived from the student ranged from none to one-third, with 45.8 per cent of the administrators showing a preference for the one-sixth proportion, while 33.3 per cent preferred the one-third proportion. Among the junior college administrators, 62.5 per cent felt the student should contribute one-sixth or less of the operating costs, and 66.7 per cent of the state level administrators were in agreement with this choice. Sixty per cent of the four-year college administrators indicated that the student should contribute one-third of the operating costs of Missouri public junior colleges.

The preceding data indicate considerable agreement among the administrators involved that (1) at the present time Missouri public junior colleges are operating at a minimum per capita cost, (2) that the present per capita operating level must be increased if a desirable per capita operating level is to be achieved, (3) that the state should provide approximately one-half of the operating costs of Missouri public junior colleges, and (4) that the local junior college district should contribute one-third of the operating costs of these institutions.

TABLE 32.--Opinions of twenty-four administrators regarding proportion of current operating costs for Missouri public junior colleges to be secured from student tuition.

Student Share of Operating Costs	Administrative Groups			Total
	Junior College Adminis- trators	4-Year College Adminis- trators	State Level Adminis- trators	
None	1	-	-	1
1/10	1	-	-	1
1/6	8	1	2	11
1/4	2	1	-	3
1/3	4	3	1	8
Total	16	5	3	24

Analysis of Opinions of Administrators
Regarding Minimum Projected Enrollment
for Missouri Public Junior Colleges

Of the twenty-five administrators who returned questionnaires, twenty-three expressed opinions regarding minimum starting enrollments. Of the two administrators who did not specify a minimum projected enrollment figure, one gave no reason for not responding, while the other indicated that in his opinion, "the minimum starting enrollment for a junior college was dependent upon the area in which it was founded." As may be seen in Table 33, fifteen junior college administrators, five four-year

TABLE 33.--Minimum projected full-time equivalent student enrollment required for establishment of new junior colleges in Missouri as suggested by twenty-three Missouri administrators.

Number of Students	Administrative Groups			Total
	Junior College Adminis- trators	4-Year College Adminis- trators	State Level Adminis- trators	
200 - 399	3	-	-	3
400 - 599	3	1	1	5
600 - 799	4	1	-	5
800 - 999	2	-	1	3
1000 or more	3	3	1	7
Total	15	5	3	23

college administrators, and three state level administrators responded to this question.

An examination of the data in Table 33 showed a wide variation of opinion among the twenty-three respondents. The opinions of the administrators on minimum projected full-time equivalent enrollments ranged from 200-399 students to 1,000 or more students. Among the three groups of administrators, only the four-year college administrators showed a clear preference for one enrollment level. Sixty per cent of this group indicated that the minimum projected enrollment should be 1,000 or more full-time equivalent

students. Among the state level administrators two-thirds indicated that the minimum projected enrollment should be 800 or more full-time equivalent students, while the junior college administrators gave no clear pattern of preference in regard to a minimum projected enrollment. However, it was noted that the great majority (80.0%) of the junior college administrators were in agreement with the four-year college and state level administrators that the minimum projected enrollment for a comprehensive junior college should be greater than 400 full-time equivalent students.

A comparison of the data given in Table 33 with the findings from Chapter V of this study revealed the following similarities:

One of the primary measures of curriculum breadth used in this study was the number of subject areas taught per institution. Analysis of data in Chapter V of this study revealed that institutions of fewer than 200 full-time equivalent student enrollments taught considerably fewer subject areas per institution than did those enrolling more than 400 full-time equivalent students and there was little difference in the number of subject areas taught per institution between those junior colleges enrolling approximately 400 full-time equivalent students and those enrolling from 700 to 1,600 full-time equivalent students. It was concluded from this that there was a tendency for the college transfer curriculum to be restricted in those

junior colleges enrolling fewer than 200 full-time equivalent students and there was little expansion of the college transfer curriculum among those junior colleges enrolling from 400 to 1,600 students. It appears reasonable on the basis of this information to assume that a minimum projected enrollment for a single purpose junior college offering only a college transfer program might be 400 full-time equivalent students and that this starting enrollment size should be increased as additional programs are added to the curriculum. The opinions of the administrators regarding projected enrollment size were in connection with comprehensive junior colleges. As pointed out earlier the great majority of the administrators indicated that the minimum projected enrollment for a comprehensive junior college should be greater than 400 full-time equivalent students.

Another primary measure of curriculum breadth used in this study was the number of semester hours taught in distinct courses. Analysis of the data in Chapter V of this study revealed that the greatest increases in semester hours taught were between those institutions enrolling less than 200 full-time equivalent students and the institution with an enrollment of slightly more than 400 students, with little increase in semester hours taught among institutions ranging in enrollment size from 400 to 1,600 students. On the basis of this analysis it was concluded that there was a tendency for the college transfer

curriculum to be restricted in those junior colleges enrolling fewer than 200 full-time equivalent students, and there was little expansion of the college transfer curriculum among those colleges enrolling from 400 to 1,600 full-time equivalent students. It appears reasonable to assume that a minimum projected enrollment for a junior college offering only a college transfer program might be 400 full-time equivalent students and that this starting enrollment size should be increased as additional programs are added to the curriculum. As pointed out before, the great majority of the administrators responding to the questionnaire indicated that the minimum projected enrollment for a comprehensive junior college should be greater than 400 full-time equivalent students.

Analysis of Opinions of Administrators
Regarding Minimum College Transfer
Program for Missouri Public
Junior Colleges

A portion of the questionnaire (see Appendix G) given to Missouri administrators asked them to specify what they would consider to be the minimum offering of subject areas and specific courses for a college transfer program in Missouri public junior colleges. As a starting point certain courses were suggested. It was specified that the hypothetical college was not expected to offer much beyond basic college transfer work and virtually nothing in the area of technical-vocational work. Each respondent was

then requested to agree or disagree with the course offerings suggested in the questionnaire by scratching out those considered superfluous and adding in those not included which were considered essential. The respondents were then requested to assign a suggested semester hour credit to each proposed course and to designate whether it was primarily a freshman or sophomore level course.

Of the twenty-five questionnaires returned, twenty respondents completed this portion of the form. Among the three groups of administrators, thirteen junior college administrators, five four-year college administrators, and two state level administrators responded to this portion of the questionnaire. Because of the relatively small number of state level administrators involved, it was decided to include their responses, for this portion of the analysis, with those of the four-year college administrators. Because of the involvement of these two groups in planning to meet statewide needs, it was assumed that their views on this question would be quite similar. A preliminary examination of the two sets of questionnaires showed this assumption to be correct and the two groups of data were merged.

As was indicated previously, a total of twenty responses were received to this question representing ten Missouri public junior colleges, three state four-year colleges, and one state level agency. While there were extremes in the suggestions offered, there was considerable

unanimity of opinion in many areas. Table 34 gives the range and mean in semester hours suggested for eight principal subject matter areas for the two groups of administrators. The following paragraphs sum up the responses of the administrators by principal subject matter areas (see Appendix H for a breakdown of this information by respondent).

