DOCUMENT RESUME

ED 084 965 HE 004 852

TITLE	Year-Round Operation of the University: An Analysis of Its Rationale, A Description of a Recent Study, and a Proposal for Synthesis.
INSTITUTION	Conference of Rectors and Principals of Quebec Universities, Montreal.
PUB DATE	1 Feb 73
NOTE	57p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Educational Problems; Educational Programs; *Higher Education; Institutional Role; *School Schedules; Undergraduate Study; *Universities; *Work Study Programs; *Year Round Schools

ABSTRACT

This study is comprised of three parts. The first part consists of a summary and analysis of arguments pro and contra year-round operation of the university. The second part makes a comparative analysis of the actual experience of year-round operation in three Canadian universities and five U.S. universities. The third part is a study proposal that would investigate the design of an organism within the university that would be involved in finding solutions to problems at the national and regional levels, and to problems concerning the university and its immediate environment. This organism would require year-round operation of the university and compulsory participation by all undergraduates as part of a "work/study" program. (Author)

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LA CONFÉRENCE DES RECTEURS ET DES PRINCIPAUX DES UNIVERSITÉS DU QUÉBEC

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YEAR-ROUND OPERATION OF THE UNIVERSITY: AN ANALYSIS OF ITS RATIONALE, A DESCRIPTION OF A RECENT STUDY, AND A PROPOSAL FOR SYNTHESIS.

Le 1er février 1973

The views and opinions expressed in this report are those of the individual researcher who compiled it and are in no way to be taken as the opinions of the Conference of Rectors and Principals of the Universities of Quebec.

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RESUME

Cette étude comporte trois parties. On retrouve dans la première partie une analyse sommaire des arguments qui militent en faveur ou qui vont à l'encontre du fonctionnement à l'année longue. On en arrive à la conclusion que, si on fait du fonctionnement à l'année longue une fin en soit, il importe alors de trouver les programmes qui sont les plus efficaces et les moins onéreux, même s'il faut pour cela en inventer de nouveaux. Si cependant, on conçoit le fonctionnement à l'année longue comme une alternative à l'augmentation des investissements en capital, il n'apparait pas évident que ceci puisse entraîner une réduction des coûts.

La deuxième partie comprend une analyse comparative des expériences de fonctionnement à l'année longue dans trois universités canadiennes et cinq universités américaines. Les conclusions suivantes ressortent de cette analyse:

1) les bénéfices aux étudiants, surtout en terme de flexibilité dans l'organisation des programmes, méritent certainement que l'on encoure un coût additionnel.
2) les difficultés qui en découlent pour les administrateurs des départements sont plus grandes que les

avantages personnels qu'en retirent les autres membres du corps professoral.

3) l'augmentation du nombre et de la fréquence des inscriptions et la diminution correspondante du temps disponible représentent des coûts qui ne sont compensés par aucun bénéfice direct pour les administrateurs.

La dernière partie comporte une proposition de projet d'étude visant à examiner la possibilité de l'établissement, au niveau de l'université, d'un organisme dont la tâche serait de trouver des solutions aux problèmes de caractère provincial et régional et aux problèmes concernant l'université et son environnement immédiat. Cet organisme opérerait à l'année longue et requièrerait pour un semestre la participation obligatoire de tous les étudiants de premier cycle à un programme d'enseignement coopératif.

YEAR-ROUND OPERATION - PART ONE

Year-round operation of the university has been proposed as "a means of accomodating more students without incurring additional capital costs - or, to put it slightly differently, as a means of achieving more efficient utilization of space." [1] The main thrust of the argument for year-round operation is clearly economic and is "highly dependent on current utilization of all facilities. This economic appeal will vary within an institution from faculty to faculty and from time to time, being quite low while the institute is in the emergent situation of low enrolments and quite high when land, buildings and equipment are fully loaded." [2] It is also clear that increased academic and administrative costs will probably outweigh any savings on capital costs. In the area of academic costs, student/faculty ratios are the most important variables, and it appears that these must be maintained at a constant pre-determined value if year-round operation is not to develop insupportable deficits. Thus, if enrolment falls in a given term, faculty must be decreased for that term in order to maintain the established ratio.

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1 Carnegie Commission on Higher Education. The More Effective Use of Resources. McGraw-Hill, June 1972. p. 122.

2 Commission on Post-Secondary Education in Ontario. Organization of the Academic Year. Queen's Printer, 1972. p. 6.

This means that course offerings have to be flexible to support the traditional pattern of low summer enrolments as is the case at the University of Guelph. However, if course offerings are restricted in the summer term, this may adversely affect the attractiveness of enrolment for the summer term - developing a vicious cycle. A result of failure to adjust student/faculty ratios to low summer term enrolment has been a major contributing factor to financial stress in several universities operating on a year-round calendar.

The major argument for year-long operation has been the need for limiting capital expenditures and for the generally more efficient use of resources in the face of scarcity of capital and continuing high rates of enrolment. Since it appears that the growth rate of enrolment in the 1er cycle has dropped substantially, in North America as a whole as well as in Quebec, the argument loses much of its strength.

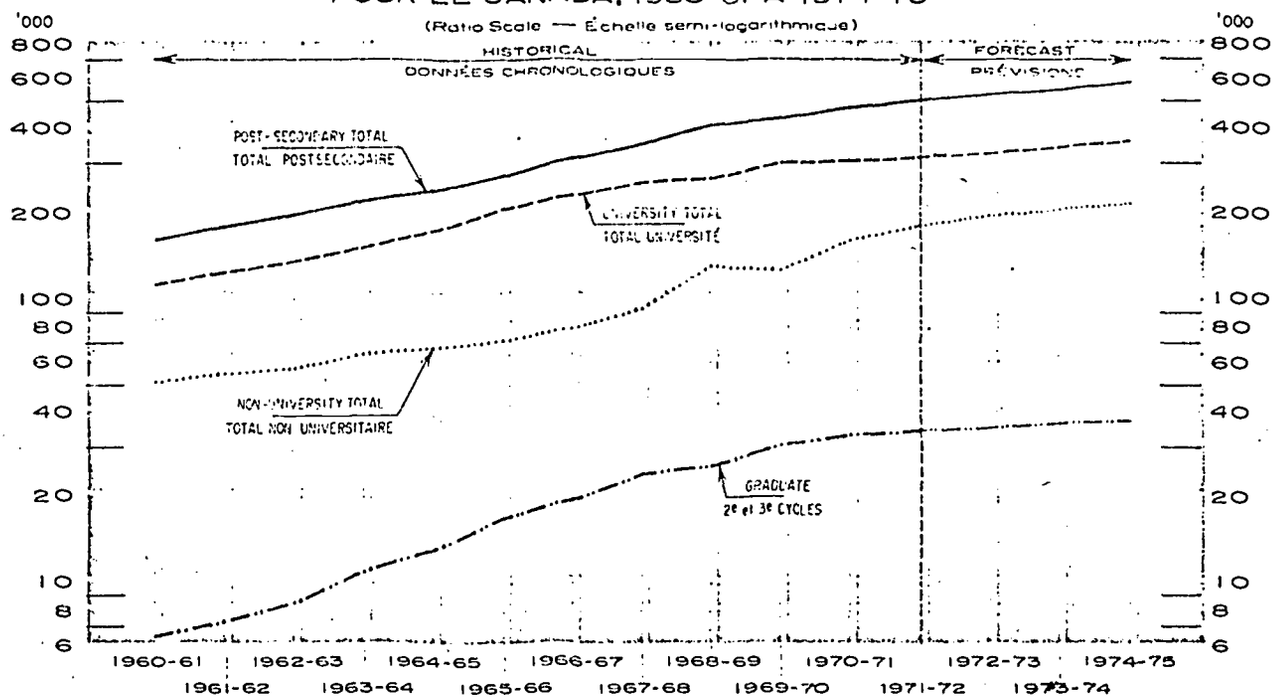
The situation is summed up in the following paragraph and illustrative charts:

