

SIMON FRASER UNIVERSITY

OFFICE OF THE VICE-PRESIDENT, ACADEMIC

S.97-24
As amended
by Senate
mar 3 1997

MEMORANDUM

To: Senate
From: D. Gagan, Chair *David M. Gagan*
Senate Committee on Academic Planning
Subject: Report of the *Ad Hoc* Committee on Planning Priorities
(SCAP Reference: SCAP 97-12)
Date: February 11, 1997

The Senate Committee on Academic Planning has recommended the following motion be endorsed by Senate. Documentation is attached which provides background.

Motion:

~~"that Senate endorse the processes and priorities for academic planning set out in the final report of the *ad hoc* Committee on Planning Priorities, as set forth in S.97 - 24 , and forward the report to the Board of Governors for information.~~

Motion: (as amended)

"that Senate endorse *in principle* the processes and priorities for academic planning as set out in the final report of the *ad hoc* Committee on Planning Priorities, as set forth in S.97-24, with the understanding that any actions taken subsequently to implement it will be subject to the normal processes of consultation and approval at the Departmental, Faculty and University levels, and forward the report to the Board of Governors for information.

SIMON FRASER UNIVERSITY

Office of the Vice-President, Academic

Memorandum

To: Senate Committee on Academic Planning

From: David Gagan *David Gagan*
Vice-President, Academic

Re: Report of the *Ad Hoc* Committee on Planning Priorities

Date: January 30, 1997

On December 3, 1996, the *ad hoc* Committee on Planning Priorities (the Heinrich Committee) transmitted its final report to me.

I have now consulted the Simon Fraser Community on the acceptability of the Committee's recommendations. Specifically, I invited comments and advice on three issues.

1. Does the planning process described in Section I of the report provide an adequate mechanism for faculties, departments, schools, programs and support services to identify, pursue and achieve their diverse goals and objectives within the context of a common University mission?
2. Will the priorities identified in Section II of the report move the University forward in ways that are appropriate to its historical identity and its legitimate aspirations for the future?
3. Do the recommendations in Section II provide a suitable platform on which to renew our commitment to collegial processes?

The consultation about these matters took the form of three public meetings, discussions at the department and/or Faculty level in all five Faculties, and discussions in all non-academic units. The results of these discussions were reported to me by the appropriate Deans, Vice-Presidents and directors.

As a result of this consultation, I am able to report that there is widespread, general support for the immediate adoption of the Committee's report as the University's primary planning document.

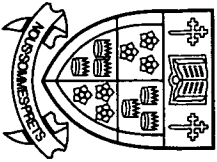
Consequently, I move:

"that the SCAP endorse and recommend to Senate the processes and priorities for academic planning set out in the final report of the *ad hoc* Committee on Planning Priorities."

I attach, for your information, the final report of the President's Committee on University Planning which is the reference point for the work of the Committee.

Attachment

/pjs
scap/planning/2206



Simon Fraser University

Report of the ad hoc Committee on Planning Priorities

1964:

"[Simon Fraser University] plans to be different in some ways from most universities in Canada, but not different for the sake of being different. It intends to encourage experimentation in university education, but not just for the sake of experiment. . . The university will encourage research from the beginning, but it is also determined to see that good teaching is recognized. . . When Simon Fraser opens in just over a year, it will be one of the most exciting universities. . . in Canada."

(R. J. Baker, 1964)

1996:

"Our purpose at Simon Fraser flows from our motto, "*Nous sommes prêts*/We are ready." Through the creative interaction of research and teaching of the highest order, and in response to the changing needs of society, we advance knowledge and learning for the benefit of our students and the wider community we serve. We promote interdisciplinary learning and lifelong education based on a strong foundation of the core disciplines. We value effective partnerships towards these ends. We hold a penchant for wonder, the courage to question, the will to seek truth and apply our findings."

(J. O. Stubbs, 1996)

To all members of the university community

In June, 1996 I appointed an ad hoc committee, chaired by Dr. Katherine Heinrich, to consult widely and to report to me our community's advice on two matters:

1. an appropriate prioritization of the recommendations of the PCUP report consistent with a realistic mid-term planning agenda for the University; and
2. the definition of an academic planning process that would promote and facilitate the attainment of the goals and objectives of the University as a whole and, equally, of its diverse academic units.

The Heinrich committee's report has now been transmitted to me with a timetable for action. Electronic copies of the report may be found on the World Wide Web at <http://www.sfu.ca/vpacademic/planning/report/>. Additional hard copies of the report may be obtained from my office (local 3926).

I propose to initiate a discussion of this report, to be concluded by Jan. 30, 1997. To facilitate this discussion I ask department chairs, school and program directors, and directors of academic and administrative support units to discuss the report with their colleagues and to communicate their unit's advice to the appropriate dean or vice-president who will report to me, by Jan. 30, the collective opinion of his/her constituency. Employee groups may wish to communicate their advice directly to me. In addition, two public meetings for discussion of the report have been scheduled as follows:

Wednesday, Jan 15, 1997	2:30pm - 3:30pm	Room 1600, Harbour Centre
Thursday, Jan. 16, 1997	1:00pm - 3:00pm	Room 126, Halpern Centre
Tuesday, Jan. 21, 1997	2:00pm - 4:00pm	Room 126, Halpern Centre

Specifically, I seek your advice on three questions:

- a) Does the planning process described in Section I of the report provide an adequate mechanism for faculties, departments, schools, programs and support services to identify, pursue and achieve their diverse goals and objectives within the context of a common university mission?
- b) Will the priorities identified in Section II of the report move the university forward in ways that are appropriate to its historical identity and its legitimate aspirations for the future?
- c) Do the recommendations in Section III provide a suitable platform on which to renew our commitment to collegial processes?

At the conclusion of this process, I will transmit the Heinrich committee's report and the PCUP final report to senate and to the board of governors with my recommendations.

Thank you for your continued participation in the process.

Dr. David Gagan, provost and vice-president, academic
Dec. 5, 1996

The ad hoc Committee on Planning Priorities

The ad hoc Committee on Planning Priorities is pleased to deliver to you our final report. We have attempted to identify the priorities for Simon Fraser University and to recommend strategies for their implementation. It is a relatively short report but contains within it a large number of recommendations.

It is unlikely that anyone will find they can agree with all of the recommendations. That is acceptable. Universal agreement with the details of the report was not our intention. Our intention was to write a report that would allow departments to prioritize their activities within a set of university priorities. It is not expected that each department will make the same choices, but it is expected that we will move together in directions that will bring greater strength and renown to Simon Fraser University. What is important is that through this report the diversity of the university is recognised and acknowledged and that provision is made for each part of the university to develop and move forward in ways that work best for it. From the close of the report: "The goal of this report is to direct the university: to establish clearly those attributes we wish to maintain and to propose mechanisms for doing so. Action rests in the hands of every one of us."

We would like to stress that when considering this report it is essential to refer to the summaries of the consultation meetings held across the campus during Fall, '96. In the consultation summaries you will find issues and concerns which are reflected in our report and others which are not. This does not mean that those we have not addressed are unimportant, rather that they were of too specialized an interest - but might well be resolved within departments and faculties - or did not clearly fall within our mandate. Most important of all, these summaries provide a window on the diverse areas of the university, allowing us insights into the challenges and aspirations of all parts of the campus. All 73 summaries are available on the Web at <http://www.sfu.ca/vpacademic/planning> and in the electronic folder of the vice-president, academic (we will also be making paper copies available on request).

The committee would like to thank all those who read and commented on the PCUP documents, met with us or wrote to us. The input from the community has been essential to the process. We would especially like to thank Judy Higham and Emelia Kirkwood for their always invaluable assistance during the last three months, and Byron Henry for designing the layout of the report. And I would personally like to thank the committee not only for the time they put into the consultations and the preparation of the report, but for their ongoing and constant spirit of collegiality as we struggled with some very difficult issues.

Kathy Heinrich, chair, ad hoc Committee on Planning Priorities
Dec. 3, 1996

The consultations

The ad hoc Committee on Planning Priorities (described in Appendix A) was struck in the summer of 1996 with the following mandate:

- To consult with the Simon Fraser University community on the priorities to be assigned to the recommendations contained in the various reports of the President's Committee on University Planning¹.
- To prepare, as a result of these consultations, a companion document to the final report of PCUP, prioritizing and outlining a strategy for implementing PCUP's academic recommendations.

Our consultation (as described in Appendix B) was far-reaching with over 70 formal meetings with individuals, departments, employee groups and students (in all, over 650 participants). Summaries of the meetings are posted at the Web site <http://sfu.ca/vpacademic/planning> and in the electronic folder of the vice-president, academic. In addition we received e-mail and written responses from individuals.

We found reason for optimism in discovering a community deeply committed to the university and its students; a community seeking to do and be the best; a community of enormous diversity. Given this diversity it was at once surprising and comforting to see the high level of agreement on fundamental issues: that Simon Fraser University will preserve both the traditional strengths of a university and its unique strengths. We found the will, the determination, and the vitality necessary to continue building a leading university.

Fundamentally, we found a university that has realized much of what it set out to be in 1964, together with a widespread reaffirmation of individual commitments to the visions espoused in 1964 and again in 1996. But we also found a university needing clear directions and priorities; a university struggling to meet and deal with the conflicting challenges and pressures of a constrained fiscal reality, new technologies, competition from other education providers, and demands for new skills in our students. We found a community of faculty, staff and students calling for greater collegiality, new partnerships and increased cooperation at all levels.

In dealing with the PCUP recommendations and the strategies we will propose for their implementation, the intention of this committee is to enable the university community, working together, to address and deal with the challenges that face us. This begins with a strong proclamation of what we are and what we intend to be:

Simon Fraser University demonstrates a deep commitment to its responsibility to preserve, transmit and create knowledge, understanding and ideas. We choose to be a university with strong research programs, quality education for graduates and undergraduates, and a strong presence in the communities in which we reside. We will meet the external pressures but we will meet them on our own grounds. We will determine our own future.