TABLE 34.--Ranges and means in semester hours for eight subject areas suggested by Missouri administrators as comprising a minimum college transfer curriculum for public junior colleges in that state.

Subject Areas	Junior College Administrators		4-Year College Administrators	
	Sem. Hrs. Range	Sem. Hrs. Mean	Sem. Hrs. Range	Sem. Hrs. Mean
Business Administration	11-41	23.8	9-46	23.6
English	6-24	15.0	6-15	10.3
Mathematics	3-33	19.9	3-36	14.3
Natural Science	15-58	35.8	12-57	25.7
Foreign Language	9-45	24.2	12-48	28.3
Social Science	12-39	29.5	15-60	31.0
Fine Arts	3-50	24.3	8-48	18.9
Physical Education	4- 9	5.1	1- 9	5.1

Business Administration

Suggested semester hour offerings ranged from a low of 9 to a high of 46 among all administrators. In ten instances, however, the range was much narrower--20 to 28. The mean semester hours suggested by all junior college administrators was 23.8, and for the four-year college administrators (including the two state level administrators) the mean semester hours suggested in this subject area was 23.6.

English

Suggested semester hour offerings for this subject area ranged from a low of 6 to a high of 24. All respondents agreed with the suggested course offerings in the questionnaire and three suggested that World Literature be added. The mean semester hours suggested by the junior college administrators was 15.0, while the mean semester hours suggested by the four-year college administrators was 10.3.

Mathematics

The range of opinion in this subject area was from 3 to 36 semester hours, with only three administrators suggesting six semester hours or less. The mean semester hours suggested by the junior college administrators was 19.9, while the mean for the four-year college administrators was 14.3.

Natural Science

There was considerable variation of opinion in this subject area ranging from 12 to 58 semester hours. The calculated mean for junior college administrators was 35.8 and for the four-year college administrators the mean was 25.7. There was considerable opinion (14 out of 20) that a geography course was not needed.

Foreign Language

Nineteen of the twenty respondents agreed that foreign language should be offered and, despite a range from 9 to 48 semester hours suggested, the mean semester hours suggested by the two groups were quite close. The mean for junior college administrators was 24.2 semester hours suggested in this subject area and for the four-year college administrators the mean was 28.3. Only one administrator suggested the addition of Russian to this subject area.

Social Sciences

There was unanimous agreement that social sciences should be offered. Suggested semester hour offerings in this subject area ranged from a low of 12 to a high of 60. Sixteen of the twenty respondents suggested more than 20 semester hours be taught in this subject area. The mean semester hours suggested by junior college administrators and four-year college administrators was 29.5 and 31.0, respectively.

Fine Arts

All respondents agreed that fine arts should be offered. Eight of the thirteen junior college administrators expressed the opinion that 20 or more semester hours should be taught in this area, while four of the seven four-year college administrators felt that eight or nine semester hours taught in this area was adequate. The mean semester hours suggested by junior college and four-year college administrators for this subject area were 24.3 and 18.9, respectively.

Physical Education

All twenty of the administrators agreed that physical education courses should be taught in the junior college. The range in suggested semester hours for this subject area was from 1 to 9. Eleven of the thirteen junior college administrators suggested from 4 to 6 semester hours. The mean semester hours suggested by junior college and four-year college administrators for this subject area were identical (5.1).

In total, the respondents suggested programs ranging from a minimum of 70 semester hours to a maximum of 259 semester hours (see Appendix H). The calculated mean for both groups of administrators combined was 162.5 semester hours. In actual fact, an examination of the data in Chapter IV of this study showed that for the fall and spring semesters of 1966-1967 the five public junior

colleges with enrollments between 400 and 1,600 (which excluded the two largest and two smallest colleges) were teaching between 247 and 349 semester hours of work in the college transfer program, with three of the five teaching more than 300 semester hours.

Table 35 presents two concepts of a minimum junior college transfer program based upon the responses given in the questionnaire by junior college administrators and four-year college administrators (responses of the two state level administrators are included with the four-year college administrators), in each instance the mean suggested semester hour credit which the course should carry is given. Only those courses suggested by more than one-half of the respondents in each group were included in this table. Table 35 also indicates the mean semester hours credit per institution actually taught in the five Missouri junior colleges enrolling between 400 and 1,600 full-time equivalent students in the 1966-1967 academic year and the two junior colleges enrolling fewer than 400 full-time equivalent students.

An examination of the data in Table 35 reveals that in every subject area, except physical education, the junior college administrators suggested that a greater number of semester hours be included in a minimum college transfer curriculum than did the four-year college administrators. Two possible explanations may account for this

TABLE 35.--Minimum course offerings for a college transfer curriculum for Missouri public junior colleges as suggested by two groups of administrators compared with semester hours actually taught in these subject areas in selected junior colleges, fall and spring semesters, 1966-1967.

Subject Area and Course	Mean Sem. Hrs. Credit- J.C. Admin.	Mean Sem. Hrs. Credit- 4-Year Admin.	Mean Sem. Hrs. Credit Taught Insts. less than 400 FTES*	Mean Sem. Hrs. Credit Taught Insts. 400-1,600 FTES
Business Administration:				
College Typing	5.0	3.5		
College Shorthand	7.1	7.2		
Business Machines	2.8	2.8		
Business Mathematics	2.8	2.7		
Introduction to Business	3.2	3.0		
Accounting	<u>7.7</u>	<u>7.7</u>		
	28.6	26.9	11.0	25.8
English:				
English Composition	6.5	5.1		
English Literature	<u>5.1</u>	<u>4.7</u>		
	11.6	9.8	7.0	20.2
Mathematics:				
Algebra	4.9	3.1		
Trigonometry	2.4	3.8		
Analytic Geom. and Cal.	<u>12.5</u>	<u>8.8</u>		
	19.8	14.7	14.0	27.4
Natural Science:				
Biological Science**	11.7	7.6	5.0	17.0
Chemistry	11.1	7.7	10.0	19.2
Physics	9.5	7.4	4.5	13.8
Geography	<u>3.8</u>	<u>3.7</u>	<u>0.0</u>	<u>3.0</u>
	36.1	25.9	19.5	53.0
Foreign Language:				
Spanish	12.1	9.3	5.0	12.4
French	12.0	9.3	5.0	13.7
German	<u>8.6</u>	<u>10.0</u>	<u>0.0</u>	<u>13.0</u>
	32.7	29.6	10.0	39.1
Social Science:				
History	9.9	8.7	6.0	13.6
Political Science	5.1	5.1	6.5	9.0
Economics	7.8	5.1	6.5	9.0
Sociology	4.2	5.4	7.0	8.2
Psychology	<u>5.3</u>	<u>6.1</u>	<u>0.0</u>	<u>4.8</u>
	32.3	30.4	25.5	42.4
Fine Arts:				
Art	9.3	5.4	3.5	21.4
Music	11.3	5.6	1.5	20.0
Speech	4.0	4.1	3.0	5.2
Drama	<u>3.5</u>	<u>6.5</u>	<u>0.0</u>	<u>8.0</u>
	28.1	21.6	8.0	54.6
Physical Education:				
Physical Education	3.0	3.5		
Health Science	<u>2.2</u>	<u>2.8</u>		
	5.2	6.3	3.0	8.4
GRAND TOTAL SEM. HRS.	194.4	165.2	96.0	270.9

* FTES = Full-Time Equivalent Students.

