

SIMON FRASER UNIVERSITY

S.75-60

MEMORANDUM

To..... SENATE

From..... DANIEL R. BIRCH, DEAN

FACULTY OF EDUCATION

Subject..... NOTICE OF MOTION GIVEN AT MARCH
MEETING OF SENATE

Date..... MARCH 25, 1975

MOTION: "That the Chairman of Senate request the Vice-President, Administration, to prepare a report to be presented to Senate no later than September 1975 to contain at least the following elements:

1. A detailed statement of S.F.U. expenditures on Athletics for men and women respectively (including athletic awards) for the past three fiscal years (1972-3, 1973-4, 1974-5).
2. A detailed projection of S.F.U. expenditures on Athletics and Recreation for men and women respectively (including athletic awards) for the 1975-6, 1976-7 and 1977-8 fiscal years.
3. A plan for allocating S.F.U. expenditures on Athletics and Recreation to men and women respectively in direct proportion to the number of men and women enrolled as undergraduates at S.F.U. (At least one form of this plan must be prepared with the assumption that total S.F.U. support to Athletics and Recreation will not increase significantly.)"

SIMON FRASER UNIVERSITY

S.75-60

MEMORANDUM

To H.M. Evans, Secretary of Senate

From Daniel R. Birch, Dean

Registrar's Office

Faculty of Education

Subject Notice of Motion Given at March Meeting
of Senate

Date March 25, 1975

MOTION:

That the Chairman of Senate request the Vice-President, Administration, to prepare a report to be presented to Senate no later than September 1975 to contain at least the following elements:

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2. A detailed projection of S.F.U. expenditures on Athletics and Recreation for men and women respectively (including athletic awards) for the 1975-76, 1976-7 and 1977-8 fiscal years.
3. A plan for allocating S.F.U. expenditures on Athletics and Recreation to men and women respectively in direct proportion to the number of men and women enrolled as undergraduates at S.F.U. (At least one form of this plan must be prepared with the assumption that total S.F.U. support to Athletics and Recreation will not increase significantly.)

RATIONALE: It is alleged that Simon Fraser University has an outstanding program of Women's Athletics. Certainly the appointment of a co-ordinator is clear and visible evidence of commitment. However, existing (perhaps outdated) projections reveal data such as the following:

1. In the 1974-75 fiscal year 10% of the funds committed to S.F.U. athletic awards are designated for women athletes.
2. Changes are projected such that 14.5% of such funds are designated for women athletes in the 1977-78 fiscal year.

Discussions with those carrying responsibility for Athletics and Recreation reveal the desire to improve support to women's programs. However, reasons given for slow progress reveal a certain circularity, e.g. We can't commit a greater proportion of the resources because we have relatively few women athletes. We have relatively few athletes because we have fewer programs for women. We have fewer programs for women because we haven't the staff. We haven't the staff because we haven't the financial resources to retain them.

Historical or incremental budgeting is a major force in maintaining the status quo. In times of modest increase in total university budgets, re-allocation is essential if change is to come about.

It is to be hoped that the report will substantiate the quality of athletic programs for both men and women and that it will provide evidence of greater equity than appears to be the case. Furthermore, the report will provide a clear and rational basis for appropriate action by the responsible individuals and bodies should current practice be shown to be less than equitable.

David R. Birch

DRB/dr

SIMON FRASER UNIVERSITY

S.75-A

MEMORANDUM

To Members of Senate

From The Committee on Alternative Academic
Philosophies and Academic Objectives
For Simon Fraser University

Subject Final Report

Date March 17, 1975

Attached is the final report of the Committee on Alternative Academic Philosophies and Academic Objectives for Simon Fraser University.

The table of contents for the Report is as follows:

Introduction

- I. The Goals, Direction and Limitations of Simon Fraser University
- II. The Problem of Over-Specialization
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 1. Graduate/Undergraduate Distinctions and Professional Programs
 2. An Integrated Undergraduate Curriculum
 3. Our Commitment to the Community
 4. Size of the University

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ALTERNATIVE ACADEMIC PHILOSOPHIES AND ACADEMIC OBJECTIVES
FOR SIMON FRASER UNIVERSITY

At the February 1974 meeting of Senate a committee comprising a student (Mr. R. F. Kissner), an administrator (Dr. W. A. S. Smith, Dean of Arts) and a faculty member (Dr. J. Walkley, Professor of Chemistry), was established with the following charge:

"To hold hearings, examine and discuss academic philosophies and academic objectives for Simon Fraser University."