What follows are our recommendations for doing so.

The committee

As members of the ad hoc committee on Planning Priorities, the following are in agreement with the recommendations and priorities presented in this report.

Katherine Heinrich Special assistant to the vice-president, academic for academic planning (chair)	James Ogloff Department of psychology
Joan Collinge Centre for continuing studies	Larry Pinfield Faculty of business administration
Brian Lewis School of communication	Michael Smith Department of biological sciences
Lucy LeMare Faculty of education	Owen Underhill School for the contemporary arts
William Li Graduate student representative	Diane Whiteley Director, records and registration office of the registrar
Timothy Morrison Undergraduate student representative (Resigned Oct. 28, 1996)	

1 Creating an environment for implementation

Simon Fraser University began 31 years ago as a small university with a relatively centralized governance structure. Since then we have grown in numbers of students, faculty and programs, and in breadth of activities and specializations. While we were relatively small and most individuals knew one another, a top-down model of governance may have been effective. But, as we continue to become more diverse, those charged with central planning cannot reasonably be expected to understand and take into account the variety of factors affecting the very different areas of the university. Our centralized decision-making processes have become removed from the day-to-day operations of the university.

We now have an environment of fiscal uncertainty in which departments often lack local control and do not always have an understanding of the centralized decision-making processes and the rationales behind them. In such an environment it is not possible to plan effectively and this has significantly contributed to the present atmosphere of apprehension, anxiety, and mistrust we encountered in our consultations. To change this we need to re-establish and re-emphasize the linkages between department operations and overall university objectives.

In 1992/93 we began a process of decentralization in which some decision-making and resources were moved away from central administration. This decentralization process must now be extended. The process through which we are governed should be built on:

- innovation – to maintain our vitality and creativity
- stability – to make planning possible
- flexibility – to ensure diversity is recognized, opportunities are taken and we can respond to government funding decisions

- openness – to allow for trust and a shared vision, and
- accountability – to show goals have indeed been met.

The need for a more decentralized process is dictated not only by internal demands, but also by changing external circumstances. Society wants the university to be flexible and responsive to its educational needs. Emerging societal demands and opportunities can be addressed most appropriately by departments whose comparative advantage lies in their disciplinary knowledge and academic programs.

It is departments which must be the primary agents in the planning process. Consistent with university priorities and the existing fiscal environment, each department must be given the responsibility to set appropriate goals and strategies to effectively develop their unit as best befits it. To be effective, there should be a direct link between achievable academic plans and resource allocations. Departments and faculties must then be held accountable for their accomplishments and their stewardship of the resources allocated to them. Budgetary and resource allocations at both the department and faculty level must be, and be perceived to be, fair and equitable.

Trust and open communication are essential to good decision-making and planning. To allow for greater levels of cooperation and understanding the planning process must be open, allowing for consultation, communication and feedback. Communication across faculties is the responsibility of the vice-president, academic; communication within faculties is the responsibility of the respective dean. We need to build a shared commitment to Simon Fraser University. As was heard at one of our meetings in the faculty of science: "When English looks good, I look good."

Although departments and faculties must be afforded greater autonomy in planning and decision-making, it is essential that department planning be balanced with overall university objectives and central coordination so the university can respond in a coherent way to general trends and university-wide opportunities.

The only way effective planning can take place is over the long-term. Since the fact that provincial funding is allocated annually. To this end, we propose that the university develop a three-year planning cycle which allows for and recognizes that circumstances change over time. To realize this we recommend that:

1.1 Each vice-presidential portfolio will operate on a three-year planning cycle. Within this framework plans must be developed in accord with university priorities and with special emphasis on the mechanisms through which they will support and facilitate the academic mandate of the university. Each vice-presidential plan will be a public document. At appropriate intervals, actual accomplishments should be evaluated against previously proposed plans.

1.2 Within each faculty, the dean must develop a faculty plan based on a three-year planning cycle. The process for developing this plan will rest on realistic department plans and consultation between the chairs and the dean. The plan will be submitted to the vice-president, academic for review and acceptance. The faculty plan (incorporating the planning process) will be a public document. Deans and their faculties, as well as department units, will be held accountable for the attainment of goals and objectives. The dean will be responsible for ensuring that the objectives in the plans (department and faculty) are being met and will report, as appropriate, to the vice-president, academic.

¹ The Undergraduate Program at Simon Fraser University; Graduate Studies and Research; Services to Students; *Nous Sommes Prêts: Planning for a Decade of Change at Simon Fraser University.*

I.3 Realistic department² plans, also based on a three-year planning cycle, are core to this overall planning process. These plans should be formulated in an open process which embodies broad consultation – perhaps through an elected and representative department planning committee. Department plans must have the support and approval of the dean who will ensure that the goals, aspirations and strategies of the department are consistent with those of the faculty and the university. As appropriate, department goals and objectives will reflect the substance of recent external reviews. Significant disagreements between a department and the dean will be dealt with through discussion involving the department, the dean and the vice-president, academic.

Again, accountability for the accomplishment of the goals and objectives embodied in departmental plans is a key element of the proposed planning process. Department chairs, in consultation with their departments, should evaluate the extent to which planned goals and objectives are being realized. Information from these on-going review processes, in conjunction with new opportunities and constraints, could of course lead to modification of plans and/or the process through which their attainment can be accomplished.

Plans will normally be expected to address the following:

- mission of department
- specific goals and objectives over the three-year cycle, with particular emphasis on undergraduate and graduate curriculum and enrolment targets
- faculty responsibilities
- realistic assessment of department-based programs to determine their continuation or elimination
- detailed budget plan
- faculty and staff hiring plan (e.g. addressing upcoming retirements)
- specific initiatives (e.g. fundraising, new programs, innovations)
- community outreach
- coordination with faculty and university-wide priorities.

While a continuing flow of resources can never be guaranteed, commitments will be made to provide those resources required to meet agreed-upon, long-term objectives. In some departments and programs resources may increase, in others stay constant, and in others decrease relative to what was previously available. Departments will be responsible for meeting the goals they set and will be accountable to the dean. The dean will also ensure that within the faculty appropriate mechanisms exist to take advantage of unexpected opportunities and respond to unexpected difficulties. Department plans will be public documents.

I.4 In order to enable departments to meet the goals of their plans, we must allow greater diversity and flexibility in faculty and staff activities. To do this we will:

- allow a broad definition of scholarly activity; recognizing that any such work must be peer reviewed.
- value a breadth of contributions paying particular attention to university service and both interdisciplinary and non-credit instructional activities.
- acknowledge the value of a faculty member directing energies toward significant non-research responsibilities in order to meet the goals of the department or the university.

- ensure staff have greater opportunities to develop their potential through training programs and challenging projects.

Any policy changes necessary to facilitate this will initially be developed by the vice president, academic.

I.5 Within departments and faculties a system of incentives must be clearly defined, understood and publicly known.

At the faculty level:

- if a faculty makes changes that result in fiscal savings, these savings will stay within the faculty and be able to be carried over at year-end.
- if a faculty generates external resources, some fair and reasonable portion will stay in the faculty.

- the dean will consider the creation of a faculty-wide enhancement fund to support activities consistent with the faculty's academic plan.

At the department level such a system will need to include assurances that:

- if a department makes changes that result in fiscal savings, these savings will stay within the department and be able to be carried over at year-end.
- if a department generates external resources, some fair and reasonable portion will stay in the department.

I.6 To remain innovative and responsive, we must continue to develop and implement new programs. Any new program (professional and otherwise) must be compatible with the university's core academic mission and build on existing strengths and resources. New programs should not duplicate those offered elsewhere in B.C.

I.7 The existing enhancement and innovation funds will be replaced by one fund of approximately \$300,000 established annually by the president. To be consistent with the funding allocation process described above, the bulk of this fund should only provide support to any project for a specific amount of time (up to three years). The terms governing the fund will be determined by the vice-president, academic and allow for: access by all areas of the university; support for varied periods of time (including base-budget funding in extraordinary circumstances); compatibility with the university's stated priorities; and the need for overall faculty funding to reflect enrolment levels.

I.8 All areas, including senate, will review their rules and procedures with the goal of streamlining administrative processes. In particular, we need to place limits on the number of approvals needed before action can be taken on an issue, and the length of time to final approval (e.g. no more than three levels of approval – not necessarily

terminating in a Senate committee – and taking no longer than six months from first approval).

Recommendations I.1, I.2, I.3, I.5, I.6 must go into effect immediately. Initial steps towards complying with I.4, I.7, I.8 should begin now so that they can be fully implemented within the year.

II The priorities of Simon Fraser University³

II.1 Maintaining the traditional strengths of a university

A traditional university provides a rigorous, broad, basic education to students who will become the leaders and innovators in their societies. This education is provided by a faculty of distinguished and dedicated scholars with international/national research reputations and excellent communication skills. By its commitment to research, graduate and undergraduate education, and international competitiveness, Simon Fraser University demonstrates the traditional strengths of a university.

Our initial commitment was made in 1964:

"[The buildings] need to be inhabited by scholars and illuminated by originality.... The university will encourage research from the beginning, but it is also determined to see that good teaching is recognized." (1964 planning document)

We reaffirm this commitment and state the following as priorities.

II.1.1 Research

To continue to be recognized as a leading university we must maintain a strong commitment to research.

Through research and creative activities every faculty member will:

- create new knowledge, ideas and understanding which will be transmitted and evaluated through peer-reviewed publications and public presentations. (F2, P2.2)

- inform the broad community of his/her work through lectures, interviews, press releases, etc. (P2.3)

- seek external funding for research activities and, where appropriate and in partnership with the university, participate in projects with private, public and non-profit agencies. (E1)

To support faculty in their research activities:

- the president will clearly affirm our commitment to research.
- the offices of the vice-presidents, research and finance and administration, in compliance with our legal and moral obligations, will make processes as straightforward and efficient as possible.
- the office of the vice-president, research will actively seek opportunities for research projects involving Simon Fraser faculty, staff and students in partnership with private, public and non-profit agencies. (P2.2)

- the office of the vice-president, research will actively encourage and support faculty and staff in their pursuit of research grants and ensure they are nominated for awards in recognition of research accomplishments. (E2)

- the university will ensure that its policies and procedures are designed to be supportive of research projects once funding has been obtained. (E2)

- the development office, working with deans, vice-presidents and researchers, will seek, as appropriate, external funding for centres, institutes, research chairs and research projects.