** Includes biology, botany, and zoology.

phenomena. First, the four-year college administrators may feel that the public junior colleges should offer a more restricted college transfer curriculum rather than offer courses which may be in competition with the senior institutions. Second, the junior college administrators may feel that an expanded college transfer curriculum might add prestige, or status, to the junior college. It was noted that in every subject area the actual number of semester hours taught in the junior colleges with enrollments ranging from 400 to 1,600 exceeded the minimum number of semester hours suggested by each group of administrators. It was also noted that in every subject area the actual number of semester hours taught in the junior colleges enrolling fewer than 400 students was less than the minimum number of semester hours suggested by each group of administrators.

These data seem to indicate that those junior colleges enrolling fewer than 400 full-time equivalent students have difficulty providing a transfer curriculum which would meet the minimum curriculum suggested by Missouri administrators, and conversely that those junior colleges enrolling 400 to 1,600 full-time equivalent students exceeded the minimum curriculum suggested by the two groups of administrators.

One of the problems with the minimum program approach is that it fails to take into account the fact that it is not usually possible to hire teachers who are qualified to

teach in several different subject areas. As one begins to think in terms of the teachers actually needed to cover the "essential" course offerings, he is inevitably driven to the conclusion that it will be possible to go beyond the minimum program with no real increase in cost. This may explain, in part, why those colleges with 400 to 1,600 full-time equivalent students all exceeded the minimum program suggested by the administrators in their questionnaire response.

Summary

The purpose of this chapter was to describe an analysis of the responses of twenty-five administrators directly concerned with higher education in Missouri to questions dealing with operating costs of public junior colleges, minimum enrollment for establishment of new public junior colleges, and a suggested minimum college transfer curriculum for public junior colleges in that state. It was also the purpose of this chapter to compare the findings from this analysis to the findings from previous chapters of this study.

In Table 27 the number of questionnaires distributed to each group of administrators is shown along with the number and per cent of responses received from each group. Of the thirty questionnaires distributed, a total of twenty-five (or 83.3%) were returned.

The minimum per capita operating costs suggested by the twenty-five administrators ranged from the \$400-\$599 level to the \$800-\$999 level, with nearly equal numbers of administrators choosing the \$600-\$799 and the \$800-\$999 levels. These same two levels were also chosen almost equally by the junior college and four-year college administrators, while all of the state level administrators chose the \$800-\$999 level. When asked what they considered to be an optimum, or desirable, per capita operating level for Missouri public junior colleges, the administrators most frequently expressed the opinion that \$800-\$999 or \$1,000-\$1,199 were the most desirable per capita levels. A comparison of these results with the findings in Chapter V of this study showed that most of the administrators included in the sample were of the opinion that the current per capita operating costs of Missouri public junior colleges were the minimum level at which these institutions should operate.

Tables 30, 31 and 32 summarize the opinions of the administrators regarding the sources from which operating costs for Missouri public junior colleges should be drawn and the proportions to be received from each of the three sources (state funds, local funds, and student tuition). There was considerable agreement among the administrators that one-half of the operating costs should be derived from state funds, and that one-third of the operating

costs should be derived from the local junior college district. There was considerable variation of opinion among the administrators on the question of the proportion of operating costs to be derived from student tuition, however, most agreed that the proportion of operating costs to be derived from this source should range from one-sixth to one-third of the per capita operating costs, with the greatest number of administrators (11 out of 24) expressing a choice for the one-sixth proportion.

When asked to express their opinion on the minimum enrollment size that should be required for establishment of a new comprehensive junior college in Missouri, the only group of administrators showing a clear preference for one starting enrollment size was the four-year college administrators. Sixty per cent of this group indicated that the minimum projected enrollment should be 1,000 or more students (see Table 33). Two-thirds of the state level administrators indicated that the minimum full-time projected enrollments should be 800 or more students. The junior college administrators gave no clear preference in regard to minimum projected enrollment size, however, eighty per cent of the junior college administrators were in agreement with the four-year college and state level administrators that a minimum projected enrollment for new comprehensive junior colleges in Missouri should be greater than 400 full-time equivalent students.

When the findings from Chapter V of this study regarding the relationships between institution enrollment size and number of subject areas taught per institution and mean number of semester hours taught per institution were compared with the opinions of the administrators regarding minimum starting size, it was noted that the findings from Chapter V concerning these two measures of curriculum breadth indicated a minimum starting enrollment of 400 or more students in a single purpose junior college, offering only a college transfer program, as a desirable size if breadth of program offerings was to be achieved. This starting enrollment size was comparable to that suggested by all three groups of administrators.

When asked to give their opinion regarding a desirable minimum college transfer curriculum, the majority of the administrators chose eight subject areas: Business Administration, English, Mathematics, Natural Science, Foreign Language, Social Science, Fine Arts, and Physical Education. As shown in Table 35 the total mean semester hours suggested by the junior college and four-year college administrators were 194.4 and 165.2, respectively. A comparison of these suggested minimum curriculums with data from Chapter IV of this study showed that the mean semester hours taught per institution in junior colleges in Missouri enrolling fewer than 400 full-time equivalent students was considerably less (96.0 semester hours for the same eight

subject areas) than the minimum suggested by each group of administrators, while those junior colleges enrolling from 400 to 1,600 full-time equivalent students exceeded the minimum number of semester hours suggested by each group of administrators for the eight subject areas.

CHAPTER VII

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents significant and relevant findings both from tangible data and from observations and impressions, in the form of summary, conclusions, recommendations, and implications for further research.

Summary

The Purpose

The purpose of this study was to make a survey and critical analysis of curriculum breadth in the college transfer programs of the public junior colleges in Missouri, with special emphasis on exploring possible relationships between institution enrollment size, per capita costs, and various measures of curriculum breadth. The study also includes an analysis of the opinions of administrators in higher education on questions pertaining to institution enrollment size, breadth of the transfer curriculum, and per capita costs and a comparison of these opinions to findings from other parts of this study. Justification of the study was based on the premise that in order for rational decisions to be made regarding the role of the public junior

colleges in meeting future needs in higher education, it was necessary to have knowledge of present curricular practices and any apparent relationship between institution enrollment size and curriculum breadth. The importance of the study lies in its value for development of criteria for establishing new public junior colleges.

Limitations

The study was limited to the nine Missouri public junior colleges in operation during the 1966-1967 academic year and to the college transfer programs of these institutions. Other types of junior colleges and public junior colleges in other states were excluded due to the likelihood that unmeasurable variations in kind and extent of influences on the curriculums of these colleges may have seriously reduced the value of the study. Restriction of the study to the college transfer programs of the junior colleges included was desirable because of the prominent role of the college transfer program in all colleges, and because of extreme variations among the colleges in the extent of other types of programs offered.

