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A study to determine the minimum number of student contacts per course that would justify the course financially, in a private secondary school and junior college.

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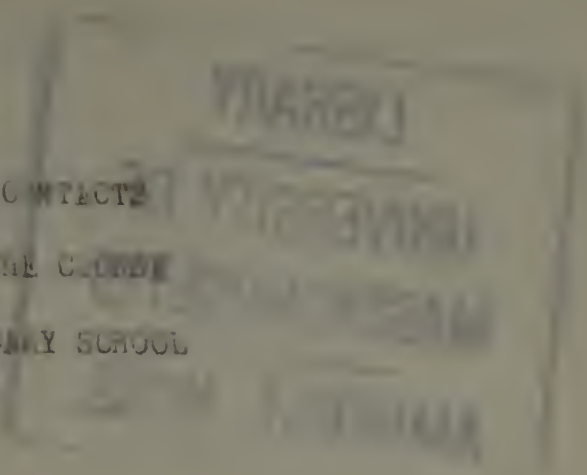
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A STUDY TO DETERMINE
THE MINIMUM NUMBER OF STUDENT CONTRACTS
PER COURSE THAT WOULD JUSTIFY THE COURSE
FINANCIALLY, IN A PRIVATE SECONDARY SCHOOL
AND JUNIOR COLLEGE

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AND JUNIOR COLLEGE



BY

BENJAMIN R. LANG

A PROBLEM SUBMITTED IN PARTIAL FULFILLMENT
OF REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE

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THE INTRODUCTION

INTRODUCTION.

The institution with which this problem is concerned is a private secondary school and Junior College located in Vermont. The school has a moderate endowment, which is used for general maintenance and does not contribute in any large degree toward paying the administrative and instructional salaries.

The name of the institution will not be used in this problem, because faculty salaries are personal matters which I am not at liberty to make public. My interest in the problem arose from my connection with the school during the year 1939-1940 when I served as bookkeeper and instructor.

For the year 1939-1940 the enrollment was one hundred and thirty-five students, fifty-one registered in the Seminary, a secondary school, and eighty-four registered in the Junior College. During the past five years the total registration has been fairly constant, but since the Junior College has been operating the Seminary enrollment has fallen off. The decrease in the Seminary enrollment has been offset by an increase in the Junior College enrollment, which has roughly approximated the Seminary's decrease.

The student body is equally divided between boys and girls, and between town and boarding students.

The Seminary which is rapidly losing enrollment may not be discarded entirely, because the school's charter was granted to a secondary school and not to a college.

The school's faculty is composed of both men and women instructors. Some of the teachers are hired on a part time basis, and for teaching one or two courses are given their board and room. The institution calculates the value of board and room to be three hundred and fifty dollars per school year for a person living alone, and two hundred and fifty dollars for a married person, who shares a room with husband or wife, as the case may be. The total number of instructors is twenty, and there are three people whose duties are purely administrative. This leaves a total of twenty-three people whose salaries are classified as instructional or administrative.

There were forty-nine different courses offered in the college and thirty-two in the Seminary. This number includes sections of the same course as separate subjects; for example, English IA and IB is counted as two subjects. Considering these facts, we will attempt to find what is the sufficient number of students in a course to make it an asset instead of a liability.

DETERMINING COST OF A COURSE

The total cost of administration and instruction is shown in Table I (page 7) and includes the salaries of all instructors and administrators for one semester. The cost per course offered may be determined on three bases, namely: the average cost per course, found by dividing the total number of courses offered into the total of instructional and administrative salaries; the cost per course depending on the number of hours of instruction, found by multiplying the number of hours for any one course by the cost per hour of instruction; last, the cost per course depending on the number of student contacts per week, found by multiplying the cost per student contact by the number of student contacts of the course. On this basis, the average cost per course is one hundred and fifty-one dollars and fifty-four cents; the cost per hour of instruction, forty-two dollars and sixty-two cents; and the cost per student contact, four dollars and seventy-eight cents (cf. Table I).

BASIS FOR DETERMINATION OF INCOME

The total income from tuition is found by multiplying the tuition charged by the Seminary by the number of students in the Seminary and the tuition charged by the College by the number of students in the College, and adding these totals together.

	Number of Students	Tuition per Semester	Total
Seminary	51	\$ 43.00	\$2193
College	84	\$122.50	\$10290
	<u>135</u>	<u> </u>	<u>\$12483</u>

This amount (\$12,483), shown above, is the maximum amount that the school can receive from tuition with its present enrollment. From this amount instructional and administrative salaries must be paid. The income from tuition is therefore fixed or limited by the number of students and the staff is the variable quantity, its number being adjusted from year to year to care for the needs of the students.