II.1.2 Graduate education

Graduate education is at the heart of all we do. It provides individuals with highly specialized learning, it supports strong research programs and, through their involvement with graduate students, it provides undergraduates with more diverse opportunities for learning.

Departments are responsible for the admission and support of their graduate students. To ensure a strong graduate program they will:

- determine the size and make-up of their graduate student body based on the availability of financial and supervisory support, space, equipment and resources. Levels of support must be clear to all students on their acceptance to the university. (A3, D7, G1)
- ensure graduate students are able to complete their degrees within a reasonable time period by providing appropriate financial support and a regular offering of appropriate courses (perhaps through joint initiatives with other departments and universities). (C7, C8)

- take a proactive role in the pursuit of external support for graduate students and graduate co-op opportunities. (C2, C3)

2 Throughout we have used the terms department and chair, but they should be broadly interpreted to include schools, programs and directors.

3 Throughout the report recommendations are followed by numbers in brackets. These numbers indicate related PCUP recommendations and when preceded by 'P' indicate that section of the report *Notes Sommes Prêts* in which reference to this recommendation is made. If a recommendation in *Notes Sommes Prêts* was explicitly made in one of the earlier reports, we do not refer to its later appearance in *Notes Sommes Prêts*. It is very important to note that these references are provided for background information only. Unless explicitly stated, they are not the recommendations being made.

- actively recruit graduate students who hold external awards. (B1)
 - with the support of deans, in particular the dean of graduate studies, strive to develop packages of long-term support to aid in student recruitment. In the case of students in interdisciplinary programs this will require departments to work cooperatively. (B1, D1, D8)
 - create and develop programs of graduate study that allow students to remain in full-time employment. (C7, C8, C9)
- The university has a responsibility to support departments in building strong graduate programs. To facilitate this:
- deans will consider, within their faculty budgets, the creation of research assistantships to support graduate students.
 - the dean of graduate studies will take a leading role in the pursuit of external support for graduate students.
 - the dean of graduate studies and the office of co-operative education will take an active and at times leadership role in the pursuit of graduate co-op opportunities.
 - the development office will actively pursue fundraising initiatives to provide scholarships and research assistantships for graduate students. (D6)
 - the president will maintain the existing level of scholarship support, provided to the dean of graduate studies; including the present allocation formula.
 - the vice-president, academic will ensure that all graduate programs are reviewed as part of the department external review process. (B2, B5)

II.1.3 Undergraduate education

Central to our societal role is

undergraduate education. We provide our students with the knowledge, creativity and skills for life-long learning and success as productive citizens. Our graduates will be proud of their association with the university and honored to be alumni.

Simon Fraser University aims to provide its graduates with the following qualities:

- strong communication skills, the ability to think critically, the ability to solve problems, the ability to use technology, specialized knowledge of a particular discipline(s), the desire to be a life-long learner, self-esteem and confidence, integrity, a positive attitude, initiative, the ability to manage time and set priorities, the ability to recognize and respect a diverse community, creativity, and teamwork skills. (R7)

All undergraduates must be able to complete their degrees within a reasonable time period. To achieve this:

- departments will ensure that an adequate number and choice of courses are offered each semester.
- departments will provide long-term schedules of course offerings. (R71)
- departments will ensure courses are cross-listed as often as possible. (R7H)
- the registrar's office will develop a formal block timetable that is operated centrally and determined by the need to maximize students' access to courses. (R7F)

- departments and faculties will determine appropriate enrolment management strategies. (R7J)
- all programs will be regularly reviewed by departments.
- departments will ensure their programs have minimal prerequisite structures. (R7G)
- where resources are available and technology is appropriate, departments will use technology to increase student access to courses and instructional support. (R7B)

All undergraduates must be provided with opportunities to realize the full benefits of their university experience. To achieve this:

- the president will maintain the existing scholarship and bursary funding provided by the university; including the present allocation formula.
- departments will work to increase the number of regular faculty teaching 100 and 200-level courses. (R7A)
- the university will maintain its commitment to outstanding instruction by the continued use of teaching evaluations, the giving of teaching awards and support of the centre for university teaching. (P2.1)
- departments will ensure opportunities for face-to-face interactions between students and professors, perhaps through mentorship programs. (R6A, R7B)
- departments and faculties will find mechanisms to ensure students take courses outside their specialty and obtain the broadest possible education. (P2.1)
- departments will consider opportunities for undergraduates to obtain research experience. (R7D)
- departments, the student society and the dean of student services will ensure the broadest possible participation of students in the governance of the university.
- departments, the student society and the dean of student services will ensure students make the easiest possible transition into the university. After evaluation, this may require an expansion of University 101. (4.1, 4.2, R6, R6B, R7C)
- the registrar's office will work with departments to make available electronically all information related to registration, regulations, scholarships and awards, and student services. (1.1, 2.1, 2.3, 2.4, 2.5, R6C, R6D)
- Campus community services will work with departments to ensure students have opportunities for involvement in activities outside their formal academic program. (P2.3)
- the dean of student services and departments will take a proactive role in developing appropriate policies and strategies to evaluate, understand and support the needs of students with disabilities.
- student study and recreation space will continue to have high priority. In particular the development office and the president will look at the viability of fundraising for specific building projects to provide such space. (3.1, 3.2)

II.1.4 Competitive advantage

A university's stature is determined primarily by the activities and accomplishments of its faculty, students and staff and the programs it offers. To stay competitive it is essential that we recruit the highest quality employees and students, and support them in their endeavours.

With a large number (over 30%) of faculty retiring during the next 10 years we have an unprecedented opportunity for renewal. We must both retain existing faculty and hire well. That hiring must begin now. The following strategies are recommended:

- the vice-president, academic will look for ways to fund the bridging of positions to future retirements.
- the development office will seek funding for such positions.
- the vice-president, academic will look at strategies to support new faculty members; perhaps assisting spouses to find employment, enhancing the mortgage assistance program, offering daycare packages and (in the future land development) ensuring housing is available. (P2.2)
- the dean and the department will endeavor to provide all new faculty members with reduced teaching responsibilities in at least their first year. (F3)
- the vice-presidents, academic and research, and the deans will ensure all new faculty members receive funding to support both their research and teaching activities in their first year. (P2.2)
- departments and faculties will ensure new faculty members are welcomed and supported; perhaps through faculty mentors.
- measures must be taken by the vice-president, academic to recognize and support the outstanding contributions of many of our faculty members. These might include reinstating a revised and competitive university research professorship program available at all ranks, continuing to establish research chairs, and an ongoing reassessment of faculty salaries, benefits and working conditions. (P2.2)

To support the academic priorities of the university we must have a dedicated and productive staff. We must be able to do this:

- measures must be taken by the vice-presidents, deans and chairs to recognise and support the outstanding contributions and accomplishments of many of our staff. These might include ensuring staff have opportunities for retraining, involvement in new and challenging activities, and greater levels of responsibility, and an ongoing reassessment of staff salaries, benefits and working conditions. (P2.2)

We must be a university that students choose because they see in us opportunities not available elsewhere. To that end:

- the development office will focus on fundraising for bursaries and scholarships; in particular building large endowments for entrance scholarships. (P2.1)

- departments, the dean of student services and continuing studies will continue to explore new approaches to maintain and enhance our commitment to access for non-traditional and part-time students. (R1, R1A, R1B)
- the dean of student services will further develop recruitment strategies that focus on those features our undergraduates value – high quality academic programs, trimester, co-op education, tutorials and scholarships – and promote them aggressively. Doing so will require stronger ties between the university recruitment teams, alumni, departments, undergraduates and the co-op program. (1.2)

- the dean of student services will ensure the bringing together of all career activities on campus – career counseling, co-operative education and the employment centre. More emphasis must be placed on assisting and preparing students to find employment when they leave the university. (4.4, R6)
- each department will review its courses and programs to ensure they are up-to-date, meet the needs of today's students and will enable students to see the connection between their classroom experiences and the skills and knowledge they use in the workplace. For the latter, departments may find the resources and experience of the office of co-operative education to be of value. (4.4, R5, R5A)

To ensure the university remains competitive we must be held accountable for our activities and continually assess and seek to improve and enhance our performance. To this end the university will:

- continue a regular review of faculty; noting that when faculty are involved in external activities which interfere with their teaching, research and administrative responsibilities, consideration of a modified contract must be pursued.
- establish appropriate and just review mechanisms for administrators at all levels.
- ensure staff are given the opportunity to develop goal-setting plans on which they will be evaluated.
- regularly survey our students and graduates. Such surveys should be coordinated and overseen by the office of analytical studies. (P4.1)
- continue the process of external departmental reviews. (P4.1)
- ensure all levels of the university undergo regular external reviews.
- produce an annual report. (P4.1)

All faculty, staff, students and alumni have a responsibility to tell the story of the university. This is done through visiting schools, giving public presentations, talking to the media and the government, showcasing our successes, and participating in public ceremonies to recognize our accomplishments.

II.1.5 International activities

Simon Fraser University must be an international resource of the highest quality. To that end we should continue our involvement in international activities. To take further advantage of our present strong international reputation we will, through the offices of the president, international relations and others as appropriate:

- develop policies to determine the kinds of programs we should be involved in and how to evaluate and support them relative to our other responsibilities.
- be fully aware of the many international activities currently involving members of the university and, where appropriate, coordinate them.
- increase opportunities for students to have international experiences, either through co-op, student exchanges or field schools. (R3C)
- develop international opportunities for faculty.
- actively recruit international students.