Related Literature

In recent years several studies have been published dealing with criteria for the establishment of public junior colleges. The majority of these studies agree that one of the primary considerations in the establishment of

junior colleges is adequate enrollment to support the programs of the college. However, it is readily apparent from an examination of the literature that there is a wide range in the recommended enrollment size for the establishment of junior colleges.

Studies dealing with criteria for establishment of new junior colleges have also varied considerably in regard to those factors which should be considered as a basis for determining potential enrollment size for a new institution. Some determine potential enrollment on the basis of the total population of a junior college district, others use the number of post-secondary 18 to 21 year-old potential students in the district; and others base potential enrollment on the total ninth through twelfth grade school population of the proposed district. Several of the more recent studies, however, take all of these factors into consideration in determining potential enrollment for proposed junior colleges.

The wide range in the recommended enrollment size for the establishment of public junior colleges found in the literature seemed to indicate that enrollment requirements for adequate maintenance of programs may vary from region to region or from state to state and also, that desirable enrollment sizes may change over a period of time as the expected roles of the institution are redefined.

Methodology

To determine the breadth of the college transfer programs in the junior colleges, a survey was made of the courses approved for transfer credit by the University of Missouri Accreditation Committee and actually taught in each junior college in the fall and spring semesters of the 1966-1967 school year. In addition to the identification of the subject areas taught in each institution, an analysis was made in terms of (1) the number and per cent of institutions in which each subject area was taught, (2) the level at which each subject area was taught, and (3) the number of subject semester hours taught in distinct courses in each subject area. Also, the mean class size for each institution in each subject area was determined. In conjunction with this analysis, the colleges were divided into three groups according to enrollment size in full-time equivalent students, and the data for the three groups were compared to determine whether institution enrollment size and each of the four factors involved appeared to be related in each subject area.

Following the analysis of individual subject areas, an investigation was made to determine whether any apparent relationship existed between institution enrollment size in full-time equivalent students and (1) kind of subject areas taught, (2) total number of subject areas taught, (3) level at which subject areas were taught, and (4) total

number of subject semester hours taught in distinct courses in all subject areas. Also, an investigation was made to determine whether any apparent relationship existed between per capita cost in each junior college and (1) institution enrollment size, (2) total number of subject semester hours taught, (3) number of subject areas taught, and (4) the level at which subject areas were taught. It was thought that the analysis of the latter set of factors mentioned above might serve to clarify and explain the findings from the analysis of the first set of factors. Except in the cases of kind of subject areas taught and level at which subject areas were taught, it was possible to determine closeness of relationship between the factors involved by use of the Spearman Rank Order Correlation Coefficient Test. After the coefficients of correlation were obtained, closer examination was made to determine whether any relationships among the various factors appeared closer in some enrollment size ranges than in others. The division of institutions into groups to accomplish this purpose precluded further use of linear correlation analysis because of the relatively small numbers of institutions involved. Instead, arithmetic means for each factor in each group of colleges were compared.

The data upon which the study of the opinions of administrators was based was obtained from a questionnaire given to thirty administrators during visits to the

campuses of each of the junior colleges and four-year state colleges in Missouri and during visits to the two state level agencies responsible for higher education in Missouri. In analyzing the responses of the administrators on the returned questionnaires, each item was analyzed using the total number of responses for all three groups, then the item was investigated to determine if there were identifiable differences or similarities in responses among the three groups of administrators. The findings from this analysis were then compared to the findings from the data in previous chapters to determine whether there were differences or similarities between the opinions of the administrators and actual curriculum practices as measured by this study.

Findings

The findings obtained in this study show that:

1. A total of thirty-five different subject areas, offering college transfer credit, were taught among the nine public junior colleges studied, with wide variation among the subject areas in the per cent of institutions in which each was taught. Fourteen, or 40 per cent, of the thirty-five subject areas were present in the curriculums of all nine junior colleges. Seven other subject areas were taught in more than 75 per cent but less than 100 per cent of the colleges. Four subject areas were present in 51 through 75 per cent of the colleges, and four were

present in less than 26 per cent of the college curriculums.

2. Analysis of the data, using linear correlation analysis, revealed a correlation of .908 between institution enrollment size and total number of subject areas taught. This positive correlation was interpreted as indication of a close positive relationship between these two factors.

3. There was a considerable increase in the number of subject areas added to the curriculum as enrollment size increased from less than 200 to 400 students. From 400 through 1,600 students there was little increase in number of subject areas added to the curriculum, and beyond 1,600 students there was again a sizeable increase in number of subject areas added to the curriculum.

4. Linear correlation analysis of the data concerning institution enrollment size and the number of subject areas taught at both the freshman and sophomore levels produced a coefficient of correlation of .850 between these two factors. This positive correlation was interpreted as indication of a close positive relationship between these two variables.

5. An investigation of the possible relationship between institution enrollment size and the number of semester hours taught in distinct courses revealed a coefficient of correlation of .950 between these two factors.

6. A comparison of the mean number of semester hours taught per institution among four institution size groups revealed the greatest increases in semester hours taught were between those institutions enrolling less than 200 full-time equivalent students and the institution enrolling 400 full-time equivalent students. Those institutions enrolling more than 3,500 FTE students also showed a sizeable increase in number of semester hours taught per institution. However, between 400 and 1,600 FTE students there was relatively little increase among the institutions in number of semester hours taught.

7. An analysis of the possible relationship between institution enrollment size and per capita cost revealed a coefficient of correlation of .217. Closer examination of this apparent low relationship was made among four institution size groups. Aside from the fact that the group of smallest institutions had the lowest per capita cost, an examination of these data showed little indication that the apparent low relationship between per capita cost and institution enrollment size was stronger in any institution size range than in others.

8. When coefficients of correlation were computed between per capita cost and each of the three measures of curriculum breadth used in this study, the results were:

- a. A correlation of .217 between per capita cost and mean number of semester hours taught per institution.

- b. A correlation of .325 between per capita cost and number of subject areas taught per institution.
- c. A correlation of .267 between per capita cost and number of subject areas taught at both the freshman and sophomore levels.

These data indicated a low positive relationship between per capita cost and these three measures of curriculum breadth. It appeared that factors other than institution enrollment size and curriculum breadth as measured in this study accounted for the variations in per capita cost among the nine junior colleges included in this study.

9. An analysis of the opinions of administrators regarding minimum enrollment size for establishment of new public junior colleges revealed that 87 per cent of the administrators favored a minimum projected enrollment of 400 or more FTE students for establishment of a comprehensive junior college and 30.4 per cent indicated that a minimum projected enrollment should be 1,000 or more FTE students.

10. An analysis of the opinions of administrators regarding a minimum college transfer curriculum for Missouri public junior colleges revealed the following findings:

- a. All of the administrators indicated that the following eight subject areas should be included in a minimum college transfer curriculum:

Business Administration, English, Mathematics, Natural Science, Foreign Language, Social Science, Fine Arts, and Physical Education.