> "En 1970 - 1971, les effectifs universitaires des provinces de l'Ouest ont

augmenté suivant un rythme beaucoup moins rapide que prévu. Les avis étaient alors partagés à savoir s'il s'agissait d'une fluctuation irrégulière ou d'un signe avant-coureur d'une tendance future. Toutefois, en 1971-1972, la situation se retrouva non seulement dans les provinces de l'Ouest mais encore en Ontario et dans les provinces de l'Atlantique. On a alors généralement convenu que l'accroissement rapide des effectifs universitaires au cours des années 60 était chose du passé et que le rythme d'augmentation au cours des années 70, tout spécialement entre 1970 et 1975, sera beaucoup plus modeste (voir graphique 2). Sans indication claire des tendances qui prévaudront dans l'avenir, il est extrêmement difficile de prévoir les effectifs universitaires avec un degré de précision valable. Par conséquent, les chiffres publiés sont plus des hypothèses que des prévisions, au vrai sens du mot. Il y a cependant tout lieu de s'attendre à de faibles augmentations en nombres absolus dans la plupart des provinces, mais à un rythme beaucoup moins rapide que celui des années 60.

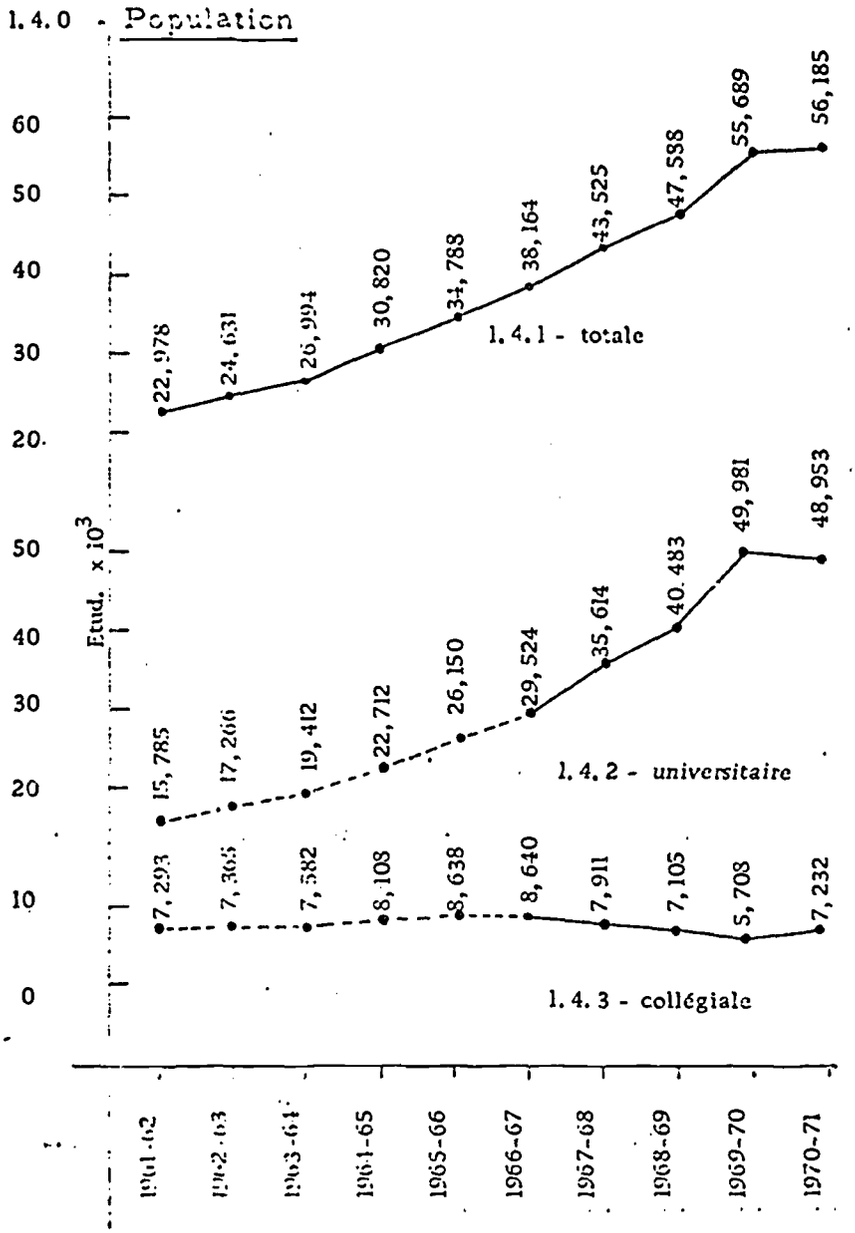
1. POST-SECONDARY ENROLMENTS, BY LEVEL, FOR CANADA, 1960-61 TO 1974-75

EFFECTIFS SCOLAIRES POSTSECONDAIRES, SELON LE NIVEAU, POUR LE CANADA, 1960-61 À 1974-75



Source: Statistique Canada. Statistiques de l'enseignement: 1972-73. p. 18.

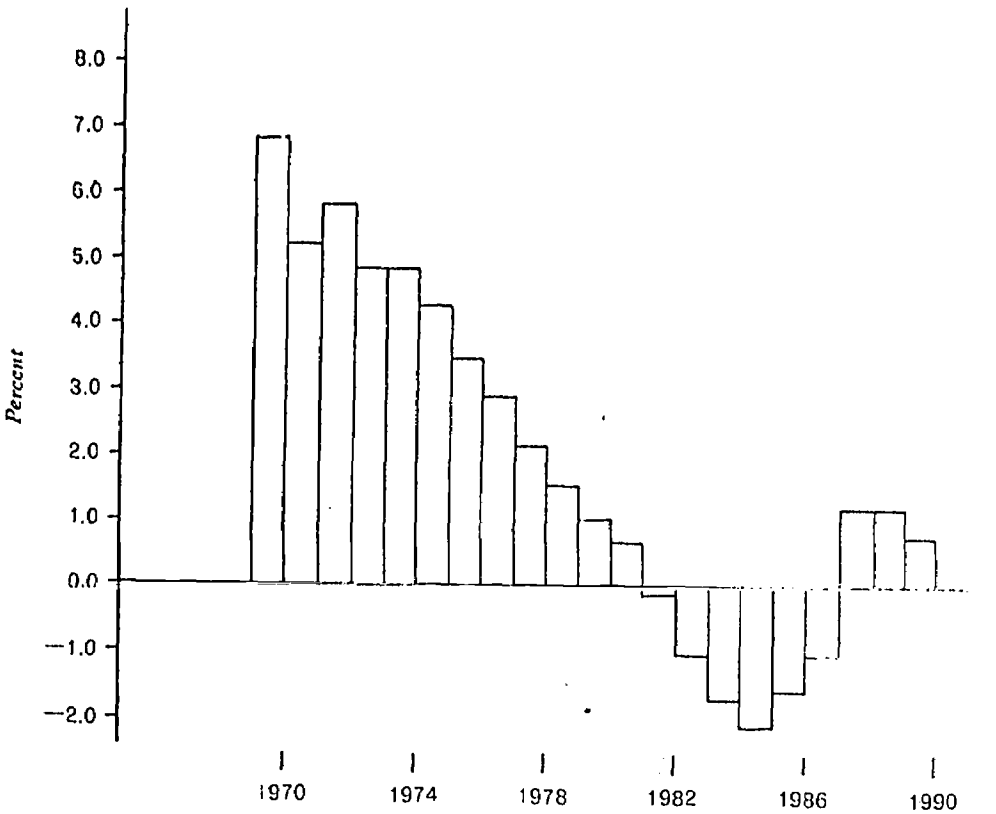
2.