II.1.6 Library

A university must have excellent library resources. Our library is young and as such does not have large holdings. Although this is understood, it remains an issue for many in the university; this is particularly true for the newer disciplines. The vice-president, research must:

- reconsider the process by which library needs are determined for new courses and programs. The current process seems to have evolved into one of confrontation rather than mutual support.
- review the appropriateness of the current allocation of library resources by department.

II.2 Developing the distinguishing strengths of Simon Fraser University

There are particular strengths of Simon Fraser University that distinguish us from other universities and give us a character all our own. These strengths must be maintained, enhanced and built upon.

II.2.1 Innovation

"Finding creative solutions to the challenges presented by an ever-evolving world is clearly one of Simon Fraser's greatest strengths." (Maclean's, 1996)

Time and again we have proven ourselves to be innovative. We have been innovative in the creation of programs and curricula, in the development of a city presence, in the ways we have approached undergraduate teaching, in our response to emerging scholarly initiatives.

- Innovation should be supported and encouraged in every aspect of what we do. (P2)
- We must ensure that we are able to take full advantage of opportunities when they arise. This will be done through streamlined policy and approval procedures, an effective academic enhancement fund, the initiative and creativity in each of us, and a willingness to take risks and accept the possibility of failure.

II.2.2 The tutorial system

"In addition to the large lectures, however, each student will take part each week in a number of small seminars, tutorial groups and problem sessions." (1964 planning document)

The tutorial system is a hallmark of undergraduate education at Simon Fraser University. It provides a valuable opportunity for one-on-one interaction with undergraduates. It supports graduate students financially and gives them the opportunity for teaching experience.

- We must continue to have a tutorial system. (P2.1)
- It is the responsibility of each department to review and evaluate its tutorial system to determine which courses will have tutorials, the possibility of other teaching methods such as workshops, drop-in centres or computer labs, and the interplay of tutorials and lectures, as best fits its pedagogy and its resources.
- Departments have a responsibility to take an active role in the training and ongoing support of their teaching assistants. Departments will be helped in this by drawing upon the resources of the centre for university teaching.

II.2.3 The trimester

"[SFU's] experiment begins with its acceptance of the trimester system. Both students and faculty enjoy a much greater flexibility in their activities than a traditional academic year permits." (1964 planning document)

The trimester system continues to offer flexible research and teaching semesters to faculty and flexible access to students. It plays a significant role in the success of our co-operative education program.

- The trimester system must be maintained. (P2.1)
- Departments should look for more innovative ways to use the summer semester so that students have access to courses throughout the year.
- The president must explore more effective and creative ways of promoting the summer semester to encourage a more even distribution of student enrolments across the year.

II.2.4 Use of technology in instruction

"The prime function of the lecture is not to transmit information. It is to show students how to learn for themselves and show them the ways in which original thinkers themselves tackle problems. Consequently, the university will make every possible use of audio-visual aids and new methods of teaching." (1964 planning document)

Simon Fraser University has a reputation for the innovative use of technology in instruction and will continue to employ technology when it enhances the student's learning experience.

- Departments and continuing studies are encouraged to investigate the appropriate use of instructional technology within the pedagogy of their disciplines and the resources of the university. (R7B)

II.2.5 Co-operative education

"Some industries have offered to keep jobs permanently open for students, on the understanding that the university will rotate students through the job at various times of the year." (1964 planning document)

This were the seeds of co-operative education sown. Through work-place experience, co-operative education provides students with an opportunity to enhance the skills and abilities they learn in their courses (notably critical thinking, problem solving, time management, priority setting and teamwork) and to better understand the requirements for a successful career and responsible citizenship.

- We must not only continue co-operative education but, where appropriate, expand it significantly. (R3, R3C)
- Areas of the university which have not developed co-operative education extensively are charged with investigating its viability in their discipline. Such development will require the concerted and creative efforts of staff in co-operative education and of faculty members. (R3)
- New opportunities must be found for co-op experiences. In particular, and compatible with our reputation as an institution with a commitment to our community, placements in the non-profit/fine arts organizations must be sought. The development office should pursue the creation of a university fund to provide salaries for such positions.
- All departments are charged with investigating the possibility of graduate level co-operative education in their disciplines. (C2, C3)

II.2.6 Interdisciplinary programs

"By putting all faculty offices together ... the university hopes to encourage interdisciplinary studies and communication between members of different departments." (1964 planning document)

Interdisciplinary programs exist within and between departments. They enable students to obtain a breadth of knowledge with a particular focus that is not always possible in a single major program. They enable us to offer unique programs not available elsewhere.

- Interdisciplinary programs must continue to be developed within and across departments. (C8, R4C, P3.1)
- In developing interdisciplinary programs, departments and faculties should recognize that such programs are rarely successful if they simply "patch together" a variety of courses from various disciplines. They typically require an additional set of courses that bring the program into focus. They also require ongoing leadership and maintenance. The administrative responsibility for this must be recognized and supported.
- Faculty participation in interdisciplinary programs must be recognized and evaluated by their home departments.

II.2.7 Non-traditional programs and students

"Students who are anxious to finish and capable of finishing their first degrees in less than the recently "traditional" four years will be able to enter graduate work or employment earlier." (1964 planning document)

We have always realised the model of a four-year degree was not appropriate to all students and have continued to maintain that position (note the degree completion program with CP Rail and BC Hydro, and the weekend EMBA program). We must continue our leadership role as a university that serves the non-traditional student.

- Departments, the registrar, the dean of graduate studies and continuing studies must look creatively at ways to ensure access to a diverse student body through innovative approaches to instruction, programming, scheduling, delivery options, and prior learning assessment. (RIA, R1B)

II.2.8 Distance education

"[SFU] has long distinguished itself as a leader in long distance and co-operative learning. ... Simon Fraser's well-established distance-learning program already uses telephone lines, home computers and television to teach 7,000 students — both on campus and across British Columbia." (Maclean's, 1996)

Through distance education we ensure students unable to come to campus have an opportunity to participate in university programs, thereby enabling us to reach larger numbers of students that otherwise would be possible.

- Stronger partnerships between departments and the centre for distance education must be pursued.

II.2.9 Community outreach and responsiveness

"In 1989, Simon Fraser opened Harbour Centre, a satellite campus in downtown Vancouver, in what has become a highly successful attempt to reach inhabitants of the city's office towers." (Maclean's, 1996)

As a university we have a responsibility not only to work with the community beyond the university but to be responsive to its needs. We are dependent on the external community and it is important that we reach out; asking what they want of us, letting them know what we do, and taking to them the things we have done. We have already taken a leadership role in the pursuit of these initiatives.

- Community outreach should be actively pursued at every level; from the summer camps in athletics, to the alumni mentorship program, to the highly specialized lecture series at Harbour Centre. This is a shared responsibility that requires partnerships between departments, alumni, service areas and continuing studies. (P2.3)

- We must pursue programs that use our expertise to enable the community to understand the major issues of today, give them opportunities to learn new specialized skills and provide them with an understanding of what a university is. Such activities require partnerships between departments and continuing studies. (R1C, P2.3)
- Media and public relations must continue their successful work in ensuring our accomplishments and those of our students are known. With faculty support they should strive to make our role in society even more broadly known. (P2.3)

II.2.10 Partnerships

"By careful choice of areas of specialization, [SFU] will complement the offerings at UBC. The three universities are close enough to one another for cooperative planning to take place." (1964 planning document)

We are already involved in many successful partnerships with other academic institutions (for example, the joint doctoral program in philosophy with UBC, the living lab research centre with BCIT, the SCES/SFU program in Kamloops and several international student exchange programs). Such partnerships provide additional academic opportunities to our students and allow us to further enhance areas of research and teaching strength.

Such partnerships with universities, colleges and institutes, and in particular with UBC, should be further pursued and provide for:

- simple mechanisms that allow our students to take certain courses at other institutions and vice-versa for credit at their home institution.
- the joint offering of specialized courses and programs (perhaps by video conferencing) with other institutions. (C7)
- the pursuit of joint research initiatives. (P2.3)
- international opportunities for our students.

Relationships with private, public and non-profit agencies already exist via advisory groups, program development, sessional appointments, fundraising activities, research and consulting. They bring not only valuable contributions from the external community but opportunities for our researchers and students. Such partnerships should be continued and expanded upon as they fit with our core academic mission. To develop appropriate partnerships:

- departments and faculties will consider the establishment of external advisory committees when there is a clearly identified specific purpose in doing so. (C4, E3)
- all areas of the university will work with the alumni association. (P2.3)

III Supporting and developing the university community

"The university will be built in three phases, the first to accommodate 2,000 students (by 1965), the second to accommodate about 7,000 (by 1970) and the final one to accommodate 18,000." (1964 planning document)

We have grown and we continue to grow. As a result of this growth, many of our activities have become isolated and we frequently do not know one another. To attain our academic goals it is essential that, as we grow, we also build a strong community that knows and supports its members; a community that works together.

- Building community is not something that can be mandated. We must individually decide of importance, on the benefits it can bring, and act accordingly.
- We must develop effective communication and collaboration between all members of the university community. Whenever appropriate, a broad representation of the community should be included in decision-making processes. (P2.3)
- There is a need to provide support and make time for celebrations, gatherings of people, public ceremonies and events (cultural, social and political). To allow for this, in developing a university timetable efforts should be made to set aside one hour a week in which no classes will be held. (P2.3)
- The university must develop mechanisms for greater openness and "knowing" within the community. Suggestions for achieving this include: a regular *SF News* column indicating new university committees and their mandates, reports tabled, external reviews completed, a booklet describing who in the university is responsible for what; a university special events calendar (probably electronic) which is continually updated and accessible to everyone. Administrators at every level to take responsibility for initiating activities and the community to make a commitment to provide information as requested. (1.1, 1.2)
- We urgently require mechanisms for meaningful debate; perhaps a regular open meeting to address issues of primary importance.