- b. Junior college administrators recommended a wide range in the total number of semester hours that should be taught in distinct courses within the eight subject areas. The mean total for this group was 194.4 semester hours.
- c. Senior college administrators recommended that a mean total of 165.2 semester hours be taught in distinct courses within the eight subject areas.
- d. Public junior colleges included in this study which enrolled fewer than 400 full-time equivalent students taught 96.0 semester hours per institution in the eight subject areas recommended by the administrators.
- e. Public junior colleges included in this study which enrolled from 400 through 1,600 FTE students taught 270.9 semester hours per institution in the eight subject areas recommended by the administrators.

11. An analysis of the opinions of administrators regarding per capita operating costs for public junior colleges in Missouri revealed the following findings:

- a. 92 per cent of the administrators recommended a minimum per capita operating level between \$600 and \$999.
- b. 80 per cent of the administrators recommended a desirable per capita operating level between \$800 and \$1,199.

Conclusions

On the basis of the findings in this study it may be concluded that:

1. There is a close positive relationship between institution size and breadth of the college transfer curriculum in Missouri public junior colleges as measured by (1) number of subject areas taught, (2) number of semester hours taught in distinct courses, and (3) number of subject areas taught at both the freshman and sophomore levels.

2. There is a tendency for a minimum number of subject areas to be included in the curriculum, regardless of limitations in enrollment, and that certain other subject areas tended to be added as enrollment increased. Thus, although certain subject areas tended to be added to the curriculum as enrollment increased, the minimum number of subject areas was increased considerably as the institution size approached 400 full-time equivalent students and another noticeable increase was noted as institution size approached 3,500 FTE students.

3. There is a tendency for a minimum number of semester hours to be taught regardless of limitations in enrollment size. This minimum number of semester hours was noticeably increased as institution size reached 400 FTE students and remained reasonably constant until institution size exceeded 1,600 full-time equivalent students.

4. There is a tendency for the number of subject areas taught at both the freshman and sophomore levels to increase as institution enrollment size increases.

5. There appeared to be little relationship between institution enrollment size as measured by this study and per capita cost.

6. There appeared to be little relationship between per capita cost and (1) mean number of semester hours taught per institution, (2) number of subject areas taught per institution, (3) number of subject areas taught at both the freshman and sophomore levels per institution.

7. That the majority of the administrators in higher education in Missouri included in the sample for this study favor a minimum enrollment size for new public junior colleges in excess of 400 full-time equivalent students.

8. That those public junior colleges included in this study with fewer than 400 FTE students would have difficulty providing a college transfer curriculum which would meet the minimum curriculum suggested by Missouri administrators, and that those junior colleges included in this

study enrolling from 400 through 1,600 full-time equivalent students exceeded the minimum college transfer curriculum suggested by Missouri administrators.

9. The majority of administrators included in the sample for this study felt that Missouri public junior colleges were operating at a minimum per capita operating level at the present time.

Recommendations

Recommendations regarding the courses comprising the curriculum of the public junior colleges in Missouri cannot be made until the results of the present study are combined with those of a study of the adequacy of breadth in existing programs. However, assuming for the present time that the broader the curriculum, the more beneficial it is to the clientele of the college, the following recommendations can be made based on the findings from this study:

1. It is recommended that any criteria regarding minimum enrollment for the establishment of public junior colleges in Missouri reflect and be compatible with the purposes the institutions are expected to fulfill. That is, such criteria should be developed in line with enrollment considered desirable in certain types of programs or in combinations of types of programs.

2. It is recommended that a projected enrollment of at least 400 full-time equivalent students in the college transfer curriculum be required for the establishment of

public junior colleges in Missouri, and that this requirement be higher in proportion to the extent that other curriculums are to be offered. However, in the latter instance, knowledge must first be obtained regarding the influence of various types of programs on each other.

3. It is recommended that a study similar to the present study be made at regular intervals to reflect any changes in the factors involved brought about by changing influences on the curriculum, such as the development of new teaching methods or increased use of already existing methods, for example, the use of closed circuit television or audio-tutorial devices.

4. It is recommended that the two existing public junior colleges in Missouri with enrollments of less than 400 full-time equivalent students expand their legal district to increase the population base from which students are drawn in an effort to increase the enrollment size of the college. At the present time both of these institutions have as their legal district the boundaries of the public school district in which the college is located.

Observations

This portion of the study is a statement of observations relative to the findings of the study and is not necessarily supported by the data.

One of the most interesting findings of the study, in the opinion of the writer, was the wide variation

among the junior colleges in curriculum breadth. Discounting the greatest number and the smallest number of semester hours taught in the college transfer curriculum, the range in semester hours taught in the remaining seven institutions was 139 to 558, which represented a difference of 419 semester hours between the extremes. Assuming an average course value of three semester hours, the difference amounted to more than 139 courses. The correlation of .950 between institution enrollment size and number of semester hours taught per institution indicated a close relationship between these two factors. In the course of the study it was apparent that the enrollment range in which curriculum breadth expanded at the greatest rate was between 400 and 1,600 full-time equivalent students and again when enrollment size exceeded 3,500 full-time equivalent students. Thus, it appeared that the chief determinant of curriculum breadth was institution enrollment size in full-time equivalent students. The implication was that there was simply no demand for a large number of courses in the relatively small colleges or that the demand was so small as to be economically or pedagogically unfeasible. It seemed evident that a comparatively large number of relatively small colleges dispersed across the state would have the effect of limiting the opportunities of many students to "try out" or explore a variety of areas of interest or to develop new areas of interest. These

students would, in effect, be denied an opportunity to select an area of study of their own choosing since their choice would be restricted by the rather limited breadth of the curriculum which could be offered in these colleges.

If one accepts the concept that the junior college should be a comprehensive institution providing for the citizens of the community not only college transfer programs for those students wishing to enter a senior institution for further study, but also, programs of a technical-vocational nature designed to provide the technical knowledge, manipulative skills, and general background necessary to successful achievement in technical and semi-professional employment, general education programs appropriate for those who will terminate their post-high school education in two years or less, developmental, special training, and general education programs for the high school nongraduate and those students who need special help in developing study skills, continuing education programs designed to provide an opportunity for citizens to keep abreast of a rapidly changing world, and counseling and guidance programs to help the student assess his capabilities and interests and plan accordingly; then one must also accept the fact that relatively small junior colleges are not usually able to provide the financial resources, students, and staff necessary to carry out these services to the community. Therefore, it seems reasonable to

assume, on the basis of findings in this study and a lack of evidence to the contrary, that a desirable minimum projected enrollment necessary for a junior college to provide the comprehensive services mentioned above should be 800 to 1,000 full-time equivalent students.

Assuming that for the most part the comparatively large number of courses taught in the larger colleges were genuinely needed by the students who enrolled in them, there were wide differences among the junior colleges in the kind and amount of educational opportunity provided. However, the question of educational opportunity involves other factors, prominent among these is the proximity of the institution to its potential student body. If the junior college is not located near enough to its potential patrons for its popularizing function to have effect, then an undetermined amount of the advantage of a large enrollment may be lost.

Recommendations for Further Research

The major implication of this study on curriculum breadth in public junior colleges was that this area deserves and requires additional research. The following recommendations for further research resulted from the experience of the writer in planning and conducting the present study.