Source: Ministère de l'Education. Evolution de l'enseignement supérieur au Québec, 1961-1971. p. 11.

3.

Annual percentage change in full-time equivalent enrollment in higher education, actual, 1969-70, and projected, 1970-1990



SOURCE: Projections developed for the Carnegie Commission by Gus W. Haggstrom of the University of California, Berkeley. The projections have recently been revised (from 1986 on) to reflect the behavior of the birthrate in the last fe. years.

Without the incentive of rapidly increasing enrolments, the justification for year-round operation of the universities rests upon the type of educational programme offered in the university. The type of educational programme which would demand year-round operation is the co-operative model, a .

modified outline form of which is proposed in part 3 of this report.

It is suggested that this outline proposal could be studied in greater depth, and a pilot project instituted at a selected university, with the objective of determining whether an operation of this type could sustain balanced enrolment figures throughout the year, and whether the implied benefits would outweigh the additional administrative costs.
It is further suggested that existing structures of this type such as the Vera Cruz plan (see part 2), be studied in some depth to obtain an estimate of costs and benefits when applied to the circumstances existing in Quebec.

If year-round operation is to be an end in itself, then the most productive and least expensive alternative amongst educational programmes must be found, or new ones designed to fit this type of operation. In this case, the extra costs for year-round operation must be accepted as being substantially less than the overall benefits to be accrued.

If, however, year-round operation is proposed as an alternative to capital expansion, we find no evidence to suggest that it will result in an overall reduction of costs.

YEAR-ROUND OPERATION - PART TWO

The most comprehensive analysis of the status quo in "fonctionnement à l'année longue" that has been published to date is Organization of the Academic Year, prepared by Woods, Gordon & Co. for the Commission on Post-Secondary Education in Ontario.(3) In it, the following conclusions are reached:

1. The benefits to the student (of year-round operation) chiefly the flexibility of the curriculum, are worth some additional costs. However, this has to be regarded as a cost of maximum student choice and it is yet to be proven that this choice is really of long-run benefit to the student or the institution.

2. The difficulties imposed on the Deans and Chairmen for the administrative elements of the academic departments are, in the opinion of the researchers, greater than the personal benefits to the other members of faculty.

3. The serious increase in volumes of enrolment and frequencies of registration, together with reduction of available time, incur additional costs with

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(3) op. cit.

no direct benefits to administrative offices.

4. In summary, the largest single academic benefit is the greater curriculum choice and term choice for the student, at considerable extra cost, and it would take many years to determine the value of that extra choice.

These conclusions were reached after a survey of the experiences of the following institutions, amongst others:

University or College	Calendar System
Canada	
Guelph University	Trimester
Simon Fraser University	Trimester (split summer term)
Ryerson Polytechnical Inst.	Trimester (terminates 1971)
United States	
University of Michigan	Trimester (split summer term)
Western Michigan University	Trimester (split summer term)
Michigan State University	Quarter

University of Florida — Quarter

University of California at Berkeley — Quarter (split summer term)

Guelph University

The trimester calendar system has grown in popularity with Ontario students since its introduction in 1965-66. The table below illustrates the pattern of growth over the past seven years:

STUDENT ENROLMENT BY SEMESTERS - "THREE-SEMESTER PROGRAMS" *
UNIVERSITY OF GUELPH 1965 - 1971

	Spring Enrolment		Fall Enrolment		Winter Enrolment		
	Number	% of Total	Number	% of Total	Number	% of Total	Total
1965-66			416		379		795
1966-67	254	10.9%	1,082	46.5%	992	42.6%	2,328
1967-68	521	11.9	1,941	44.3	1,919	43.8	4,381
1968-69	1,081	18.3	2,440	41.3	2,390	40.4	5,911
1969-70	1,404	19.1	3,022	41.1	2,925	39.8	7,351
1970-71	1,630	20.3	3,202	40.0	3,181	39.7	8,031
1971-72	1,663	17.7	3,990	42.6	3,725 (1)	39.7	9,378 (1)

Notes: (1) Estimated

(2) Enrolment figures are those reported to the Department of Colleges and Universities. Students include "regular students",

* All statistics in this section are taken from Organization of the academic year, chapter V.

"continuing students" (those taking further courses in a degree program after having taken a degree) and "special students" (those not working towards a degree, e.g. a student taking make-up courses prior to entering a specialized or graduate program).

The table indicates that until 1970-71, enrolment in the spring term was growing at a faster pace than enrolments in the fall and winter terms. However, this trend changed for 1971-72, with only nominal growth in spring term enrolment, compared with an estimated 25% growth in fall and winter enrolments. Reasons advanced by students for this reduced interest in the 1971 spring term were increased competition from summer schools at other universities and the tendency for more students to travel during the summer.

A major factor affecting utilization of facilities and operating costs at Guelph is the number of courses offered in each term, and the number of times that it is necessary to repeat classes (or course sections) in a given course. The situation is summarized in the following table:

	1971-72 Academic Year	
	Number of Courses	Percentage of Total Courses Offered
Courses offered at least once in each of three terms	93	16%

Courses offered at least once in each of two terms	157	28%
Courses offered in one term only	319	56
Totals	569	100%

These results indicate that less than one half of the courses are repeated each year, and consequently the student may not get exactly the course mix that he wants each term. However, it is probable that the student should get at least an acceptable substitute course.

In summary, the Guelph experience with the trimester calendar appears to be relatively successful and the university appears to be meeting a need in Ontario by providing programmes which allow students to accelerate or alter the timing of their on-campus life.

Ryerson Polytechnical Institute

The trimester plan was discontinued in 1971 due to low summer enrolments, whose decline is shown in the following table:

RYERSON SUMMER TERM ENROLMENT COMPARED WITH PREVIOUS FALL TERM

Summer Term	Summer Term Enrolment	Percent of Summer Term Enrolment to Previous Fall Term Enrolment
1966	638	17.8
1967	831	18.4
1968	897	17.4
1969	819	14.1
1970	752	13.0
1971	381	6.0

Simon Fraser University, B.C.

The activity levels at S.F.U. in the summer semester run about one half of the activity levels in the fall and winter semesters, when measured in numbers of full-time equivalent students on campus and full-time equivalent teaching faculty.