Income may also be calculated on three bases: income per course, per hour of instruction, and per student contact; but the income will not increase or decrease with the number of courses offered or the number of hours of instruction given. The income from any one course will vary with the number of student contacts per course. Because of the difference in tuition charges between the College and Seminary, Tables II and III have been prepared, showing how the courses, hours, and student contacts are divided between the staff members and the College and Seminary.

COMPARISON OF COST AND INCOME

Using income per student contact for a basis, we find that each College course offered must have at least twenty-one student contacts each week in order to cover the average cost per course as shown in Table I. On the same basis, all Seminary courses must have at least one hundred student contacts per week in order to cover the average cost per course. Reference to Tables II and III will show how these figures were reached. The total tuition income of the Seminary having been fixed at \$2,040 per semester, the number of student contacts per week for the Seminary was determined. The tuition income was then divided by the number of student contacts per week, which gives the income per student contact. This in turn was divided into the average cost per course, as shown in Table I, and the number of student contacts necessary to meet the average cost per semester was established. The same procedure was followed for the College.

FORNARD TABLE I

TRACED AND COSTS PER CLASS, HOUR, AND STUDENT CONTACT

Table I contains a list of all the teachers of the Normal and College, the number of courses offered by each, the number of hours taught by each, and the total teaching load of each per week, and their salaries per semester.

From this table the cost per course, per hour, and per student contact is obtained by dividing the number of courses (eighty-one), the number of hours per week (two hundred and eighty-eight), and the number of student contacts per week into the total instructional and administrative salaries.

The student contacts are determined by multiplying the number of class hours in a given course by the number of students enrolled in the course.

TABLE I

TEACHERS AND COSTS PER CLASS, HOUR, AND STUDENT CONTACT

<u>TEACHER</u>	<u>COURSES</u>	<u>HOURS PER WEEK</u>	<u>LOAD</u>	<u>SALARY PER MONTH</u>
A	5	14	83	\$425
B	6	17	85	\$575
C	7	35	310	\$825
D	4	18	222	\$575
E	2	7	90	\$525
F	5	15	222	\$575
G	4	12	84	\$575
H	5	21	118	\$425
I	4	11	225	\$725
J	2	10	80	\$125
K	3	17	110	\$575
L	3	24	115	\$475
M	2	6	94	\$125
N	6	6	111	\$175
O	2	10	126	\$350
P	3	13	2	\$500
Q	6	24	264	\$475
R	4	4	48	\$50
S	6	18	84	\$525
T	2	6	68	\$375
X				\$2000
Y				\$1025
Z				\$475
Total	23	81	288	\$2275
Cost per course		\$151.54		
Cost per hour of instruction			\$42.62	
Cost per student contact				\$4.78

TABLE II

TEACHERS IN THE SEMINARY
AND INCOME PER COURSE, HOUR, AND STUDENT CONTACT

Table II is a list of all the instructors and administrators, accompanied by the number of courses, hours, and load of each, in the Seminary.

From this table we find the income per course, per hour of instruction, and per student contact by dividing the totals of these into the total income from Seminary tuition (\$2040).

TABLE II

TEACHERS IN THE SEMINARY

AND INCOME PER COURSE, HOUR, AND STUDENT CONTACT

<u>TEACHER</u>	<u>COURSES</u>	<u>HOURS</u>	<u>LOAD</u>
A	2	10	75
B	0	0	0
C	7	35	310
D	3	15	210
E	0	0	0
F	0	0	0
G	0	0	0
H	3	15	100
I	0	0	0
J	2	10	80
K	1	7	54
L	2	10	100
M	1	2	22
N	2	2	33
O	0	0	0
P	0	0	0
Q	3	15	135
R	4	4	43
S	0	0	0
T	2	6	68
X, Y, Z	0	0	0
Total	23	131	1295
Income per Course			\$88.69
Income per Hour			\$15.57
Income per Student Contact			\$1.57

TABLE III

TEACHERS IN COLLEGE
AND INCOME PER COURSE, HOUR, AND STUDENT CONTACT

Table III is a list of all the instructors and administrators, accompanied by the number of courses, hours, and load of each, in the College.

From this table we find the income per course, per hour of instruction, and per student contact by dividing the totals of these into the total income from College tuition (\$9,455).

TABLE III

TEACHERS IN COLLEGE

AND INCOME PER COURSE, HOUR, AND STUDENT CONTACT

<u>TEACHER</u>	<u>COURSES</u>	<u>HOURS</u>	<u>LOAD</u>
A	3	4	14
B	6	17	85
C	0	0	0
D	1	3	12
E	2	7	30
F	5	15	229
G	4	12	84
H	2	6	18
I	4	11	235
J	0	0	0
K	2	10	56
L	1	14	15
M	1	4	72
N	4	4	73
O	4	10	136
P	3	13	23
Q	3	9	63
R	0	0	0
S	6	18	34
T	0	0	0
X, Y, Z	0	0	0
Total	25	157	1289

Income per Course \$132.85
 Income per Hour \$80.19
 Income per Student Contact \$7.33

TABLE IV

DETAIL OF SITUATION IN THIS INSTITUTION.