1. The scope of the present study did not permit an investigation of junior college programs aimed at

fulfilling functions other than preparing students to transfer to a senior institution. However, these other functions are no less important than the college transfer function. Therefore, knowledge of the characteristics of technical-vocational programs, general education programs, developmental or remedial programs, and all aspects of student personnel programs, and their relation to institution enrollment size and their effect on per capita cost appears indispensable to the formation of state and local policy regarding public junior colleges.

2. Although institution enrollment size appeared to have a strong influence on curriculum breadth, it may be that other factors such as attitudes and philosophy of the administration or social characteristics of the community also exert an influence on curriculum breadth. A future study that would identify and measure the extent of these other factors which may influence curriculum breadth would seem to be justified.

3. In the course of the present study it was evident that there was a variation among the junior colleges on the various measures of curriculum breadth. The scope of the present study did not permit an investigation to determine whether the relatively large number of courses taught in some of the institutions was necessary to fulfill the purposes of the program or whether they represented an unnecessary proliferation of courses. Therefore, a study

to evaluate curriculum breadth in terms of the objectives of the college transfer program appears to be needed.

4. Although per capita cost was not a measure of curriculum breadth, it was included in this study because it was thought that the relationship of this important factor to the various measures of curriculum breadth might help to clarify the findings. However, as the findings of this study indicate, little relationship was found between per capita cost and the various measures of curriculum breadth or institution enrollment size. A study which would identify and measure those factors which are determiners of per capita cost would contribute knowledge which would be of value in the planning and operation of public junior colleges.

BIBLIOGRAPHY

BIBLIOGRAPHY

Books

- Bogue, Jesse P. The Community College. New York: McGraw-Hill Book Company, Inc., 1960.
- Downie, N. M. and Heath, R. W. Basic Statistical Methods. New York: Harper and Row, 1965.
- Edwards, Allen L. Experimental Design in Psychological Research. New York: Holt, Rinehart and Winston, 1960.
- Fretwell, Elbert K. "Establishing a Junior College," The Public Junior College. 55th Yearbook of the National Association for the Study of Education. Chicago: University of Chicago, 1956.
- Gleazer, Edmund J., Jr. (ed.). American Junior Colleges 6th ed. Appendix IV. Washington, D. C.: American Council on Education, 1963.
- McNemar, Quinn. Psychological Statistics. New York: John Wiley and Sons, Inc., 1962.
- Medsker, Leland L. The Junior College: Progress and Prospect. New York: McGraw-Hill Book Company, Inc., 1960.
- Siegel, Sidney. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, Inc., 1965.
- Thornton, James W., Jr. The Community Junior College. New York: John Wiley and Sons, Inc., 1966.

Periodicals

- Beckes, Isaac K. "The Case for Community Junior Colleges," Junior College Journal, 34:24-28 (April, 1964).
- Colvert, C. C. "A Study of Official External Influences on the Curriculums of Public Junior Colleges," Junior College Journal, 31:210-213 (December, 1960).

- Corbman, Bernard P. "The Need for Curriculum Evaluation of Community Colleges," Junior College Journal, 32:340-344 (February, 1962).
- Martorana, S. V. and Palmer, K. "Legislation Affecting Junior Colleges," Junior College Journal, 32:316-330 (February, 1962).
- Parker, Franklin. "The Community College--Enfant Terrible of American Higher Education, A Bibliography of 225 Doctoral Research Dissertations," Junior College Journal, 32:193-204 (December, 1961).
- Schenz, Robert F. "What is Done for Low Ability Students?" Junior College Journal, 34:22-27 (May, 1964).
- Tickton, Sidney G. "What's Ahead for Public Junior Colleges?" Junior College Journal, 34:9-11 (November, 1963).
- Williams, Glenn D. "Toward More Effective Junior College Districts," Junior College Journal, 31:305-307 (March, 1961).

Bulletins

- Committee on Accredited Schools and Colleges. "Colleges, Junior Colleges and Non-Public High Schools," The University of Missouri Bulletin. Columbia, Missouri: The University of Missouri, May 25, 1965.
- Good, LeRoy V. "State Criteria for the Establishment of 2-Year Colleges," Proceedings of the State Directors of Junior Colleges and Coordinators of State Systems of 2-Year Colleges, October 18-19, 1961. Washington, D. C.: U. S. Department of Health, Education and Welfare, OE-57003, 1961.
- Martorana, S. V. The Community College in Michigan, Staff Study No. 1, The Survey of Higher Education in Michigan. Lansing: Michigan Legislative Study Committee on Higher Education, 1957.
- Missouri Commission on Higher Education. First Coordinated Plan for Missouri Higher Education. Jefferson City: Missouri Commission on Higher Education, 1966.

- Morrison, D. G. and Martorana, S. V. Criteria for the Establishment of 2-Year Colleges. U. S. Department of Health, Education and Welfare, Office of Education. Washington, D. C.: United States Government Printing Office, 1961-62.
- Morrison, D. G. and Martorana, S. V. The 2-Year Community College, An Annotated List of Studies and Surveys. U. S. Department of Health, Education and Welfare, Office of Education. Washington, D. C.: United States Government Printing Office, 1958.
- Texas Research League. The State Board and the Local Junior College. Austin, Texas: The Texas Research League, 1964.
- The President's Committee on Education Beyond the High School. Second Report to the President. Washington, D. C.: United States Government Printing Office, July, 1957.

Unpublished Material

- Ball, Wilbur A. "A Critical Analysis of Curriculum Breadth in Texas Public Junior Colleges." Unpublished Doctoral dissertation, The University of Texas, Austin, 1963.
- Boze, Floyd D. "Criteria for the Establishment of Public Junior Colleges in Texas." Unpublished Doctoral dissertation, The University of Tennessee, Knoxville, 1955.
- Eberle, August W. "Size of Satisfactory Junior Colleges." Unpublished Doctoral dissertation, The University of Wisconsin, Madison, 1952.
- Gordon, Shirley B. "An Appraisal of Certain Aspects of the Curricula of the Community-Junior Colleges in Washington." Unpublished Doctoral Dissertation, State College of Washington, Pullman, 1957.
- McClain, James C. "Criteria for the Establishment of Public Junior Colleges in the State of Missouri." Unpublished Doctoral dissertation, University of Missouri, Columbia, 1961.

Missouri Public Junior College Catalogues

Annual Catalog 1967-1968. Missouri Southern College,
Joplin, Missouri.

Bulletin 1967-68. Mineral Area College, Flat River,
Missouri.

Bulletin 1967-68. The Junior College District of St.
Louis-St. Louis County, St. Louis, Missouri.

Bulletin 1966-68. The Junior College of the School
District of Moberly, Moberly, Missouri.

Bulletin 1967. Three Rivers Junior College, Poplar Bluff,
Missouri.

Bulletin 1966-68. Trenton Junior College, Trenton,
Missouri.

Catalog 1967-68. Crowder College, Neosho, Missouri.

Catalog 1967-68. Jefferson College, Hillsboro, Missouri.