SIMON FRASER UNIVERSITY
FULL TIME EQUIVALENT STUDENT ENROLMENTS

	Summer Semester 1968	Fall Semester 1968	Winter Semester 1969	Total Three Semesters
Arts	1,255	2,649	2,881	6,785
Education	535	1,136	1,223	2,894
Science	337	723	751	1,811

	Summer	Fall	Winter	Total
Total Undergraduate	2,127	4,508	4,855	11,490
Graduate	293	459	505	1,257
Total	2,420	4,967	5,360	12,747
Percentage of Total	19%	39%	42%	100%

SIMON FRASER UNIVERSITY
PERCENTAGE BY SEMESTER
FULL-TIME EQUIVALENT OF
TEACHING FACULTY

	Academic Year Summer, 1968 to Winter, 1969			
	Summer 1968	Fall 1968	Winter 1969	Academic Year
Arts	23%	40%	37%	100%
Education	18	42	40	100
Science	18	41	41	100
University	20%	41%	39%	100%

There is also a relatively high incidence of "repeated" courses, which if combined with fairly low enrolments in certain faculties, can result in a large number of under-enrolled classes and low student/staff ratios.

University of Michigan

For the 1969-70 academic year, levels of activity per term are as follows:

UNIVERSITY OF MICHIGAN -
UNDERGRADUATE STUDENTS

	Head-Count Full-time Students		Full-Time Equivalents		Course Credit Hours	
	Number	% of Total	Number	% of Total	Number	% of Total
Summer Half-term 1969	5,785	10.6%	2,257	5.0%	34,980	5.0%
Fall Semester 1969	22,560	41.3	21,350	47.1	330,916	47.1
Winter Semester 1970	21,331	39.0	19,863	43.8	307,873	43.8
Spring Half-term 1970	4,970	9.1	1,878	4.1	29,119	4.1
Totals	54,646	100.0%	45,348	100.0%	702,888	100.0%

Other findings of the University of Michigan experience are as follows:

a) No special inducements are offered to enrol in one semester as opposed to another.

b) Only limited numbers of students have taken advantage of the trimester system to accelerate their programs Majority of students enrolled in spring and summer half-terms are fully employed the rest of the year.

c) Both faculty and students believe that specific academic activities have been hampered by time constraints due to reduced term lengths.

d) The major influx of the students is in the faculty of science.

e) Because of the financial incentive, teaching in the spring and summer half-terms has attracted a large number of junior faculty. Course offerings during these two half-sessions have been constrained only by the salaries the university has been willing to pay.

Western Michigan

The following enrolment figures indicate the extent of inactivity during spring and summer half-terms of a trimester system:

WESTERN MICHIGAN UNIVERSITY - UNDERGRADUATES

	Head-Count Full-time Students		Full-time Equivalents Full-time Students	
	Number	% of Total	Number	% of Total
Summer Half-term 1970	3,973	8.1%	3,269	7.4%
Fall Semester 1970	18,892	38.6	17,451	39.4
Winter Semester 1971	17,982	36.7	16,364	36.9
Spring Half-term 1971	8,095	16.6	7,226	16.3
	48,942	100.0%	44,310	100.0%

Reason given for imbalances are the same as University of Michigan.

Michigan State

Operates on a quarter system of 11 weeks per term, with an additional five week summer school, with the majority of summer enrolments in the summer school. There are four admissions registration and examination periods per year. Enrolment figures are as follows:

MICHIGAN STATE UNIVERSITY -
GRADUATES AND UNDERGRADUATES
(Full-time and Part-time Students)

	Head Count		Full-time Equivalent	
Quarter	Number	% of Total	Number	% of Total
Summer - 1970	17,329	12.9%	8,478	8.0%
Fall - 1970	40,511	30.2	34,031	32.3
Winter - 1971	38,785	28.9	32,519	30.8
Spring - 1971	37,491	28.0	30,389	28.9
Total	134,116	100.0%	105,417	100.0%

Attempts to keep the enrolment in the summer term comparable to that of the other terms have failed because of the following factors:

a) Faculty wants the summer quarter off.

b) Students want the summer quarter off.

c) The reduced number of course offerings for the summer quarter is not attractive to students.

d) There is an apparent lack of job opportunities for students at times other than during the summer term.

e) The quarter system contributes to a lack of feeling for continuity and sequential learning.

University of Florida

Operates on a quarter system. The following table shows enrolments by department for fall and summer terms:

SUMMARY OF FULL-TIME ENROLMENTS BY MAJOR DIVISION

UNIVERSITY OF FLORIDA, 1970-71

	Undergraduate			Graduate		
Faculty or Department	Fall-1970	Summer-1971	Ratio Summer/Fall	Fall-1970	Summer-1971	Ratio Summer/Fall
Agriculture	374	208	0.55	344	348	1.01
Architecture	892	380	0.42	53	27	0.51
Arts and Science	2,602	1,322	0.50	1,154	764	0.66
Business Administration	1,105	537	0.48	281	225	0.80
Education	1,588	1,046	0.66	826	978	1.18
Engineering	1,125	427	0.38	498	465	0.93
Forestry	104	51	0.49	24	18	0.75
Health - Professions	172	38	0.22	60	38	0.63
Journalism	818	429	0.52	47	36	0.77
Nursing	220	134	0.61	43	67	1.56
Physical Education	304	148	0.49	28	37	1.32
Pharmacy	196	78	0.40	18	18	1.00
University College Freshmen and Sophomore Years Only	7,899	1,401	0.18	-	-	-
Total	17,399	6,199	0.36	3,376	3,021	0.89

Relatively few students have accelerated their programs using the summer quarter and most freshmen register at the beginning of the fall term.

University of California at Berkeley

Quarter system lasted three years, with little evidence to suggest that students chose to accelerate their programs. Rather, the vast majority of students in the summer quarter used it to make up either deficiencies or courses missed.

The university now operates on a basis of three quarters of eleven weeks each, plus two summer sessions of five and one-half weeks each, the latter to be self-supporting with respect to direct operating costs.

Effect of Year-round Operation on Costs:

Non-Academic Costs

In order to achieve year-round operation, certain non-academic and ancillary services must extend the length and activity of their operation. These are specifically registration and admission, business office, maintenance and rehabilitation and library staffing. Assuming balanced

enrolments by term, ancillary services would have to be staffed on a year-round basis resulting in added salary costs.

Certain fixed costs, such as the cost of new capital facilities, would be spread over a larger time span. In a simulated 20-year comparison between additional operating costs and savings in amortized capital costs (in buildings not constructed due to year-round operation), the following conclusions were arrived at:

a) Under a trimester system, in some selected conditions out of several choices that were analyzed, savings in annual amortized capital costs are greater than the increase in non-academic operating costs, indicating possible economic advantages over a traditional two-term calendar.

b) Under a quarter system, in all conditions that were investigated, savings in annual amortized capital costs were less than the increase in operating costs, indicating that a quarter system would be uneconomic.