Dr. J. Chase, Director of Institutional Studies, served as secretary to the Committee.

Because of insufficient time between the establishment of the Committee and the May 1974 meeting of Senate, hearings were not held at that time. The Committee submitted a preliminary report to the Senate at its May meeting. Subsequently, the report was published in the Peak and distributed to members of faculty. Hearings were then held on the report, with both verbal and written submissions invited.

On the basis of reactions received to the first report and reconsideration by the Committee of its initial recommendations, this second report is now transmitted to Senate for discussion.

I. THE GOALS, DIRECTION AND LIMITATIONS OF SIMON FRASER UNIVERSITY

The request to examine alternative philosophies and objectives for Simon Fraser University comes at a time when all universities are confronted both from within and from without by the blunt demand that we identify our role in society.

The most essential role of a university lies in the advancement of knowledge and the attainment of an increased understanding of man, society, and environment on the part of its members. This is an historical role and yet one which is more valid today than ever before. There is, in fact, no other large, multi-disciplinary collection of persons of high intellectual ability assembled in a single institution to play such a role. A second vital task of the university is to produce an environment conducive to the personal development of its students, to their overall cultural development and to the obtaining of the skills they need to become contributing members of society.

Universities today are being challenged on both counts. There is a growing spirit of anti-intellectualism developing, a sense that perhaps universities no longer have a relevant and meaningful role to play in society. We do not share this view, but feel an obligation to respond to the challenge.

Many changes are being asked of the universities. Some of the requests contradict one another, others are of limited viability in that they represent transient socio-cultural interests, some are radical in that their implementation would replace rather than make use of the university. Nevertheless, many of the changes being proposed reflect very real deficiencies and point to urgent changes which are needed if the universities are to continue meeting the goals of advancement of knowledge and cultivation of student growth.

A continued commitment to historical roles must not blind us to the social, technical and related changes occurring in contemporary society, developments which challenge universities to respond in new and different ways: More young people are being educated for longer periods of time. When they arrive at university, these students often possess an advanced level of academic ability and preparation, and share very diverse career goals. The jobs they will eventually undertake will demand of them not only well developed skills initially, but may well require that they undertake periodic educational updating. Many students are reluctant to spend extended periods of time confined to a classroom situation, seeing such activity as one to which they can make very little active or real contribution. The realization that education is a continuous process which extends beyond the realm of the classroom has placed the university in a new position. It is no longer necessary to view a university education as a 'once-in-a-lifetime' experience, and hence the complete education of the individual need no longer be the responsibility of the university.

It is evident to the Committee that Simon Fraser will perform a more effective role if it recognizes and accepts these changes and adapts to them. There is also a greater need to ensure equal access to university education for all individuals: those of varying racial and socio-economic backgrounds as well as those of varying ages and lifestyles.

Those of us in universities are given considerable freedom by the rest of society. We have considerable autonomy, as an institution, in deciding what we teach, who we hire to teach it, and the areas of research and community involvement we wish to enter. With this freedom comes the responsibility to return to society reasonably aware and well-educated graduates as well as research and service which will benefit the culture as a whole.

The primary areas of our responsibility, then, are teaching, research and service:

Teaching

The University must be committed to the provision of facilities and resources maximally conducive to the transmission of knowledge, to the stimulation of critical thinking, and to the personal and intellectual growth of all members of the academic community.

Research

Faculty and students have a responsibility to apply their knowledge and skills to the furtherance of understanding via research. It is normal for scholars and students to do this in response to their own innate intellectual curiosity and their desire to achieve excellence along the growing edge of knowledge, as well as in response to society's claim for research in its own behalf.

Service

The university, as an institution, must be responsive to the needs of the community in which it exists. Faculty and students, as individuals, must also recognize their responsibilities as citizens of a larger society, particularly in light of the specific skills, abilities and aptitudes which they possess as university members.