General Catalog 1967-68. Metropolitan Junior College-
Kansas City, Kansas City, Missouri.

General Catalog 1966-1967. Missouri Western Junior
College, St. Joseph, Missouri.

APPENDICES

APPENDIX A

Missouri junior colleges included in this study and their full-time equivalent enrollment, number of subject areas taught, number of semester hours taught, and mean class size, fall and spring semesters, 1966-1967.

Junior College	Enrollment in FTE Students	Subject Areas Taught*	Sem. Hrs. Taught**	Mean Class Size***
Moberly	168	19	139	21.03
Trenton	181	17	93	21.62
Crowder	418	25	247	20.63
Mineral Area	710	23	300	21.32
Jefferson County	804	23	286	24.40
Missouri Western	966	25	349	23.55
Missouri Southern	1546	30	313	30.43
Kansas City	3559	33	558	21.93
St. Louis	6721	35	604	23.66

* Subject areas giving college transfer credit.

** Total semester hours taught in distinct courses which were approved for college transfer credit.

*** Mean class size in courses approved for college transfer credit.

APPENDIX B

Subject areas ranked by mean number of semester hours taught and semester hour range among institutions teaching.

Subject Area	Mean Sem. Hrs. Per Inst.	Mean Sem. Hrs. Range Among Insts.
Business Administration	26.56	6-44
Mathematics	26.33	8-37
Art	24.13	7-59
Business Education	21.63	15-39
English	19.00	6-30
Chemistry	18.67	10-29
Music	17.22	1-26
Home Economics	17.00	9-23
German	15.67	8-18
Industrial Arts	15.50	3-28
French	15.17	10-22
Biological Science	14.78	5-41
Spanish	14.00	10-22
History	13.78	6-23
Russian	13.00	8-16
Engineering, General	12.43	3-33
Physics	11.67	5-18
Engineering Drawing	11.50	4-26
Political Science	8.89	5-12
Sociology	8.56	3-15
Advertising Design	8.33	3-19
Drama	8.00	5-11
Humanities	8.00	8-*
Geology	7.50	5-12
Physical Education	7.44	2-12
Economics	6.67	3- 9
Philosophy	6.67	3-11
Architecture	6.40	2-13
Psychology	5.14	3- 9
Zoology	5.11	3- 8
Speech	4.78	3- 9
Education	4.63	2- 6
Geography	4.17	3- 7
Anthropology	3.75	3- 6
Journalism	3.00	1- 5

* This subject area was taught in only one institution.

APPENDIX C

Subject areas ranked by mean class size for all colleges combined and mean class size range among institutions teaching.

Subject Area	Mean Class Size All Insts.	Mean Class Size Range Among Insts.
Psychology	46.06	31.69 - 112.00
History	38.10	25.68 - 61.13
Humanities	36.70	36.70 - *
Biological Science	35.60	21.46 - 60.00
Zoology	35.46	16.90 - 57.50
Political Science	35.03	17.64 - 68.50
Economics	33.62	20.83 - 53.83
Philosophy	32.09	29.00 - 36.00
Geography	30.06	16.60 - 52.00
Sociology	27.65	14.00 - 40.67
Education	24.02	12.00 - 38.80
Anthropology	23.98	9.50 - 39.00
Business Administration	23.58	13.75 - 30.94
Physical Education	23.19	13.00 - 34.55
Chemistry	22.31	12.00 - 33.90
English	22.30	14.30 - 28.29
Art	21.85	15.86 - 28.29
Geology	21.11	12.00 - 25.75
Mathematics	19.94	10.25 - 27.36
Speech	19.57	9.41 - 21.32
Advertising Design	19.06	17.67 - 20.00
Music	18.58	6.00 - 32.50
Business Education	16.29	5.67 - 24.89
Physics	15.65	4.00 - 30.75
Engineering Drawing	15.46	5.50 - 21.33
Journalism	15.36	11.29 - 19.50**
French	14.88	13.90 - 17.00
Home Economics	14.32	8.50 - 20.18
Drama	14.15	8.57 - 22.13
Spanish	13.96	6.50 - 20.83
German	13.44	10.50 - 16.50
Architecture	12.62	8.00 - 19.00
Engineering, General	11.49	5.00 - 18.26
Industrial Arts	11.24	11.22 - 12.25**
Russian	9.00	6.50 - 11.50**

* This subject area was taught in only one institution.

** These subject areas were taught in only two institutions.

APPENDIX D

Total educational and general expenditure, enrollment in full-time equivalent students, and per capita cost,* for Missouri public junior colleges, fall and spring semesters, 1966-1967.

Junior College	(a) Total Educ. and Gen. Expenditure**	(b) Enrollment- FTE Students	(c) Per Capita Cost**
Moberly	\$ 116,681	168	\$ 695
Trenton	89,957	181	497
Crowder	349,444***	418	836
Mineral Area	504,821	710	711
Jefferson College	612,651	804	888
Missouri Western	618,430	966	650
Missouri Southern	938,807	1546	607
Kansas City	2,725,844	3559	766
St. Louis	<u>5,262,289</u>	<u>6721</u>	<u>783</u>
TOTAL	\$11,453,598	15,073	\$ 766

* Per capita cost was computed by dividing column "a" by the corresponding number in column "b" to determine the total operational cost per full-time equated student, column "c".

** Rounded to the nearest whole dollar.

*** Reported as estimated on Missouri State Board of Education report form.

APPENDIX E

Portion of total enrollment* included in each subject area group appearing in the study, Missouri public junior colleges, fall and spring semesters, 1966-1967.

Subject Area Group**	Enrollment	Per Cent of Enrollment Included in Each Group
A	73,593	74.76
B	17,772	18.05
C	2,548	2.59
D	3,781	3.84
E	785	.80

* Enrollment referred to is total number of students enrolled in all class sections, including duplicates.

** The ranges in per cent of institutions in which the subject areas in each group were taught were: Group A, 100%; Group B, above 75% (but not in all colleges); Group C, 51-75%; Group D, 26-50%; Group E, below 26%.

The subject areas included in each group were:

<u>Group A</u>	<u>Group B</u>	<u>Group C</u>
Biological Science	Art	Architecture
Bus. Admin.	Bus. Educ.	Drama
Chemistry	Education	French
Economics	Engr. Draw.	Geography
English	Engineering	
History	Psychology	
Mathematics	Spanish	
Music		
Physical Educ.	<u>Group D</u>	<u>Group E</u>
Physics	Anthropology	Humanities
Political Science	Advrt. Design	Industrial Arts
Sociology	Geology	Journalism
Speech	German	Russian
Zoology	Home Econ.	
	Philosophy	

APPENDIX F

Correlation matrix showing correlations among six factors*
included in the study

Factors	I	II	III	IV	V	VI
I	1.000	.908	.850	.950	.700	.217
II	.908	1.000	---	.900	---	.325
III	.850	---	1.000	---	---	.267
IV	.950	---	---	1.000	---	.217
V	.700	---	---	---	1.000	---
VI	.217	---	---	---	---	1.000

*The six factors, in the order in which they appear in the matrix, were:

- I - Institution enrollment size in full-time equivalent students.
- II - Number of subject areas taught per institution.
- III - Number of subject areas taught at both the freshman and sophomore levels per institution.
- IV - Number of semester hours taught per institution.
- V - Mean class size per institution.
- VI - Per capita cost per institution.