Academic Costs

The significant variable governing academic costs

is the student/staff ratio. Thus, in order to have a sufficient number of repeat-courses for a trimester or quarter system to allow the student flexibility of choice, it may be necessary for an institution to reduce significantly its overall course offerings, cutting back on optional and under-enrolled courses to compensate for the repetition of more popular courses and to maintain an acceptable student/staff ratio. The University of Guelph, with successful year-round operation, reduces course offerings in the spring semester to match reduced enrolments. In contrast, the University of Pittsburg maintained 70% of its academic staff, or a full year's salary, to provide maximum flexibility, although summer full-time enrolment was less than half of the fall and winter enrolments, resulting in severe financial problems.

Further cost considerations concern the current utilization of existing facilities, and the estimation of extra office and research space required for year-round operation.

The Experience of Simon Fraser University

The only in-depth study located on the costs of a university operating on a trimester calendar was carried out by Woods, Gordon & Co. for Simon Fraser University.(4)

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(4) Woods, Gordon & Co. - Simon Fraser University Preliminary Report - Trimester Costs. Toronto, Jan. 1971.

The study compared the operating costs of the actual three semester academic calendar with the estimated costs of a two semester calendar and a traditional year system to determine the incremental costs of the trimester system. Unit costs were developed relative to student enrolments, contact hours, etc. in order to isolate the costs of repeated and under-enrolled courses. The cost comparisons for the three optional calendars were estimated to be as follows for the 1968-69 academic year for an enrolment of 6,164 full-time equivalent students in each system.

Academic Calendar System	Estimated Cost Per Full-time Equivalent Student	% of Cost of Traditional Year
Traditional Year (Assuming (no under-(enrolled (courses	$1,980	100%
Two Term	2,010	102
Trimester	2,354	119

Essentially the extra cost for the trimester system is due to the additional cost of instruction in summer courses, and to the additional cost in the fall and spring semesters of the required flexibility in a trimester system. This

flexibility forces many courses to be presented two and three times per year, occasionally with very low enrolments, and therefore greatly increases the cost of instructional contact required to staff the extra courses.

The study showed that the summer enrolments of 2,332 students (full-time equivalent of 1,161) represented 18.6% of the students in the academic year. The incremental cost of this summer curriculum was only 12.3% of the annual cost in the academic departments, and only 8.8% in the operating departments.

The lower incremental cost was due to the fact that all departments had a fixed cost in the summer semester whether or not summer instruction was carried out. (This fixed cost did not include the extra faculty or teaching assistants required for the summer semester). The fixed portion of the summer semester costs amounted to 54% of total summer semester costs in the academic departments and 67% in the operating departments for 59% of the total University.

Thus, if the fall and spring semesters had been offered, without modification, for the 5,003 full-time

equivalent (F.T.E.) students, and there had been no summer instruction, the total cost would have been $12,985,000 or $2,580 per F.T.E. student. The offering of courses in the summer semester allowed 1,161 F.T.E. students to be added at an incremental cost of $1,314 per F.T.E. student. This then improved the academic year costs to yield a cost of $14,511,000 on behalf of 6,164 F.T.E. students, or $2,354 per F.T.E. student.

It was also estimated that students could have been added to the fall and spring semesters at a still better unit cost of $782 per F.T.E. student and clearly there is a greater gain in adding students to these semesters. Because of the high fixed costs and substantial enrolment base of over 2,000 students (50% of fall enrolment), there is a gain from adding students to the summer semester when compared to not having a summer semester.

The Woods, Gordon report recommended that attention be focused not on the incremental cost of offering summer courses but on the high cost incurred in under-enrolled and repeated courses in all semesters. At present the university is examining ways to retain the advantages of the trimester operation while reducing the above costs.

Cooperative Systems

The report on the Organization of the Academic Year also included a section on Cooperative systems of operation, or work-study systems. The bias in these systems is mainly towards the professional schools, particularly engineering and architecture, although mathematics, Kinesiology and Recreation are included at the University of Waterloo, and Business Administration and Social Work are included at the University of Sherbrooke.

Some advantages and disadvantages of cooperative education are set down as follows:

1. Students on cooperative programs find greater meaning in their studies.
2. Coordination of work and study increases student motivation and purpose.
3. Cooperative experience helps students become mature and independent.
4. Students develop greater skills in human relations.
5. Students are helped to orientate to the world of work and to test their aptitudes.

6. Some able students are encouraged to pursue higher education who would not otherwise have done so or have been able to do so.
7. Academic institutions benefit from the close liaison with business and industry that is concomitant with a cooperative program.
8. Cooperative programs permit fuller use of university capital facilities.
9. Cooperative industries and other organizations prefer to have training and orientation programs completed before graduation and have a better view of young graduates as prospective employees.

Some of the other advantages cited in literature on the subject, and in the interviews conducted by the investigators, include:

1. Many students may become largely self-supporting because of guaranteed employment opportunities during their university life.
2. Studies have indicated that cooperative graduates frequently receive premium salaries upon graduation.
3. Some liberal arts institutions approve of work-study plans because it enables their students to

deal with the practical as well as the theoretical. It enables the student to break through the "ivory tower" effect of the sometimes isolated campus and also to engage in "service" types of employment which they regard as important.

Some disadvantages to students claimed of co-operative programs include the following:

1. Studies are broken up by students shifting from work-terms to study-terms and back again.
2. Students tend to forget what they have learned in earlier terms.
3. Students may not participate in extra-curricular activities.
4. Students' employment in work-terms might be curtailed during economic depression.

The studies of Wilson and Lyons indicated that these presumed disadvantages were not occurring and that cooperative students are basically the same as students in conventional programs. (5)

To be successful, cooperative programs have to have high enrolment levels, and the work terms must provide

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(5) Wilson, J.W. and E.H. Lyans: Work Study College Programs; Appraisal and Report of the Study of Cooperative Education, New York, Harper & Bros., 1961.

a good deal more than simple employment or the chance to observe others at work. Meaningful, well-organized programs of experience offering a challenge and responsibility seem to be essential and seem to work to the best advantage of industry, even though requiring more effort. Most universities or colleges with cooperative programs have established separate "Departments of Coordination", whose functions are to find suitable work positions and to oversee industrial or governmental employment and training. The development of a large group of employers willing to accept cooperative students can require several years of effort and definitely placed constraints upon the rate of growth of cooperative programs.

A suggested alternative to this approach, and one that would involve all departments of the university, is outlined in section 3 of this report.

The cost advantages and disadvantages are similar to year-round operating costs.

In the words of the Carnegie Commission on Higher Education:

> "Many students would like to have productive experience on their way to the degree and to get into regular productive effort earlier in their lives. Productive effort stands for independent status and a sense of personal worth, and formal education for dependency. Productive effort also stands for reality, and formal education too often stands for an artificial hothouse environment that, in excess, has negative consequence for both students and society." (6)

With this in mind, we continue the section on cooperative education with an investigation of community oriented innovative programmes. These range from the development of an entire campus and curriculum around a problem-solving function (University of Wisconsin at Green Bay) to single departments or even courses concerned with the community. To avoid repetition, we have selected 3 plans.

> In general, in North America, ".. the assumption that significant learning occurs outside of class as well as within seems to be fairly well accepted. The type of social symbiosis between college and community varies with each institution but the importance of providing experience within the curriculum to demonstrate a concern for relating the academic disciplines to the on-going human situation takes many forms - from cross-cultural experiences to sub-cultural learning experiences, to independent study opportunities out-of-class. The concept of the extended campus including new learning environments, external degree program and increased access for new clienteles such as minorities, housewives and members of the labor force has gained considerable acceptance." (7)

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(6) Carnegie Commission: Less time more options, Jan. 1971, p.9.