Where does Simon Fraser University stand today? Over the past nine years, we have collectively established a university with a solid and positive national reputation. We have provided thousands of students with a thoroughly reliable academic background. We have, both in an architectural and geographical sense, one of the most beautiful university campuses in the country.

We have done reasonably well and have done so without a "grand plan." Goals have tended to be set more in terms of the needs of the individual departments than in terms of any integrated overall plan. Our philosophies are individually conceived and, in their diversity, represent largely the varied educational backgrounds of the faculty.

This trend of departmental independence has been both a blessing and a curse. As a committee, we recognize the rigour that emerges from departmental autonomy and freedom and we encourage its continuation. However, we are equally convinced that Simon Fraser University cannot become maximally useful to the society which surrounds and supports it without some collective commitment to common goals that transcend departmental and faculty boundaries. Such a perspective should suggest directions for development of genuine alternatives to the educational experiences available in other colleges and universities in this province.

Before we suggest directions in which such comprehensive planning could go, it is important to consider the limitations and boundaries we are working within. These boundaries are both physical and geographical/political:

Physical Limitations

Any long-range planning must take into account our location upon a mountain top. We are limited in the amount of space we have to expand on the present campus. The relative distance of the University from downtown Vancouver means that students, faculty and staff are heavily dependent upon the automobile, thus requiring a major commitment of useable space to parking. Even if this were not so, it is important to ask whether we wish to further diminish any of the remaining natural beauty of our mountain-top location.

Geographical/Political Considerations

The second delimiting parameter lies in our being part of a provincial system of post-secondary education now including four public universities, ten regional colleges, the British Columbia Institute of Technology and several vocational schools.

In John B. McDonald's 1962 report on higher education in British Columbia, a case was made that the province could not justify, for the immediate future, more than one comprehensive university offering extensive graduate and professional programs. Today the provincial population growth suggests that a second comprehensive university may, in fact, be needed. Should we attempt to be this? Both our proximity to the University of British Columbia and our campus site restrictions argue against it. The Committee believes that any new comprehensive university would be more appropriately built in the interior of British Columbia and should become organically a part of the economic and cultural development of that area.

The Committee sees as the proper role for Simon Fraser University the filling of the continuing need for broad education not dominated by the demands of graduate faculties and professional schools. We do not see any advantage in attempting to emulate the University of British Columbia or blindly seeking the prestige associated with professional schools or massive graduate enrolments. It is important, then, that we at Simon Fraser begin to focus on a comprehensive program which meets needs not met elsewhere and which makes clear what our unique place in the province is to be.

II. THE PROBLEM OF OVER-SPECIALIZATION

The currently popular idea that there has been "an explosion of knowledge" in recent years is a dangerous half-truth that leads many professors and students to the questionable conclusion that a broad liberal education is no longer attainable -- that all education must be highly specialized and that all courses must be taught by specialists. This reasoning is used by many academic specialists as a justification for expanding the requirements for undergraduate majors in their narrow fields and specialties at the expense of more comprehensive integrating courses.

What has been called "an explosion of knowledge" can more properly be described as a sharp increase in the number of scholarly publications and an accelerated output of technical data, particularly in the natural and behavioural sciences.

In response to this situation much has been said about the need for increased specialization. From a research perspective, this approach may be justified, but from a teaching/learning perspective it is deficient in that much new data has little meaning to those whose ability to co-ordinate this knowledge remains undeveloped. If the University is to honour its obligation to the student, it must examine this trend towards specialization. The Committee feels that emphasis at the undergraduate level should be placed on the development by the student of the ability to assemble and co-ordinate information from all disciplines, and that it is crucial that the student develop the ability to give new information an historical perspective. The most natural way to ensure that such abilities develop without losing sight of the nature of contemporary society is to emphasize an interdisciplinary approach to learning rather than

early specialization. The present program in Canadian Studies is an example of such an effort. Such programs are flexible and may be developed and amended as the need arises. Attempts to achieve interdisciplinarity might be facilitated were the University to insist that after a Faculty had achieved a Faculty size capable of teaching a departmental program of a reasonable size, additional faculty employed by that department must have a joint appointment to another department. In this way departmental barriers might be broken down, and the university might enjoy the appointment of faculty members whose expertise and interests encompass areas outside the bounds of the limited traditional programs.