- There is a tension between decentralization and the provision of centralized support services common to the entire community. It is the responsibility of departments and support areas to continually work together to take advantage of the expertise each has to offer. There is a need for greater levels of cohesion (and coordination) when expertise and activities of a common nature (e.g. maintenance of archival material, official contacts of faculty and staff with private, public and corporate agencies, and international activities) are spread throughout the campus. Through cohesion the university will be stronger and more effective. These activities need to be identified at the decanal and vice-presidential levels and appropriate initiatives taken.
- We need to be well-equipped to deal with the challenges and complexities of a large and very diverse population. This requires educating ourselves, whether it be through workshops of the harassment policy office, human resources or the office of the vice-president, academic on issues such as conflict resolution, understanding provincial policies or understanding the university's budgeting process. (P2.3)
- We must endeavor to keep the doors of the university open; literally. We should look for ways to increase the opening hours of various areas of the campus: library, student services, food services.

We must find ways to have more services (e.g. grocery, hairdresser) available on campus. We must continue to lobby for increased public transport services to the Burnaby campus.

"When Simon Fraser opens in just over a year, it will be one of the most exciting universities – academically and architecturally – in Canada." (R. J. Baker, 1964)

What Simon Fraser University will be

"Says Stubbs: "If there is a word that I would like to think defines us, it is 'responsive'." Building on that philosophy,

Simon Fraser has achieved an academic prominence that matches its impressive physical setting." (Maclean's, 1996)

We must stay true to our roots. We had a vision and have stayed within it even as we have grown, developed new areas of expertise and faced challenges. It is time to recommit and let the past be our anchor as we move forward. We will be unique. We will be strong. We will strive to remain among the best universities in Canada.

The goal of this report is to direct the university: to establish clearly those attributes we wish to maintain and to propose mechanisms for doing so. Action rests in the hands of every one of us.

Submitted to the vice-president, academic, Dec. 3, 1996.

Appendix A

Ad hoc Committee on Planning Priorities

A. Mandate

1. To consult the Simon Fraser University community on the priorities to be assigned to the recommendations contained in the various reports of the President's Committee on University Planning.

2. To prepare, as a result of these consultations, a companion document to the final report of the PCUP prioritizing and outlining a strategy for implementing the PCUP's academic recommendations.

B. Membership

The ad hoc Committee on Planning Priorities will be appointed by the vice-president, academic. Membership will be composed of:

- the special assistant to the vice-president, academic (academic planning), chair;
- one faculty member from each of: applied sciences, business administration, education and science, nominated by the dean of each faculty;
- one faculty member from the humanities/creative arts disciplines of the faculty of arts nominated by the dean;
- one faculty member from the social sciences disciplines of the faculty of arts nominated by the dean;
- one member of the academic support staff nominated by the vice-president, academic;
- one member appointed by the vice-president, Harbour Centre/dean of continuing studies;
- one undergraduate student nominated by the SFSS;
- one graduate student nominated by the SFSS.

(Note: for these purposes "faculty member" includes chairs and directors.)

C. Reporting

The ad hoc committee will be convened as soon as possible and will submit its priorities/implementation document no later than Nov. 30, 1996.

The committee will submit its report to the vice-president, academic who, after appropriate consultation, will forward the report to the SCAP with his recommendations, for discussion and transmission to senate and the board.

Appendix B

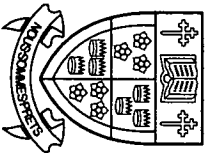
The committee chose a consultation process whereby we went to the community - calling special meetings in departments and units, with senior administrators and employee groups as well as three open meetings. Individuals were also invited to communicate at any time with any member of the committee.

Meeting schedule

July/August:	Continuing studies directors
Sept. 4:	Employment equity officer
Sept. 6:	Analytical studies
Sept. 9:	Academic computing services; director, campus community services
Sept. 10:	Director SCES/SFU program; associate vice-president, academic
Sept. 11:	Communications
Sept. 12:	Canadian Studies; English; psychology
Sept. 13:	Ceremonies
Sept. 16:	Biology; graduate liberal studies
Sept. 17:	Extension credit (1); chemistry
Sept. 18:	Gerontology; executive director, Harbour Centre
Sept. 19:	Computing science; linguistics; archaeology
Sept. 20:	Director, external relations; dean and associate dean, graduate studies
Sept. 23:	Mathematics and statistics
Sept. 24:	Centre for distance education; resource and environmental management; development office
Sept. 25:	Engineering science
Sept. 26:	French, humanities
Sept. 30:	Student services; archives; philosophy
Oct. 1:	Political science; dean and associate dean, applied sciences
Oct. 2:	Vice-president, research (1)
Oct. 3:	Physics
Oct. 7:	Education
Oct. 8:	Library
Oct. 9:	Senate committee on university budget
Oct. 10:	Chairs in arts; business administration; institute of molecular biology and biochemistry; centre for university teaching
Oct. 11:	Contemporary arts; dean and associate dean, business administration; dean of education
Oct. 15:	CUPE-3338; president
Oct. 16:	Women's studies
Oct. 21:	Open meeting (1); faculty human rights group; vice-president, Harbour Centre and continuing studies
Oct. 22:	Dean and associate deans, arts; sociology and anthropology
Oct. 24:	Finance and administration; kinesiology; geography; earth science; economics
Oct. 28:	Criminology; Simon Fraser Student Society; open meeting (2)
Oct. 30:	Extension credit (2); master's in publishing; open meeting (HC)
Oct. 31:	Harassment policy co-ordinator; history; TSSU; vice-president, academic
Nov. 1:	Media and public relations
Nov. 5:	Dean of science
Nov. 7:	Faculty association; chairs and directors of science
Nov. 13:	Vice-president, research (2)
Nov. 14:	Printing, duplicating and instructional media centre
Nov. 20:	Campus community services
Nov. 21:	Alumni association executive

Written comments were received from

B. Brandhorst, C. Conlin, C. Crawford, B. Crespi, A. Davison, J. Dean, P. Delaney, J. Einstein, B. Frisken, R. Goehring, R. Gruneau, H. Hammerly, P. Hobler, R. Holmes, G. Houghton, M. Howlett, M. Jackson, S. Jamieson-McLarmon, P. Kennedy, M. Kenny, A. McLaren, K. Mezei, M. Moore, C. Oehlschlager, R. K. Pomeroy, K. Pendakur, C. Reed, N. Reilly, K. Rieckhoff, R. Routledge, M. Selman, J. Simms, C. Swoveland, J. Van Snellenberg, G. Ward, T. Williams, P. Winne, B. Woods, M. Wortis. Vision and Voices: sfufa-forum e-mail discussion.



Simon Fraser University President's Committee on University Planning Final Report

Nous sommes prêts: Planning for a decade of change at Simon Fraser University

The Presidential Committee on University Planning (PCUP), and its two associated working groups on student services and instructional technology, were established by President Stubbs in 1994 to develop a strategic vision for the future of Simon Fraser University through dialogue with members of the University community. Five discussion papers and five reports have emerged from this planning process, as we have sought agreement around a common view of our future for the coming decade.

In parallel with our work, the President also is developing a mission statement for the University, with which our reports are consistent. In its short history, Simon Fraser University has achieved a great deal as an innovative and responsive institution providing high quality undergraduate and graduate education, and performing frontier research. But our environment continues to evolve, and the institution itself, and our reports identify many opportunities that may present themselves to SFU in the coming decade.

The planning groups have completed their work, and pass on to the University community, through its collegial processes, the responsibility for evaluating and implementing the strategic plan. As a first step, we are transmitting the overall planning document, *Nous sommes prêts*, to the President. We recommend that he ask the Vice-President, Academic to put in place a mechanism for a community-wide evaluation of the five planning reports as a framework for long-term University planning. This process should be undertaken in conjunction with short-term academic planning for the period beginning April 1, 1997. The results of this evaluation, the short-term planning proposals and the PCUP reports, should be submitted to the Senate and then the Board of Governors, for approval in the spring of 1997. We recommend that the Vice-President, Academic provide to the President in 1998, and then biennially, progress reports for discussion at Senate on success in achieving the objectives and implementing the strategies contained in the planning reports.

We wish to thank the hundreds of students, staff, faculty and members of the public who presented their ideas to us through approximately fifty public and dedicated meetings and through written correspondence. All members of the planning groups have developed a much deeper appreciation of the breadth and complexity of the University, and hope that this diversity is reflected in the recommendations of the reports.

The Presidential Committee on University Planning

- Greg Basham
Alumnus
- David Boal
University Planning Coordinator
- Annee Chande
Business Administration undergraduate student
- Dave Crouch
Kinesiology graduate student
- Jamal Deen
Engineering Science
- Lee Gavel
Facilities Management
- Judy Higham
Office of the Vice-President, Academic
- Jack Martin
Education
- Catherine Murray
Communication
- Carolynne Smart
Business Administration
- Mary-Ann Stouck
English
- John Stubbs
President

Preface

The Presidential Committee on University Planning (PCUP) has been charged with the task of providing a strategic plan to carry Simon Fraser University from 1996 to 2004. To engage the SFU community in debate about its future, PCUP has issued discussion papers dealing with undergraduate programs, graduate studies and research, and has developed an overall report that articulates a vision of the university and outlines several important measures to achieve that vision. After public hearings, the contents of the discussion papers, appropriately revised, were distributed as draft reports to the community for further comment.

The end results of this dialogue and debate are three reports:

- *The Undergraduate Program at Simon Fraser University*
- *Research and Graduate Studies at Simon Fraser University*
- *Nous sommes prêts: Planning for a decade of change at Simon Fraser University.*

In addition, two working groups associated with PCUP developed discussion papers and reports on instructional technology and services to students.

All of the discussion papers and reports were circulated to the SFU community through *Simon Fraser News*. Literally hundreds of students, staff, faculty, alumni and members of the public have contributed oral and written presentations to our planning process. We very much appreciate the time and effort that these individuals devoted to formulating and communicating their arguments.