(7) N.R. BERTE, "Some thoughts about experimentation" in N.R. BERTE, Ed Selected Institutional Profiles and Thoughts about Experimentalism, Report of Jan. 1972, Conference on Innovation in Undergraduate Education, p. 109.

In accordance with this assumption, the Chancellor of the City University of New York proposed recently:

> "...a university B.A. degree program that consists of three years on campus and one year of off-campus experience selected jointly by the student and faculty committee to contribute to the students educational growth and development. Under the proposal, the off-campus year may include, but not be limited to, independent study or research, foreign travel, work experiences, artistic or other creative endeavors, community action or civic service, or any other activities occured academically appropriate and educational formed by the students and faculty." (8)

The UNIVERSITY OF WISCONSIN, GREENBAY CAMPUS

The University of Wisconsin at Green Bay has experimented with wide participation in the planning and development of its academic programme. This type of approach is incorporated in the "communiversity" concept which recognizes that the university campus and its immediate environment are part of the same community.

Participation in the planning of UWGB's programme was comprehensive, including administrative staff, faculty and students from other University of Wisconsin campuses, and people from communities in North eastern Wisconsin. Over 350 people were involved, and ".. one of the strengths of this university proved to be the inclusion of the community and the response of the community to that invitation to share progress and problems." (9)

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(8) Carnegie Commission: Less time, more options, p. 40

(9) R.H. MAIER: "Ecology U. is Alive and Healthy" in Berte, ed., op. cit., p. 2.

The curriculum at U.W.G.B. is organized around concentrations which are interdisciplinary orientations to particular environmental problems. The 13 current concentrations are as follows:

Ecosystems Analysis
Environmental control
Analysis - Synthesis
Communication - Action
Growth and Development
Human adaptability
Modernization processes
Nutritional Sciences
Population Dynamics
Regional Analysis
Urban Analysis
Managerial Systems
Concentration adaptable to personal needs.

Further, the U.W.G.B. feels that one of its major challenges in the near future will be the adoption of a rapidly increasing continuing education program based on the assumption that education is a life long process. This need is confirmed by the response from the Green Bay Community and surrounding region.

The university operates on a 4 - 1 - 4 semester system with January set aside for special studies, including other culture and off-campus experiences. Whilst there has been a 34 percent increase overall in enrollments for the University of Wisconsin over the last 3 years (1969-1971), the Green Bay campus has experienced an increase of 128% since 1969, the year of its inception.

The type of graduate produced by the Green Bay campus is action-oriented and better able to cope with the complexities of modern existence and future environmental problems. He is sought by government, industry and education, and is attracted to the

truly interdisciplinary graduate programmes which are being developed by some institutions.

> "While the UWGB plan might not satisfy other institutions of higher education and certainly could not be implemented 'across the board' for a large established institution, it does provide a new and flexible approach geared to meet the needs and demands of the last quarter of this century and the turn of the next century... The disciplines through their excellence have contributed to man's problems and successes, but these same disciplines acting alone are not able to cope and solve the deep and penetrating issues facing mankind today and tomorrow. New mechanisms and new approaches must be found and UWGB offers some of these new alternatives." (10)

THE UNIVERSITY OF ALABAMA, NEW COLLEGE

The addition of New College to the University of Alabama individualized the educational program by adding a set of inter-disciplinary, problem-focused seminars and the opportunity for independent study to the existing academic programme, with the general goal of giving each student depth of understanding and the ability to make decisions on the basis of informed and thoughtful judgement. Three of the six assumptions underlying the setting of this goal are of importance to this paper and are as follows:

> "- That students are capable of accepting much of the responsibilities for their own learning when given the opportunity to do so.
> - That significant learning occurs outside of class as well as within.
> - That problem-focused, general education experiences of an interdisciplinary nature which demonstrate the integration of knowledge are highly desirable in our modern-day world." (11)

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(10) Ibid, p.2
(11) N.R. BERTE, "New College" in BERTE, ed., op. cit., p. 12.

As far as off-campus learning experiences are concerned, they are usually of one semester's duration, and are encouraged for all students in New College. In general, the goals of the off-campus experience are as follows:

(1) The provision of a variety of learning conditions which could be valuable in sustaining the students' motivation and enthusiasm towards reaching his particular educational goals.

(2) The provision of an opportunity to question the ideas to which the student has been exposed whilst continuing his formal education.

(3) The provision of an opportunity to gain an appreciation of a culture other than the student's own.

(4) The provision of an interdisciplinary learning experience, bringing to bear ideas which the student might not normally think pertinent to his education.

(5) The provision of an opportunity to earn money whilst gaining relevant practical experience.

(6) The opportunity to integrate social concerns with the undergraduate curriculum.

The highly important aspect of evaluation is dealt with as follows, providing for self evaluation as much as for objective evaluation:

Any off-campus learning experience should start with a proposal from the student involved (a sort of independent study approach). Included in the proposal from the student should be a section explaining why the off-campus activity is desirable. A second and highly important section should detail the student's expected outcomes expressed in objective terms. For example, the student should be encouraged to recognize whether this experience would be primarily a source of new information, or perhaps develop needed skills, provide an exposure to his vocational interest, or change his attitude toward or his appreciation for something. As it is quite conceivable that the student may desire to receive credit in more than one academic area, he should, as part of his proposal, decide in what areas academic credit may be appropriate. Each area in which credit is desired might then supply one faculty member to review the student's proposal in a meeting with the student. For example, if the student should decide on an off-campus involvement with emotionally disturbed children in a low income area, faculty representatives from departments of psychology, sociology, and social work may examine the proposal with the student. During this meeting, tentative agreement regarding the amount of credit to be earned may be reached.

The necessity for having some prior agreement between the student and an appropriate staff member as to the criteria required to earn the academic credit cannot be overemphasized. Not only does this agreement provide the student with some sense of direction, but it aides the institution in maintaining its educational integrity. During the course of the off-campus experience, contact with the student is maintained through journals, visits and correspondence. If facilities are available, the use of tape cassettes might be utilized for feedback purposes. At the end of the off-campus learning experience, the student should be able to demonstrate what he has learned. The student should be significantly aided in his understanding of his new knowledge by a staff member trained to interpret the off-campus experience. Because of the nature of this type of learning experience, it is recommended that a non-punitive grading system such as pass/no credit be employed for certifying credit.

The final evaluation should take into consideration such things as the student's self-evaluation, his written reports, faculty reactions to the experiences, and the information presented in seminars and during consultations. Consideration for the final evaluation might include the following:

- Was the off-campus learning more valuable than a traditional educational experience? If so, how?
- Should the off-campus experience be an elective or should it be required for some curricula?
- Were anticipated learning objectives accomplished?
- By which methods was the off-campus experience most effectively interpreted to the student?
- What types of off-campus experiences are workable and which types are of little or no value? (12)

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

The philosophy of undergraduate education at Santa Cruz campus is contained in the following paragraph:

"The curriculum (at Santa Cruz) is somewhat restricted in an effort to meet student needs rather than faculty interests. Very few requirements are imposed on students but most eagerly seek a variety of intellectual challenges in each of the three divisions - Humanities, Social Sciences, Natural Sciences. Students are encouraged both in formal work and through informal relations to acquire self-knowledge and an informed social perspective. Extensive and intensive reading is assigned to provide an historical and philosophical perspective for students... Heavy emphasis on tutorials, small seminars and independant study forces students to develop critical thinking skills as well as concise verbal presentations and arguments." (13)

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(12) Ibid., p. 23

(13) L.J. RING, "University of California, Santa Cruz" in Berte, ed., op. cit., p. 47.