APPENDIX G

QUESTIONNAIRE FOR ADMINISTRATORS IN MISSOURI
HIGHER EDUCATION AGENCIESPersonal Information

1. Present position _____
2. Number of years in present position _____
3. Number of years experience in education _____
4. Number of years of experience in education in this state
_____.
5. Number of years of experience in higher education in this
state _____.

Administrative Questions

In answering the following, you are asked to express your opinion on each question. It is assumed that your answer is based on your practical experience as an administrator and may or may not agree with contemporary opinion.

1. A public community junior college in Missouri should currently have a minimum per capita operating level of:

_____ less than \$200 per capita.

_____ \$200 to \$399 per capita.

_____ \$400 to \$599 per capita.

_____ \$600 to \$799 per capita.

_____ \$800 to \$999 per capita.

_____ more than \$1000 per capita. Specify _____

2. A public community junior college in Missouri should have a desirable (optimum) per capita operating level of:

_____ less than \$400 per capita.

_____ \$400 to \$599 per capita.

_____ \$600 to \$799 per capita.

_____ \$800 to \$999 per capita.

_____ \$1000 to \$1199 per capita.

_____ more than \$1200 per capita. Specify _____

3. The state should appropriate funds for junior college education per full-time equated student as follows:

_____ one-third of the yearly per capita cost.

_____ one-half of the yearly per capita cost.

_____ two-thirds of the yearly per capita cost.

_____ other. Specify _____

4. The local district should levy a tax that will provide a junior college education per full-time equated student as follows:

_____ one-third of the yearly per capita cost.

_____ one-half of the yearly per capita cost.

_____ two-thirds of the yearly per capita cost.

_____ other. Specify _____

5. Student tuition and fees should provide:

_____ one-third of the yearly per capita cost.

_____ one-half of the yearly per capita cost.

_____ two-thirds of the yearly per capita cost.

_____ other. Specify _____

6. In your opinion, what should be the minimum projected enrollment size for the establishment of new comprehensive community junior college districts in Missouri?

_____ Less than 200 full-time equivalent students.

_____ 200 to 399 full-time equivalent students.

_____ 400 to 599 full-time equivalent students.

_____ 600 to 799 full-time equivalent students.

_____ 800 to 999 full-time equivalent students.

_____ More than 1000 full-time equivalent students.

Specify _____

The following is a suggested list of subject area and course offerings for a minimum college transfer program at a community junior college in Missouri. You are asked to complete this portion of the questionnaire following these directions:

1. Cross out those subject areas and/or courses which in your opinion would not be essential for a minimum college transfer program.
2. Add those subject areas and/or courses which in your opinion you feel to be essential for a minimum college transfer program.
3. In the Semester Hours Credit column, write in the number of semester hours of course credit you believe should be offered in each subject area and course offering.
4. In the Level of Offering column, mark the level(s) at which you think each of the courses should be offered.

Minimum subject area and course offerings for a college transfer program in a community junior college in Missouri should include:

Subject Area and Course	Semester Hours Credit	Level of Offering Fresh. Soph.
Business Administration:		
College Typing		
College Shorthand.....		
Business Machines.....		
Business Mathematics		
Introduction to Business		
Accounting		
English:		
English Composition.....		
English Literature		
Mathematics:		
Algebra.....		
Trigonometry		
Calculus		
Analytic Geometry.....		
Natural Science:		
Biology.....		
Chemistry.....		
Physics.....		
Geography.....		

Subject Area and Course	Semester Hours Credit	Level of Offering Fresh. Soph.
Foreign Language:		
Spanish.....		
French		
German		
Social Science:		
History.....		
Government		
Economics.....		
Sociology.....		
Psychology		
Fine Arts:		
Art.....		
Music.....		
Speech		
Drama.....		
Physical Education:		
Physical Education		
Health Science		

Subject Area and Course	Semester Hours Credit	Level of Offering	
		Fresh.	Soph.

Semester hours suggested by twenty administrators in eight subject areas comprising a suggested minimum college transfer program for Missouri public junior colleges.*

Respondent	Subject Areas								Total Sem. Hrs.
	Bus. Admin.	Eng.	Math.	Nat. Sci.	Frng. Lang.	Soc. Sci.	Fine Arts	Phys. Educ.	
1	24	18	20	33	36	30	30	4	171
2	20	6	12	18	9	15	12	4	76
3	15	22	10	16	13	30	3	4	100
4	17	9	27	35	30	28	16	4	149
5	11	12	10	25	20	26	8	6	107
6	--	9	3	15	15	12	12	4	70
7**	--	--	--	--	20	21	27	4	
8	41	12	33	53	45	38	22	9	259
9	25	12	26	58	30	36	60	4	241
10	30	34	29	48	26	39	40	4	240
11	21	22	--	48	30	30	44	6	201
12	27	16	23	40	26	38	33	7	210
13	27	18	26	38	25	31	33	6	194
Sub-Total	262	180	219	429	315	379	216	66	2161
14	9	12	36	38	48	24	16	1	184
15	28	12	3	57	26	45	33	9	213
16	21	12	12	15	12	36	9	7	124
17	22	6	12	18	36	21	9	2	126
18	24	9	6	12	--	15	9	9	84
19	46	13	15	24	36	60	48	6	250
20	15	6	16	15	12	16	8	2	89
Sub-Total	165	72	100	180	170	217	130	36	1072
GRAND TOTAL	427	252	319	609	485	596	448	102	3233

* Respondents 1-13 were junior college administrators and respondents 14-20 were four-year college administrators and state level administrators.

** The total was not calculated for this respondent since only four, or 50 per cent of the subject areas were indicated in his response.

APPENDIX I

MICHIGAN STATE UNIVERSITY EAST LANSING • MICHIGAN 48823

COMMUNITY COLLEGE COOPERATION • OFFICE OF THE DIRECTOR • KELLOGG CENTER

December 22, 1967

Dear

During our recent visit to your campus, you were given a questionnaire from this office asking you to express your opinions on certain questions relating to a study of finance and curriculum in community colleges.

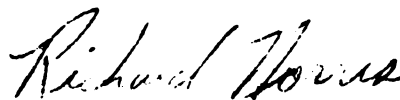
The returns have been very favorable thus far. However, we are striving for a maximum number of returns from both Presidents and Deans. Please complete the questionnaire if you have not already done so.

Only summarized information will be used in this study. Neither individuals nor institutions will be identified. Your consideration and cooperation is necessary for the success of this study.

Sincerely yours,



Max S. Smith, Director
Community College Cooperation
Professor of Higher Education
5 Kellogg Center



Richard Norris
Assistant Director
Community College Cooperation
5 Kellogg Center

/ld

Enclosure

MICHIGAN STATE UNIVERSITY LIBRARIES



3 1293 03169 0443