Attempts to stress the interdisciplinary nature of knowledge could also include a reclassification of existing departments. The definition of new groupings could be thematic, and each department within the group could develop laterally unified courses for programs based upon specific themes. The joint faculty appointment mechanism could be applied to such a scheme, and would, in all likelihood, facilitate the procedure.

In summary, then, the Committee feels that the most important and relevant role that Simon Fraser University can serve in the province is the provision of a broad comprehensive four-year liberal arts curriculum in a supportive and cohesive campus community. We feel that any graduate or professional or technical program should be secondary to this principal goal.

As suggested remedies, we are presenting proposals regarding the proper place of professional programs, an integrated undergraduate liberal arts curriculum, an expanded continuing education program, and the optimum size of the student body.

III. PLANNING PROPOSALS

The operational planning proposals that we consider most consonant with the purposes and goals noted above are as follows:

1. GRADUATE/UNDERGRADUATE DISTINCTIONS AND PROFESSIONAL PROGRAMS

Recommendations

- (a) That Simon Fraser University restrict further development of professionally-oriented schools, programs and courses to those areas where investigation demonstrates the University's special competence and potential contribution in that area, where such programs are appropriate to the unique goals of this University, and where the need is not being met adequately elsewhere in the Province; or to programs which are organized in such an innovative way as to serve different needs or populations than analogous professional programs in other institutions.
- (b) That such professional schools, programs and courses as are established at Simon Fraser University be concentrated at the post-bachelors degree level.
- (c) That Simon Fraser University offer a bachelor degree only at the present majors level and move the honours degree program to the graduate level.

Comment

The reasoning behind the first recommendation is pragmatic. The ten regional colleges, the British Columbia Institute of Technology, and the University of British Columbia provide the province with vocational, technical and professional training in a wide variety of fields. The Committee has made no attempt to determine whether these programs are adequately meeting the needs of the province. Insofar as the needs of the province are not met by the existing schools, it would appear that the province would be much better served were it to expand existing facilities rather than develop new ones. The cost and operation of professional schools is a deterrent to their establishment, and unnecessary duplication of programs should be avoided.

In areas, however, where no sensibly developed professional program exists, and where such a program might involve interdisciplinary study or have a significant community orientation, the University should move to develop such programs.

The second recommendation is made by way of reiterating that both the individual and the society are benefited when the University offers a broad education rather than early specialization. This objective is facilitated if professional schools and specialized programs and courses are deferred to the post-graduate level. By placing such programs at the post-baccalaureate level, they will become available to a wider spectrum of persons. Those graduating from other universities, and those wishing to undertake an updating of their education could avail themselves of such courses of study. The programs could cater

to, and be designed for, a small number of students; the courses need not be offered during the day since there would be little demand for them by those studying at the undergraduate level. Programs might also be offered at off-campus locations, perhaps throughout the province, and could conceivably be designed in order that they may be presented as postal, radio, or television programs.

The third recommendation is based upon the belief that the traditional Honours degree provides a graduate or professional training, and that such specialization is best handled at the post-baccalaureate level. The Committee repeats its preference for the interdisciplinary approach, and maintains that under the proposed plan, the entire undergraduate program could reflect the University's commitment to liberal education while the post-baccalaureate programs would offer the necessary training to the specialist and the professional.

2. AN INTEGRATED UNDERGRADUTE CURRICULUM

Recommendations

- (a) That an integrated liberal arts curriculum encompassing the first 60 semester credit hours of all undergraduate degree programs be established at Simon Fraser University.
- (b) That in their second 60 semester credit hours at Simon Fraser University, students have the option of pursuing either the traditional departmental major program or continuing in an integrated interdisciplinary "liberal arts major" program.

- (c) That if recommendations (a) and/or (b) are adopted, a Committee of Senate of Simon Fraser University be struck to bring forward, via the Academic Planning Committee, a detailed proposal for an integrated liberal arts curriculum.