With regard to community orientation and off-campus learning experiences, there are programmes of Community and Environmental studies that have several innovative aspects, governed by some very important considerations.

The first innovative aspect of the Community Studies Programme is its interdisciplinarity. There are no full-time appointments in this field, but there are three appointees who are involved half-time in Community Studies and half-time in either Sociology, literature or politics. Other faculty associated with the programme include three sociologists, two psychologists, two geographers, two political scientists and one each in anthropology, biology and economics.

The second innovative aspect is the inclusion of a six month full-time period of off-campus field work as part of the major. This aspect emphasizes experiential learning as distinguished from experiencing. A very important consideration here is that it reintegrates the three functions of the university - learning, research and service - by placing the student in the community or organizational situation for the purpose of generating data. Since the faculty has a vested interest in obtaining good data, they assist the student in every way possible to learn the skills of observation, participation and research inquiry. The service function is accomplished as a result of the activity in which the student and the faculty have been engaged on behalf of the organization.

The third innovative aspect in the Community Studies field is the systematization of the relationship between the university and a small number of community agencies that would not ordinarily get university resources. The program introduces students and faculty into the agencies in a staggered fashion to assure continuity and when the project is completed the agency has a new structure and the resources necessary to continue on its own.

Field work is carefully supervized and evaluated. Programmes are not undertaken until it is certain that enough students will participate over a long enough period of time to guarantee a measure of continuity and stability for the community or agency. On completion of the field work programme, the student is required to write four papers on various aspects of the learning experience. The final requirement for a major is the submission of a thesis that synthesizes learning acquired in courses and through field work.

STANFORD UNIVERSITY - STUDENT CENTER FOR INNOVATION IN RESEARCH AND EDUCATION (SCIRE) AND STANFORD WORKSHOPS ON POLITICAL AND SOCIAL ISSUES (SWOPSI)

SCIRE is defined as follows:

a) A student/faculty board constituted by Stanford's Academic Senate to encourage and facilitate student innovation in individual academic programs.

b) A place which serves to associate students with members of the academic community who share their interests and which direct students to existing programs which fit their needs.

c) An organization which concerns itself with institutional introspection and general curricular innovations.

d) An ongoing seminar whose members foster and support larger programs which meet a general need among students.

The main function of SCIRE appears to be the provision of a "credit umbrella" under which proposed course, if they cannot be fitted into a single department, may be sanctioned for credit. In this way, a student-originated multidisciplinary urban studies program has had over half its courses and projects accredited by SCIRE, and the Stanford Workshops on Political and Social Issues (SWOPSI) can obtain credit for courses until such time as it has established its own credit granting mechanisms.

Along with a recent SCIRE proposal for an urban Campus in San Francisco, incorporating participant study in ongoing organizations and activities within the central

city which would cover such themes as urban planning, health case, city government, education, the arts and community action, SWOPSI performs the function of a centre for community studies. It is, according to an imformation pamphlet, "a student-initiated, student run program with the express purpose of attempting to find solutions to contemporary political and social problems. It attempts to find these solutions by organizing and running workshops composed of students, faculty, members of the local community and outside experts. The workshops do in-depth research into the problems using the University as a resource base and relying heavily on the interest and initiative of the students to discover new sources of information and develop new insights into what are often old problems."

SCIRE and SWOPSI are, then, examples of innovative programs established at less than the departmental level, and we feel that the selection that we have presented is representative of what can be done in the way of combining academic demands with community action and problem solving. The next part of this paper sets out a tentative proposal for a similar design in the province of Quebec.

PART. 3. OUTLINE PROPOSAL FOR SYNTHESIS OF YEAR-ROUND OPERATION AND PROBLEM-ORIENTED - EDUCATION WITH THE TRADITIONAL EDUCATION SYSTEM

As seems to be indicated by the information available (see bibliography for background reading), the question of the operation of the university "à l'année longue" is a symptom of the demands of society for the university to show some kinds of relevant productivity - to show some more visible returns on investments made in it.

Unfortunately, this kind of return cannot be translated simply into economic terms, and the university be shown to make a profit, or yet break even. Neither can it be definitely shown that the increasing efficiency of economic functioning bears sufficient benefits to society to justify it. The criteria of productivity are still far too narrow for output of the university to be defined in terms of social benefits. Total costs divided by contact hours per student and/or faculty member merely endeavour to demonstrate productivity in terms of the university's internal economic rationale. It becomes increasingly evident from this kind of analysis that the cost of higher education increases continuously without any clearly indicated benefit to society in terms of the total good, or the quality of life. It merely treats the graduate as an economic cypher. Increasing university output

does nothing to reduce crime rates or environmental pollution. If anything, it is the quality of that output directly related to the demands of society for the solution of its problems which has had, and will have, any effect on the quality of life in the future.

This much, it would appear, is made clear by the total lack of direction, or rather orientation which the literature demonstrates. It is not clear whether or not there is any real economic benefit in the long run, neither is it clear how great the costs are. It is not clear whether or not operating the university for the full year will adversely affect current educational standards. It is not clear, above all, what the investigators and authors are looking for. The main area of concern appears to hover around the idea of full utilization of capital equipment and facilities, but here, because of an inability to relate the concept to the larger context - that of society as a whole - because of the inability of eminent educators and administrators to form strong values and act or speak out on principle, the efforts to confront the question flounder.

In forwarding our proposal in outline, we must

assume that one of the major goals of the university is to expose the student, objectively, to all possible knowledge, and instruct him or her in relating it to the real world. In other words, the university must provide a paradigm, or structure of knowledge to which the student can relate all information which he or she receives from the real world. It follows that higher education should provide the student with the means to make rational decisions in society based upon the broadest possible background of knowledge.

On the basis of this assumption, we advance the following hypotheses, referring specifically to the long term:

a) that the university wishes to maintain and improve the quality of education.

b) that the university will respond closely to the needs of the society of which it forms a part.

c) that government and public will accept increased per capita costs of higher education, or a reduction of the number of students in university relative to the total population.

Unfortunately, without the foregoing assumption upon which our hypotheses are dependant,

all arguments, both pro and contra year-round operation of the university, seem to have validity. Whilst allowing the student greater flexibility it might, if improperly handled, put too much pressure on both students and faculty; any overall increase in enrolment (currently debatable in itself) might lead to a reduction in the quality of education if the universities cannot afford to hire more staff. Also, unless the Federal and Provincial governments see the year-round operation of the universities as a definite benefit to the needs of society as they conceive of them, it is unlikely that funds for higher education will increase.

It becomes obvious at this point that some kind of synthesis of the function of the university in society (its productivity) and the function of the university graduate in society (the productivity of the product) is needed in order to ensure the latter and meet the long-term demands of both government and society. In dialectical terms, we are at a stage in the history of our society where antithesis demands the creation of synthesis. Traditionally, this has been brought about by revolution, but a gradualist solution is to innovate in key social institutions, either by augmenting the institutions or by changing their internal structures. Sometimes society demands these changes; at other times it is

incumbent upon existing institutions to foresee the demands and change themselves.