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1. SFU's Role in Post-secondary Education

The President's Committee on University Planning (PCUP) has discussed at length the significance of the broad economic and organizational changes currently taking place at Canadian universities. These changes present universities with an important and difficult challenge: how can they accommodate the increasing need to be responsive to society while maintaining their commitment to the pursuit of knowledge and the exercise of critical thought? At the same time as they evolve with changing circumstances, all universities have in common the need to value and protect the diversity of their activities from the fluctuations of social fashion and political and economic change.

The discovery of knowledge in the traditionally defined liberal arts and sciences is, and will remain, one of the most important aspects of the education we offer our students at Simon Fraser. We have been successful in this regard for several decades, and there is no reason to decrease our emphasis on this area of learning and research. However, as publicly funded institutions, we have some responsibility to adjust the range of our degree programs as well as their content to reflect the realities of the economic environment in which our graduates must compete. It is our responsibility to society to equip our students not only with knowledge, and the ability to criticize it, but also with the applied skills needed to confront the pressing social, scientific and technological issues of our time.

What is the correct balance of activities at a University for the discovery, application and transmission of knowledge? There is no unique answer: the balance changes with time and the needs of society, and is influenced by many factors. PCUP does not favor the abandonment or diminution of our traditional strengths in arts and science; rather, we believe that we need to augment our roles, and that we are now a sufficiently large and robust institution that we can do so effectively. Our programs and research in arts and science should continue to evolve at the same time that we pursue new ways of discovering, transmitting and applying knowledge.

Post-secondary institutions are concerned with knowledge, and the knowledge-related activities at a research university, such as Simon Fraser University, are governed by several purposes:

- To create knowledge in answer to both fundamental and applied questions, and to discover new areas of knowledge through curiosity.
- To criticize existing knowledge and its interpretation, recognizing that technical and human intellectual limitations often prevent us from providing unambiguous answers to all questions.
- To communicate knowledge to the greater community, to our students, and to our colleagues.
- To preserve and synthesize knowledge through a process of collecting and interpreting related knowledge on a topic.

These roles are not the exclusive responsibilities of research universities, although other institutions and organizations generally concentrate on only a selection of the roles pursued at a research university. In particular, the function of criticism is most effectively carried out in the intellectually autonomous environment of a university.

The mandate of a modern university is neither that of a college, devoted primarily

turbulence and technological change that characterized the first half of the twentieth century. However, governments at all levels are addressing their accumulated debts with measures that will impact negatively on public sector institutions. Further, the pace of technological change is quickening as the use of computers extends well beyond the manipulation of numbers for scientific purposes and into the storage, transmission and manipulation of words, ideas, images and data in ways that affect our everyday life.

While the twin challenges of financial restraint and technological change face all institutions, there are other pressures that will affect Simon Fraser University in particular. The Lower Mainland of BC has experienced tremendous population growth in the last decade, and its population is projected to increase by a further one million residents over the next two decades. We have met the request for university education among the growing population of young adults in the communities surrounding our campuses, and, correspondingly, the average age of our students has fallen significantly. The strong demand for first degree programs will continue to be driven by local population growth for the next decade. At the same time, we must meet the requirements of mid-career individuals for continuing education and of degree-holders for post-baccalaureate programs, as both the private and public sectors restructure and respond to technological innovation and international competition.

What elements of teaching, research and community-building should Simon Fraser University emphasize? PCUP believes that the way we deliver programs and the quality of our faculty, staff and students are our most important characteristics, rather than the presence of specific courses or research specialties. Our defining features of excellence should include the following:

- Co-operative education
- Trimester operation
- Accessible instruction via the tutorial system and mentoring programs
- Innovative programs
- Excellence in graduate education and research
- Excellence in undergraduate education.

We provide a detailed discussion of each of these areas in Sections 2 - 4 of this report. Here, we give a short summary of our ideas.

Co-operative Education. While a principal aim of co-operative education is to allow a student to put into practice what is learned in the classroom, co-op programs have many secondary benefits as well, such as fostering strong links with the community outside the University and providing immediate feedback on our curricula. From the student's perspective, co-op also may provide financing for education, and permit work experience outside of BC or Canada. Numerical targets should be set, and resources allocated, to make SFU's co-op program the largest in western Canada and one of the largest and best in Canada.

Trimester operation. An important aspect of student accessibility, the trimester system at SFU is almost unique in Canada. While part-time and co-op education students

clearly benefit from year-round course offerings, student accessibility in general is improved through the year-round usage of our buildings and facilities. However, improvements still need to be made in course scheduling, and the University should attempt to distribute the offering of upper division courses evenly throughout the year.

An accessible learning environment. The tutorial system and mentoring programs are important components of the accessible learning environment at SFU, providing direct interaction between learner and instructor. Our pedestrian-oriented campus, and the use of electronic communication, also encourage community-building and communication among students, staff and faculty. Orientation programs assist students in transferring from high schools and colleges to our institution. We must innovate continually to improve the learning environment.

Innovative programs. The world's knowledge base, and society's knowledge needs, evolve with time. The intellectual foundation of traditional disciplines is dynamic, and new areas of study, perhaps called interdisciplinary for historical reasons, continue to be established. We must encourage the development of these new fields while retaining the solid disciplinary bases fundamental to our programs. Further, the cross-cultural nature of the student population at our institution presents opportunities to broaden our teaching methodologies, enhance our curriculum and bring new emphasis to our knowledge-based activities.

Excellence in graduate education. The role of SFU cannot be overstated, and all faculty should contribute to this role. High standards for faculty appointments and graduate student admissions are vital to research excellence. In many disciplines, the recruitment of outstanding students in the national and international arenas requires extensive scholarship programs, the availability of teaching opportunities and modern research facilities. All of these aspects of research excellence need ongoing attention.

Excellence in undergraduate education. SFU has developed an enviable reputation for excellence in undergraduate education based, in part, on many of the features listed above: co-operative education, trimester operation, accessibility and innovation. Our attention to the learning environment through the use of the tutorial system, for example, considerably enhances the undergraduate experience at SFU. We must maintain high standards of teaching excellence through the reward system and support for innovative teaching.

During the next decade our funding situation will continue to oscillate as it has done in the past: the financial retrenchment of the early 1980s or mid-1990s is no more permanent a condition than the budgetary expansion of the mid-1970s and late 1980s. In times of plenty, we should not support mediocre or inefficient programs simply because we are not under financial stress. Similarly, in lean times, we should develop ideas for new projects that can be implemented once funding is again more plentiful.

Innovation and excellence require a resource allocation mechanism that rewards experimentation, program evolution, and productivity in teaching and research. In Sec. 4 of this report, we propose administrative measures that will enhance the fluidity of the University budget and of the allocation of personnel. In addition to modifying the budget allocation mechanism, the University should remove unnecessary

administrative hurdles to new program approval, and should develop mechanisms to terminate low quality or unproductive programs.

In short, change is both upon us, and required of us, and we must adopt a planning framework that will allow hard decisions to be made in compatible ways for the health of the University. We must live up to our motto, *Nous sommes prêts*.

2. Strategies for change

To each of our main activities at SFU - teaching, discovering and community building - we have ascribed four general characteristics for which we wish to be known: excellent, innovative, cooperative and supportive. In this section, each of the activities is taken in turn, and strategies are presented that will help us achieve or maintain those characteristics. Most of the strategies presented here apply across the University, although the implementation of the strategies may require action at many different academic and/or administrative levels. In addition, there are several topics for which we have developed more detailed strategies, and these topics are presented in Sections 3 and 4.

2.1 Teaching and Learning

Excellence

The University should ensure that programs contain up-to-date curricula, which should be reviewed at both the course and program level every two years. Departments should coordinate course offerings, particularly in the upper division, so that material can be offered with reasonable frequency to classes of reasonable enrolment. The SCIMO recommendations on teaching credit for small enrolment courses, and our recommendation in Sec. 4 for resource allocation according to productivity in teaching research, are two policies that should encourage departments to reduce overlap and streamline their course offerings.

Lectures, seminars, tutorials and laboratories should be taught in an engaging and interactive manner that promotes critical analysis and independent learning. If there is to be good contact between student and instructor, attention must be paid to the physical learning environment. As expressed in surveys of opinion on class size, students show a marked preference for tutorials, seminars and small lectures. Departments and Faculties should take steps to eliminate very large classes where the format is judged inappropriate.

Faculty remain the primary individuals responsible for preparing and delivering courses. All faculty should be part of the teaching process, and the University should set a standard for the minimum number of courses to be taught by full-time faculty, unless they are on secondment or study leave, or have very onerous administrative or service duties. Initiatives now being taken on this issue at SFU propose the adoption of three regular courses per year as the minimum teaching load, with the average teaching load clearly being higher than the minimum. We believe that the route being followed by some smaller universities in allowing highly differentiated teaching loads will ultimately prove destructive to morale. Spreading teaching responsibilities more uniformly across faculty will expose students to talented teachers at all levels of their study and will strengthen the teaching and learning environment. Ultimately, it is the staff and programs by which undergraduate

students judge their university, and the University must recognize and value the talents of excellent teachers.

It is an old aphorism that students learn as much from their peers as from their professors. To improve the peer aspect of the learning environment, SFU should recruit a highly qualified student body at both the undergraduate and graduate level. This task can be helped administratively through high school liaison, through local, national and international recruitment of outstanding students, and through the presence of an extensive scholarship and bursary program for both undergraduate and graduate students. Graduate student admission standards also may have to be adjusted to reflect the financial resources and employment opportunities (such as teaching assistantships) available to students.

Innovation and flexibility

Flexible course delivery at SFU is manifested in several ways: trimester operation allows courses to be taught several times during the year and the operation of two campuses and a Centre for Distance Education provides for the education of students at many different geographical locations. A flexible learning schedule can both decrease the time to degree completion, and allow greater accessibility for part-time students. Such modes of course delivery need to be preserved and extended through innovative scheduling (for example, six-week course modules may be effective in specific situations).