Comment

The tendency towards specialization which is described in Section II is seen by many academic specialists as a justification for the expansion of degree requirements within the student's chosen field of study. This course is often followed at the expense of more comprehensive interdisciplinary courses. The Committee recognizes that the traditional goals of the undergraduate programs are often necessary for professional reasons, but maintains that the early narrowing of options is ill-advised for most students. Given our recommendations concerning the nature of graduate and professional programs, the Committee feels that, at the undergraduate level, Simon Fraser should seek to integrate rather than fragment knowledge. A broad liberal education as opposed to early specialization would facilitate such an endeavour. Such a program would require co-ordination with the regional colleges with respect to courses and programs.

To the Committee, an integrated liberal arts education implies an intellectual experience not bound by the conventional limits of particular disciplines. It has as its underlying principles the following:

- (a) a coherent intellectual structure of courses
- (b) a sense of the relatedness of all knowledge
- (c) a familiarity with the common procedures of inquiry and verification which are the basis for the disciplined acquisition of knowledge
- (d) an awareness of history and the civilizing role of the humanities
- (e) an understanding of the way in which values infuse all inquiry
- (f) an appreciation of the philosophy and development of science

Although the Committee is committed to such a program, it is conceded that such a program is not appropriate for, and therefore should not be required of, all students.

Because the Committee feels that such a curriculum will require at least 60 semester credit hours, it is further recommended that a committee be struck and charged to develop an appropriate program. Such a program should not be conceived as a mere assemblage of existing courses but should consist of a series of integrated and comprehensive courses guided by the principles listed above.

3. OUR COMMITMENT TO THE COMMUNITY

Recommendations

- (a) That Simon Fraser University ensure that a university education be accessible to all people in British Columbia by offering select

degree programs at a variety of times, in a variety of locations, and via means different than those which currently exist.

- (b) That Simon Fraser University, in consultation with relevant bodies, develop and co-ordinate credit-free community service programs which focus on the needs, interests and aspirations of those involved, and which can best be offered by a university.

Comment

Many occupations require periodic updating of knowledge. In addition, more people undertake a variety of occupations and careers and thus require the opportunity to learn new skills. Society's increasing occupational complexity requires a higher level of sophisticated knowledge than was previously the case.

Existing programs at the University discriminate against two groups: those who are unable to complete a degree program on a full-time, or 'day-time' basis, and those who, although not seeking degree credit, see the University as being of assistance to them in their desire to update their knowledge, to develop new understandings, to cope with social and familial responsibilities, and to learn new job-related skills. Recognizing the University's responsibilities, the government has stipulated in the new Universities Act that the university is to "provide a program of continuing education in all academic and cultural fields throughout the province."

Greater accessibility to degree completion programs can be achieved in several ways: an extended, integrated day; off-campus programming;

correspondence and other media-based courses; and combinations of these which might encourage the participation of able individuals from the lower socio-economic groups who, regardless of scheduling and physical factors, feel uncomfortable in traditionally middle class institutions.

Credit free learning can be facilitated by allocating resources to continuing professional education, liberal studies programs, public affairs programs, and forums of community and organizational development. To ensure the greatest impact, the Committee believes that the University should locate these activities both on and off campus by utilizing a variety of instructional formats and media.

4. SIZE OF THE UNIVERSITY

Recommendations

- (a) That the maximum undergraduate headcount enrolment at Simon Fraser University in any one semester shall not exceed 13,000 students.
- (b) That the maximum graduate headcount enrolment at Simon Fraser University in any one semester shall not exceed 2,000 students.
- (c) That if recommendations (a) and (b) on enrolment are adopted, a committee be struck and charged with examining the implications for Simon Fraser University of a steady-state enrolment.

Comment

In attempting to determine the most desirable minimum and maximum enrolment, the Committee has taken into consideration (a) the number of people which can be accommodated at Simon Fraser (given the physical restrictions of the University as delineated in Section I), (b) whether there are distinct advantages and disadvantages connected with growth and size, (c) if academic distinction is related to size, and (d) if size affects operating costs, and if so, how.