Taking into account our assumption and our analysis of the demand for synthesis, we argue that the universities should take the lead in creating this synthesis by increasing their productivity in a way which benefits both themselves and society whilst maintaining and increasing the quality of education and allowing both the student and the faculty greater flexibility and increased "social relevance". To this end we submit the following proposal and suggest that innovation of this type can do more to catalyze discussion than any other form of interim planning.

The proposal consists of the creation in the universities throughout the province of "Centres for Environmental Studies/Problems" which would function on a year-round basis as separate institutions within the university structure.

Participation in the activities of the centre would be compulsory for all undergraduate students for at least one term, for which they would be given full credit (see point 4 below), AND FOR WHICH THEY WOULD BE PAID A WAGE WHILST PARTICIPATING. The following points are of special interest:

1. The centres would operate on two levels: Provincial and Federal sponsored studies for topics in their fields of interest (such as regional economic disparities, or studies such as the one on the Ste. Scholastique airport) on one level, and community and regional problems within the universities' spheres of influence (variable according to their location in the province) at another level.

2. The centres would operate and evaluate such projects as are normally funded under the Opportunities for Youth Programme, Local Initiatives Projects etc., and could provide de-centralized operation and co-ordination of a multitude of government-funded community and regional projects, ranging from drug programmes to transportation feasibility studies.

3. The orientation of the centres towards community problems would provide highly desired relevance to curriculum content for studies, and a wealth of new data for research in the Social Sciences. It would also provide a solid

interface between the universities and their "spheres of environmental influence", allowing community participation in projects through extension departments. The centres would have to be prepared to study problems raised by local business and government as well as purely social problems.

4. The centres would provide at least one term of paid employment for the student (to begin with, in the summer), financed largely by hitherto dispersed funds which would be diverted through the universities. It would also provide the student with a different kind of learning experience, exposing him to political and social change processes with which he might otherwise not have come into contact. Output for which credit would be given would be in the form of the individual students' contribution to the report or evaluation of the project on which he has been working.

5. The centres would be staffed permanently with graduate students on assistantships and with faculty supervisors and co-ordinators on a rotating basis, tailored to the requirements of the individual university. If their major activity were to take place over the summer, the remaining 2/3 of the year would be occupied in the definition

of problems and the design of studies in order to allow maximum productivity. This would demand much inter-departmental interaction and co-operation, in itself catalytic. If they were to be operated at full strength throughout the year in conjunction with a trimester system, they would function as the "term in industry" does for engineers at the University of Waterloo.(14)

6. This type of centre would vastly increase interdisciplinary research and would also expose undergraduates to research methods in time for them to formulate decisions about graduate work. It would also increase the visible productivity of the universities in the eyes of the community.

7. Although the centres would obviously be oriented strongly towards the social sciences and the professions, it should be understood that the role of all fields of study would show some relevance, e.g. humanities in communications media and technology - graphics, film, theatre, presentation of studies, scenario development, game development;

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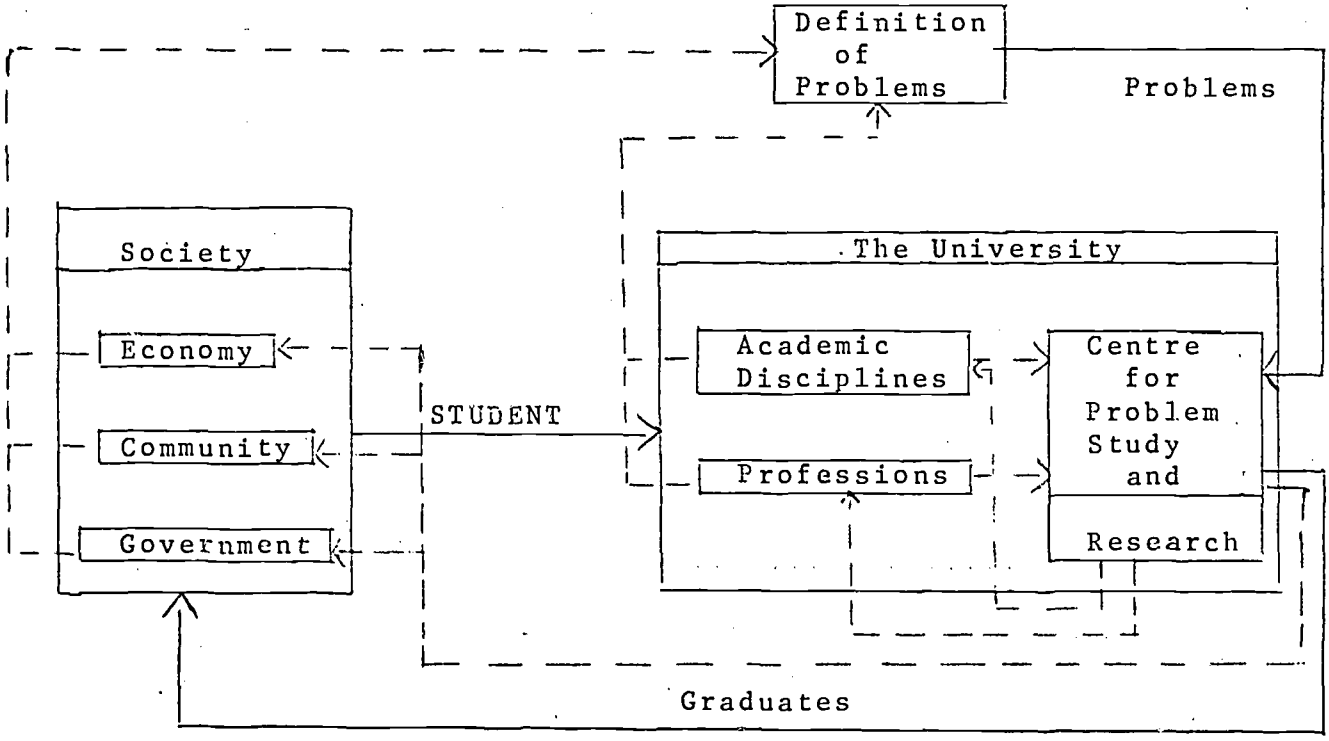
(14) Holmes, E.L., Cooperative Engineering Education at the University of Waterloo (mimeo) Sept. 1968.

linguistics in communication, comprehension, self-expression, preservation of culture; history in short-term analysis of process and exposure to the microforces that produce change, cultural impact studies, etc.

In sum, the potential for this kind of organization is enormous since it would perform, if properly designed, the very necessary function of synthesis and self-evaluation, and meet the growing demands of both society and the academic community for educational reform. The following flow-chart indicates the linkages between the centres, the universities and society.



The major forseeable objections to this type of innovation would be:

a) Cost of administration and student salaries - to be largely underwritten by re-allocation of existing government disbursements and offset by utilization of capital equipment.

b) Objection by governments to de-centralization of administration and funding of projects - Universities may be able to provide economies of administration (students cost far less than civil servants).

c) Political objections from goverament planning bodies (D.G.E.S. and C.U.).

d) Possible objection by faculty and students.

e) etc., etc.

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