Flexible delivery will be enhanced as well by the growing use of instructional technology to supplement or complement existing teaching methodologies. Appropriately used, such technologies will allow more interactive and independent learning for the student. On the teaching side, limited use of talented non-academic instructors with extensive applied experience may be an appropriate way to bring into the classroom new developments from outside of the academic world.

It is frequently observed that curriculum change proceeds at glacial speed in a university. While there may be bona fide academic reasons for proceeding carefully

with controversial or far-reaching decisions, there is no need for the administrative approval structure by itself to contribute to the slowness of change. Many aspects of course and program change really do not require oversight from Senate, and approval procedures involving Senate should be reviewed with a view to containing minor paperwork at the Faculty level, leaving Senate to deal with broader issues and take more initiatives requiring University-level intervention. We applaud the efforts of Senate to streamline its committee structure and responsibilities, particularly the Senate Committee on Academic Planning.

Knowledge breadth is increasingly important both with the evolution of traditional disciplines, and with the emergence of interdisciplinary studies. Every effort should be made to reduce barriers against students taking courses outside of their core discipline, and the University should consider a breadth requirement that 20% of a student's "elective" courses be taken outside of the Faculty offering the degree. Ideally, students should take at least one course from each Faculty. To implement this requirement, some Faculties will have to develop courses that are of popular interest and have few prerequisites, yet are delivered at a level of difficulty expected at a university.

The public demands that post-secondary institutions be accountable to society by preparing graduates for future employment, and, in the current climate of economic uncertainty, SFU cannot ignore the need to be sensitive to this demand. While there is no pressure from employers for the wholesale reorganization of degree programs, there is sometimes the observation that university graduates have insufficient workplace skills. Proficiency standards in written and verbal communications, computer use, and interpretation and presentation of numerical information should be established for undergraduate students. The budgetary responsibility for offering non-credit courses to develop such skills lies with the University, and should not be shifted to the departments delivering the courses. Development of these skills is in no way antithetical to the definition of a high quality undergraduate education.

Universities are distinguished from colleges by their research activities and graduate programs. Undergraduates should be exposed to this research environment from the first year onwards through a variety of means that may vary according to the discipline. For example, 1 or 2 credit undergraduate research courses could be offered at the first or second year level, and might include one or more of the following topics: introduction to the research frontier of a discipline, research methodology, and field research. These courses, which may feature guest lecturers from outside the university, also could be used to improve undergraduate communication skills by emphasizing presentations by students through seminars. At the upper division, honours theses also provide a mechanism for involving undergraduate students with the research aspects of the university.

Cooperation and responsiveness

Good communication between town and gown is mutually beneficial, leading to a better understanding of each other's capabilities and needs. Such communication can be fostered through the use of external liaison committees at the Faculty and departmental level, whose membership should include alumni, employers, and representatives from related instructional and research organizations. Partnerships with related institutions should be encouraged, particularly the joint offering of courses and programs in disciplines with limited enrolment demand. The two-way flow of personnel should be encouraged through the use of adjunct appointments and research internships. As discussed further in Sec. 4.2, the involvement of individuals from outside of the traditional academic community may be beneficial to the program review process. Partnerships with post-secondary institutions outside of Canada also may provide opportunities for new program development.

SFU's trimester operation, demanding as it is of teaching resources, has allowed us to develop one of the larger co-operative education programs in Canada. co-op programs provide excellent educational experiences for students, and also facilitate communication with those who ultimately employ our graduates. Although financial pressures have forced a reduction in trimester operation elsewhere, PCUP strongly supports the continuation of the trimester system at SFU, in part because of its importance to undergraduate co-op programs. New opportunities also should be sought for graduate co-operative education, particularly at the master's level.

Support

Providing a supportive environment for our teaching and learning activities has many aspects. In this section, we discuss the nature of our teaching methodologies and the support necessary to make them effective. We also comment on several aspects of student services raised in the report of the Working Group on Services to Students. Lastly, we review the financial support available to defray student tuition.

The tutorial system for undergraduate courses is currently one of the main supplements to the traditional lecture method, and is very highly valued by students. Its preservation in times of financial stress not only makes good pedagogical sense, but also provides graduate students with a source of income and a means of gaining teaching experience. Faculty require support for innovative teaching and components of this support include The Centre for University Teaching and sources of innovation funds for teaching (see Sec. 4.2). Departments also should recognize the time required for faculty to overhaul outdated courses and to develop supplementary material for new courses.

Students easily can become anonymous in a mid- to large-sized university: younger students entering directly from Grade 12 and students from different cultures often find the transition to university life to be difficult. Likewise, the transition from the university to the world of work can be challenging. Orientation programs should be expanded, and should include final-year

transition programs. Mentoring programs involving faculty, staff and senior undergraduate and graduate students should be established, although it must be recognized that such programs will increase faculty and staff workloads.

Where possible, information technology should be used to facilitate student access to campus information, and allow student service personnel to devote more of their time to tasks requiring face-to-face interaction. For example, an on-line information service could contain information on academic advising, the SFU Calendar, and updates on course enrolment status. Similarly, on-line registration initially could complement and eventually replace tele-registration.

In times of increasing tuition fees, the financial resources available for undergraduate and graduate student support become very important. SFU already has an excellent record for the fraction of its operating budget devoted to scholarships and bursaries. However, given the likelihood of tuition increases, it is important both to increase the amount available for scholarships and to establish funding on an ongoing basis independent of the provincial budget to the University. Although private donations provide one source of scholarship revenue, such donations are directed towards projects of interest to the donor, which may not include scholarships as a priority. PCUP recommends that SFU commit a substantial fraction of private resources to which it has direct control, such as the anticipated lease revenue from lands on Burnaby Mountain, to the direct benefit of students for accessibility and support.

Of course, the main source of financial support for university education is the operating budget provided by the provincial government. PCUP has heard conflicting opinion as to whether too much or too little of the provincial grant is directed towards graduate studies. In PCUP's Graduate Studies and Research at Simon Fraser University, it is recommended that the University attempt to quantify the costs of providing graduate education. We recognize that this is no easy task, given that facilities may play dual roles in graduate education and faculty research, and that some aspects of graduate work in research degree programs contribute to the University's mission of discovering knowledge. However, as a guiding principle, PCUP believes that graduate and undergraduate students should pay approximately the same share of their net education costs. Lastly, departments and Faculty deans, together with the Dean of Graduate Studies, should work together to maintain a graduate enrolment level that is commensurate with available financial and personnel resources.

2.2 Research

As distinct from the growing number of undergraduate colleges and institutes in BC, Simon Fraser University is one of only four post-secondary institutions that receive extensive funding for research and graduate studies. An essential part of our mandate, research will grow in importance in the coming decade, as colleges share some of the undergraduate teaching responsibilities formerly the exclusive domain of the universities. In academic disciplines, research and graduate studies exist in diverse relationships. Many graduate degrees are research-based, and students in these programs are active in the University's research efforts. In this section we discuss only the research aspects of graduate studies; the educational aspects are dealt with in Sec. 2.1.

Excellence

Complementary to our declaration in Sec. 2.1 that all faculty should carry a minimum teaching load, we also believe that all faculty should participate in the scholarly efforts of the University. Normally, this would involve research activity leading to disclosure of results through peer-reviewed publications or patents, or through peer-reviewed public performances and exhibitions in disciplines such as fine and performing arts. Promotion to the rank of full professor requires that a faculty member have a nationally recognized profile in research. Research excellence will be furthered by applying rigorous evaluation of research achievements during regular salary reviews and during tenure and promotion decisions.

By definition, the research frontier constantly advances. Researchers at any university can be active in only a limited number of areas, yet it is important for faculty and graduate students to keep abreast of developments in many topics both related and unrelated to their research specialty. The presence of visiting scholars at SFU should be much stronger than it is now in many departments, and financial resources should be directed from the University to remedy this.

The financial resources available to graduate students, including scholarships and employment opportunities through teaching, are of concern to the graduate student population and to PCUP. In some disciplines, steps may need to be taken, either through redirection of resources or through more restrictive admissions, to match graduate enrolment with the resources available to the student. However, the total graduate enrolment is in rough equilibrium with the financial resources available to the University for the provision of graduate education, and SFU should encourage the development and expansion of high-quality graduate programs. PCUP foresees increasing demand for course-based professional programs at the post-baccalaureate level, some of which may be largely self-funding, and not all of which may lead to an advanced degree. SFU should not force the growth of graduate programs while sacrificing quality; however, if the graduate student population, including professional master's degrees, fails to increase modestly to 15% of the total student population by the year 2000, the

University should re-evaluate whether policies are required to stimulate enrolment growth.

Innovation and flexibility

Granting agencies continue to emphasize collaborative and applied projects. Increasingly, research projects that are dependent on personnel or equipment for their successful conclusion, must look towards collaboration with industry and/or other public sector institutions. Cross appointments for researchers, including adjunct professorships for external researchers, and appointments for SFU researchers in external research organizations, will form a part of the flexible environment needed to foster such collaboration. Recognizing recent advances at the boundaries of traditional disciplines, cross appointments within SFU also should be encouraged.

Scholarly work in areas such as curriculum development also may constitute valid research in some situations. To be considered as research, curriculum development must go considerably beyond lecture preparation, and involve the production of substantive material that is placed in the public domain, open to critique, and useful to colleagues. The peer evaluation of such material must be done in a rigorous and appropriate manner: the material must be subject to a critical examination of its conceptual foundations and of its demonstrated benefits in real teaching and learning situations. Comparative measures and standards must be established to ensure that such work meets exactly the same high standards as more traditional scholarship.

More effort must be paid to introducing undergraduates to the research environment. Part of the solution lies with undergraduate research seminars (Sec. 2.1). Another component is the increased involvement of senior undergraduates in research projects, such as honours thesis projects.