Although the complete architectural plan for Simon Fraser University envisaged a maximum enrolment of 18,000, this figure has never been incorporated into any academic planning.

Growth has both functional and disfunctional consequences. As elaborated in Appendix A, university growth brings with it the disadvantages of campus sprawl and congestion, absence of community, dead-end overspecialization, administrative complexity, bureaucratic confusion and impersonality, alienation and preoccupation with status. The primary positive aspects of growth are economy, diversity and flexibility. A large university is cheaper - per student - to operate since facilities are being shared across a wider base. A larger number of faculty members in a department often generates more interaction, excitement and diversity than a smaller number would. And a larger institution is more flexible in terms of introducing new programs, hiring faculty over a wider spectrum of specialties and being able to meet the costs of further expansion. Although the Committee sees the information given as useful, in and of themselves these factors are of limited assistance in determining an optimum enrolment for Simon Fraser University.

Several studies of the relationship between size and academic quality have been carried out. Of the "leading" graduate departments (as identified by A. Cartter in his study of U.S. universities), size and relative distinction appear to be uncorrelated. However, those schools included in the category of "leading" departments revealed a discrete minimum, above which there appears to be little relationship between size and academic rating. Presumably, then, the critical mass for academic excellence (by the criteria employed in the Cartter study) is equal to or less than the size of the smallest "leading" department in each field. The departments/faculty "critical mass" figures taken in conjunction with typical student/staff ratios produces a university critical mass for departmental excellence in the range of 10,000 to 15,000 students. Growth beyond this size range continues to provide flexibility in staffing, and spares administration the trouble of having to make difficult decisions.

The size of the university based upon economic considerations is easier to handle. In economics, it is commonly observed that unit costs decline as the size of a plant or manufacturing concern increases. In most cases, a limiting unit cost is achieved at a finite and observable size which is termed "the minimal optimal scale." Studies performed by Gallant and Prothero, and the Carnegie Commission on Higher Education on a large number of universities indicate that operating expenditures per full-time equivalent student tend to fall sharply until enrolment reaches approximately 5,000 students, decreasing more gradually as enrolment increases to approximately 15,000 students, with almost no unit cost decline thereafter. Thus, economic considerations would dictate that a university be no smaller than 5,00 students, and no larger than 15,000.

Given our previous recommendations regarding the desirability of emphasizing the undergraduate program and restricting the development of professional schools and graduate programs, the Committee believes that the enrolment of Simon Fraser University (undergraduate and graduate) should be limited to 15,000 on-campus students during any one semester.

Given that such a recommendation has many implications for the operation of the University, the Committee also urges that a committee be established to examine and report on the issues involved.

APPENDIX A

THE FUNCTIONAL AND DISFUNCTIONAL ASPECTS OF UNIVERSITY GROWTH*

* The Committee is indebted to Jonathan A. Gallant and John W. Prothero for their perceptive article entitled "Weight Watching at the University: The Consequences of Growth," Science, 175: 381-388, Jan. 1972, from which the following materials are drawn.

DISFUNCTIONAL GROWTH

Various disfunctions have attended university growth. Some of them appear to be static consequences of scale while others are dynamic consequences of the growth process itself.

1. Diffusion

A sprawling campus poses logistic difficulties for pedestrians. At the same time, a large, urban university creates automotive traffic congestion.

2. Absence of Community

The myth of the multiversity as a community of scholars lingers on. The persistence of this phase suggests a general recognition that a community provides a good environment for scholarship and education. In order for members of a group to comprise a community, it is necessary that, by and large, they know one another. But people have a limited capacity to associate names with faces, or to associate either with previous encounters. If it is true that a community constitutes a good environment for scholarship, then university growth beyond a rather small size becomes progressively more disfunctional as it eliminates, at one level or another, the possibility of a community.

3. Dead-end Overspecialization

There are probably numerical limits to community size, determined by the number of individuals with whom a single individual can make other than glancing contact. For a scholar, the microenvironment is the community of colleagues with whom he comes in contact by virtue of physical proximity and shared concerns. Out of these encounters comes the friendships, banter argument, and give-and-take that nourish personal and intellectual growth.