This table is a list of all courses offered in the Seminary and College, accompanied by the student contacts per course. From this table we can ascertain those Seminary and College courses that are operated at a loss. All Seminary courses with less than one hundred student contacts and all College courses with less than twenty-one student contacts are operated at a loss.

TABLE IV

DETAIL OF SITUATION IN THIS INSTITUTION.

SEMINARY COURSES OFFERED

1939-1940

<u>COURSE</u>	<u>TEACHER</u>	<u>STUDENT CONTACTS</u>
1. American History	D	75
2. Algebra I	Q	60
3. Algebra II	Q	75
4. Ancient History	J	50
5. Bible I (a)	R	10
6. Bible I (b)	R	12
7. Bible I (c)	R	16
8. Bible I (d)	R	10
9. Bookkeeping I	C	25
10. Bookkeeping II	C	60
11. Biology	L	75
12. Chemistry	K	54
13. Commercial Geography	C	45
14. English I	A	30
15. English II	A	45
16. English III	T	65
17. English IV	D	100*
18. French I	G	40
19. French II (A)	G	15
20. French II (B)	G	45
21. General Science	L	75

TABLE IV (CONTINUED)

DETAIL OF EDUCATION IN FIELD INSTITUTION.

SEMINARY COURSES OFFERED

1939-1940

<u>COURSE</u>	<u>TEACHER</u>	<u>STUDENT CONTACT</u>
22. Latin I	J	30
23. Medieval and Modern History	D	35
24. Plane Geometry	G	50
25 Physical Education	M	22
26. Shorthand I	C	35
27. Shorthand II	C	10
28. Speech Ia	N	30
29. Speech Ib	N	13
30. Solfeggio	T	3
31. Typing I	C	50
32 Typing II	C	75

* Operated at a profit.

TABLE IV

DETAIL OF SITUATION IN THIS INSTITUTION.

COLLEGE COURSES OFFERED

1939-1940

<u>COURSE</u>	<u>TEACHER</u>	<u>STUDENT CONTACTS</u>
1. Appreciation	A	6*
2. Accounting	E	56
3. Bible	I	4*
4. Biology I	O	113
5. Biology II	O	16*
6. Chemistry (Org.)	B	3*
7. Clothing	B	8*
8. Chemistry	K	44
9. Economics	E	54
10. Foods and Cooking	B	44
11. French IA	d	9*
12. French IB	H	9*
13. French II	G	30
14. French III	G	15*
15. English IA	F	72
16. English IB	F	81
17. English II	F	45
18. Harmony	A	2*
19. Household Tech.	B	12*
20. Household Man.	B	10*
21. Journalism I	F	9*
22. Journalism II	F	15*

TABLE IV (CONTINUED)

DETAIL OF SITUATION IN THIS INSTITUTION.

COLLEGE COURSES OFFERED

1939-1940

<u>COURSE</u>	<u>TEACHER</u>	<u>STUDENT CONTACTS</u>
23. Music	A	6*
24. Mechanical Drawing	P	13*
25. Mathematics I	W	6*
26. Mathematics II	Q	3*
27. Personal Regimentation	B	8*
28. Psychology	D	12*
29. Political Science	I	15*
30. Physical Education	L	15*
31. Physics	K	11*
32. Physical Education	M	7*
33. Spanish I	G	24
34. Spanish II	G	15*
35. Sociology	I	45
36. Solid Geometry	Q	3*
37. Speech A	N	18*
38. Speech B	N	23
39. Speech C	N	21
40. Speech D	N	16*
41. Shop I	P	3*
42. Shop II	P	12*

TABLE IV (CONTINUED)

DETAIL OF SITUATION IN THIS INSTITUTION.

COLLEGE COURSES OFFERED

1939-1940

<u>COURSE</u>	<u>TEACHER</u>	<u>STUDENT CONTACTS</u>
43. Shorthand I	S	9*
44. Shorthand II	S	12*
45. Secretarial Practice	S	9*
46. Typing I	S	21
47. Typing I	S	3*
48. Typing II	S	18*
49. U. S. History	I	171

* Operated at a financial loss.

CONCLUSION

COST DATA

Table I shows the cost per course to be covered and fifty-one dollars and fifty-four cents. In order to cover this cost, Seminary courses must have at least one hundred student contacts per week, found by dividing one dollar and fifty-two cents (the income per student contact), Table II, into the average income per course, Table I.

Each College course must have at least twenty-one student contacts per week, found by dividing seven dollars and thirty-three cents (the income per student contact), Table III, into the average cost per course, Table I.

APPROVED BY:

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Problem Committee

DATE March 11, 1940