Giant universities hinder precisely this process of maturation among their faculties. In a small college, the individual scholar's microenvironment can include the entire faculty. In a somewhat larger college or university, the microenvironment is narrowed. Finally, in the giant multiversities, the microenvironments become truly microscopic.

4. Administrative Complexity

Coherent functioning of an institution demands co-ordination among the elementary units. But as the number of units increases, the number of co-ordinations required increases disproportionately. More specifically, administrative complexity must increase disproportionately with increasing numbers. At each stage of growth, newly adopted organizing principles enable the institution to cope with greater complexity, but always at some cost. The costs take many forms: bureaucratic impersonality, the familiar rigmarole of committees, reports and deferred decisions, and decreased attention to the needs of the institution as a whole.

5. Bureaucracy

Bureaucracy may be regarded as a response to the organization problems inherent in large size. The members of a large institution are too numerous to know one another or to make organizational sense of one another's activities. As a result, intermediaries are introduced to channel information and to co-ordinate. The need for intermediaries gives rise to a hierarchial structure simply for purposes of efficiency: the most efficient pathway for information transfer is bottom to top, the most efficient pathway for transmitting decisions is top to bottom. But bureaucratic organization brings with it certain well-known difficulties.

One of these is the garbling of information. Large bureaucracies transmit information through layers of intermediaries.

A second difficulty is that hierarchial structures, although rapid and effective in the performance of simple, routine tasks, are slow and ineffective in areas that demand innovation, creativity, and adaption to change.

Finally, bureaucratic structures are impersonal. When very many of an institution's functions become bureaucratized - which seems unavoidable with great size - a pervasive atmosphere of impersonality develops. Students have repeatedly objected to this depersonalization; it is their most compelling and frequently voiced complaint against the multiversity.

6. Alienation

Anonymity, impersonality, absence of community, and bureaucratic complexity combine to diminish the possibility of fruitful human interaction. The community becomes a crowd. Activities become routine. Give-and-take between individuals gives way to the processing of I.B.M. cards.

7. The Status Game

Alienation does not apply to everyone. For some individuals, it is precisely the large organization's size and bureaucratic structure that provide the arena for career motivation. Large hierarchial organizations are especially adapted to satisfy the hunger for status, which is gained by "moving up."

The perpetual expansion of individual university units may be more than partially due to the pursuit of status. Size is often taken as a mark of status, and if a mediocre program cannot be good, it can at least be big. Upwardly mobile personalities, in consequence, mount a continuous campaign for expansion of their own units. In this way, the pursuit of status as an end in itself is transformed into the pursuit of size as an end in itself. Size and hierarchial structure may thus generate a cycle of disfunctional growth.

FUNCTIONAL GROWTH

1. Economy

The most obvious potential advantage of increased size is economy, meaning simply the money saved through the sharing of facilities among numerous students. It is cheaper to educate 100 students in shared facilities than to build a university for each one. But we would expect the law of diminishing returns to apply to economics of this kind. For example, if the cost of education decreased linearly with increased population, there would be some population size at which education would cost nothing. Clearly, per capita economies of scale must approach some limiting value as population increases.

In economics, it is commonly observed that unit costs decline with the increasing size of a plant or manufacturing concern. In most cases, a limiting unit cost is achieved at a finite, observable size, which is termed the "minimal optimal scale." In studies performed on the California State college system, the "minimal optimal scale" was determined to be approximately 3600 students.

2. Critical Mass

The second potential advantage of increased size is analogous to the principle of critical mass in nuclear physics. Both the elaboration of ideas and the formation of a stimulating educational environment require interaction among faculty members, just as the propagation of a chain reaction requires interaction among radioactive nuclei. What then is the minimum number of scholars in a given field - the critical mass - required to generate a high degree of academic excellence?

3. Flexibility

Institutional flexibility can be viewed from several different directions. First, increases in enrolment frequently produce concomitant increases in funds available to support the expansion of knowledge. Second, large student numbers require a large number of faculty appointments. This requirement permits faculty appointments across a much wider spectrum of specialities within each discipline. This, in turn, permits a university to cover each discipline in depth.