Cooperation and responsiveness

External liaison councils should be established to identify research opportunities at the departmental level, as part of the liaison committee structure recommended in Sec. 2.1. PCUP is aware that such committees may not be practical in all disciplines or for some small departments. The purpose of these groups is not to direct research, but rather to enhance the dialogue with individuals outside of the academic environment. As appropriate, the membership of liaison committees should be coordinated through the co-op office and/or the University/Industry Liaison Office in order to increase the likelihood of employer participation.

Applied and commercial research contracts are common at universities and the diversification of the research base into applied areas probably is healthy. Among its many benefits, applied research enhances our communication with public and private sector organizations. However, we need constantly to remind ourselves of our responsibility to undertake and support research that advances fundamental knowledge and to take seriously the University's mandate for the critical analysis

of knowledge claims.

Support

The University provides faculty with one semester per year to pursue their scholarly work without the duties of teaching. Additional time for scholarly work is provided through study leaves. Further support for recently hired faculty who are embarking on a new career may take the form of a reduced teaching load, a start-up grant, or freedom from committee work, depending on the norms of the discipline. We see no need to augment the existing University financial support for ongoing research: salaries are the largest components of university budgets, and an increase in internal financial support for research most likely would result in a reduction in the number of faculty or teaching staff. The issue of financial support for graduate students is addressed in the previous subsection, and in Sec. 2.1.

Two contentious issues that PCUP debated, but did not resolve, are the need for a University Research Professorship program and the necessity of removing the salary ceiling in order to attract faculty in areas of high demand, including professional programs. We acknowledge that differences may exist between professional programs and traditional disciplines in terms of goals, values and modes of operation. Several Canadian universities, including Queen's and Calgary, are considering novel ways of reducing this tension through the privatization of certain programs. For example, the University might consider transferring a program to a company with SFU as the majority shareholder that is delivering the program through a university-owned company. Academic employees of the company would not be subject to the employment conditions - including salary restrictions and tenure - of the University. Certainly, the privatization of programs is a difficult and complex issue, but it may allow SFU to address a number of long-standing conflicts.

2.3 Building Community

With its dramatic location atop Burnaby Mountain, surrounded by park, residential and industrial land, Simon Fraser University has not developed a conventional campus community. Instead, our community is geographically distributed, and includes a specialized campus in downtown Vancouver and delivery of selected programs at locations throughout the province. To help link this community, Simon Fraser University offers extensive computer-based communication to all of its students, staff and faculty. The tentative agreement reached with the City of Burnaby on the usage of Burnaby Mountain will provide for the retention of a large urban forest, yet may lead to substantial residential construction - both student residences and private housing - which ultimately may accommodate up to ten thousand people on Burnaby Mountain in addition to four-to-five thousand students in residence.

What characteristics do we wish to see for our new on-campus community and our extended community? Physically, Burnaby Mountain no longer will be just a place to work and study: there will be a permanent, dynamic and vibrant community on campus

at all hours. The layout of the commercial and private housing developments on campus should encourage the involvement of the residential population in the academic life at SFU. The provincial presence of SFU will continue, of course, with the expansion of Harbour Centre and the rapidly growing use of information technology for communication and course delivery. But a community has more attributes than its geographical location, and the Report from the Working Group on Services to Students presents a vision of the broader aspects of an academic community. Here, we extend several of the ideas from that report.

The academic community at SFU must function in such a way that the excellence of the University's activities and the positive interaction among its members are promoted. Among its attributes, the community should seek to be:

Purposeful – a community in which faculty, staff and students share academic goals and work to strengthen teaching, learning and discovery.

Inclusive – a community in which freedom of expression in both teaching and research is protected, where the tendency to specialization is counterbalanced by an appreciation of diversity.

Just – a community in which individuals accept their obligations to the group and where well-defined governance procedures at all administrative levels allow debate to conclude effective and timely decisions for the common good.

Caring – internally, a community that values the well-being of each member, and externally, a community that seeks to enhance the function of society through discovery and education.

Celebrative – a community in which the heritage and achievements of SFU and its many communities are remembered and where rituals affirm tradition, change and transition.

Many actions can be taken by the SFU community to achieve these aspirations. As with our discussion of teaching and research, we group our recommendations for change according to the organizing principles of innovation, cooperation and support.

Innovation and flexibility

All universities actively encourage contact and discourse with a diverse community external to the traditional academy - a community that includes alumni, employers, the general public and members of other educational and research institutions. Good communication is necessary for building community, and SFU has a history of innovation in the development of electronic communication as a key tool in bridging the physical gap between its members at both campuses and other locations. The Working Group on Instructional Technology and Academic Computing has mapped out a strategy for improved network capacity that will enhance electronic communication for our geographically distributed community. With the rapid development of information technology, it is certain that this form of communication will become both increasingly important and pervasive in the

coming five to ten years.

Through the publication of SFNews and other services, SFU's Department of Media and Public Relations is pivotal in providing employees, students and the public at large with current information on developments at SFU. Another publication that maintains links with our community is the Alumni Journal. PCUP sees an increasing role for alumni, not only because of the feedback that they provide on their experience at SFU, but also because, through activities such as their mentoring program and membership on liaison boards, they contribute to the maintenance of communication with employers of our future graduates. Continuing efforts should be made to involve our international alumni in a variety of roles, including mentoring our students and furthering SFU's presence outside of Canada.

PCUP has recommended that SFU build innovative linkages and partnerships with other institutions to help fulfill and extend our teaching and research roles. Several administrative ingredients, as well as a positive attitude to change within the academy, are necessary for the promotion of institutional linkages. The University must streamline its program approval mechanisms to permit the efficient and effective building of partnerships. The pursuit of such partnerships should not be haphazard, and must be done within the context of the academic mission of the University. Because the enrolment base of some disciplines never may be large enough at SFU to permit the offering of a conventional academic program, the University should encourage partnerships with other post-secondary institutions for the joint sponsorship of high-quality programs in these areas, especially where the programs take advantage of SFU's core competencies. Developing partnerships and enhancing communication are costly, but necessary, activities that should be eligible for innovation funds from the University.

Co-operation and responsiveness

PCUP frequently stresses the need for improved and continuing dialogue with the broader community beyond the academic population of SFU. The establishment of liaison boards at the Faculty level, and the greater involvement of alumni, have been proposed as mechanisms for maintaining this dialogue. Complementary to improved communication with employers, there needs to be continuing interchange with practitioners external to SFU. Frequent colloquia and the encouragement of sabbatical visitors are obvious components of that interchange. SFU also should investigate the "in-residence" approach to scholarly exchange, examples being writers-in-residence and executives-in-residence. To be effective, such programs require construction of on-campus residential facilities for visiting faculty. PCUP also sees a need to encourage longer-term exchange of research personnel with external research organizations, which can be encouraged through continued development of facilities such as Discovery Park.

Support

Currently, the physical facilities for building an on-campus community are very limited. Projects that deserve attention include:

- expanded student residences with adequate facilities for community-based activities
- accommodation specifically built for visiting scholars
- improved athletic facilities
- multi-purpose community space for recreational, cultural and spiritual needs
- museums and other facilities of public interest.

Funding for these facilities must be sought from a variety of sources and imaginative approaches to new funding partnerships should be explored actively.

Public performances, popular lectures and displays of art are all activities that SFU should undertake as part of its links with the non-academic community. One example of public community building that has been very successful is the summer camps for children run by the Athletics Department. As the permanent population on Burnaby Mountain grows, there will be an increased audience for an expanded Open House and scheduled events on weekends. However, transportation and parking issues must be addressed if these outreach efforts are to be successful. For example, surely there would be minimal revenue loss to the University by allowing free parking on weekends.

The SFU community must be concerned with more than the narrow educational requirements of its members. For many students, particularly at the undergraduate level, a university education involves the search for a deeper understanding of the human and natural world, an understanding that is relevant to the challenges of everyday life. The provision of student services, and of non-academic facilities, should recognize this dimension of the University.

The work environment at SFU also deserves continuing attention. Staff are expected to contribute to the University as professionals, and deserve to work in a supportive climate, even in times of budgetary stress. Faculty may find themselves in implicit or explicit supervisory roles with respect to staff, including professional staff, and such roles need to be defined clearly: staff deserve professional management. Staff also should be encouraged to play a larger role in the university life of our students. Finally, the University should continue to provide support, on a competitive basis, for an employee's professional growth. PCUP notes the recent commitment of the University to staff training and development. As with most employers today, SFU must find new, primarily non-monetary, ways to recognize, reward and revitalize the commitment of its faculty and staff.

Because of our flexible course scheduling, the sense of community associated with cohort learning is largely absent at SFU. While not a substitute for cohort-based programs, celebrations can be used to facilitate student interaction, and generate a sense of passage. Celebrations at the first year and graduating year are probably most effective, and are a natural part of transition programs. In the classroom, it may be possible to devise academic activities to

encourage interaction among students.

Further, mentoring programs involving faculty and alumni are excellent vehicles for fostering a sense of community among undergraduates. SFU has the potential to build a strong and distinctive alumni mentoring program that will make the University attractive to students. Lastly, intramural activities at all levels contribute to building community.

2.4 The SFU Degree

Any university should have an institutional and educational philosophy that is widely known to its students, staff and faculty. The philosophy is important to students when they evaluate the suitability of prospective institutions for their studies, when they face academic decisions as they progress through their programs, and when they complete their programs and enter the working world. The philosophy is important to faculty and staff as they design programs and courses, as they evaluate teaching methodology, as they appraise the proficiencies of their students, and as they judge the success of their own teaching endeavors.

PCUP proposes several principles to guide and enhance the undergraduate experience. Students coming to SFU and remaining in good academic standing should expect:

- to be welcomed in the academic community at SFU,
- to learn in a research and teaching environment with excellent faculty and staff,
- to have their knowledge and skills evaluated fairly,
- to have co-operative education as an option in their academic program,
- to have an option in their undergraduate program which prepares them for graduate studies in their academic area,
- to be able to proceed through their academic program in an acceptable time,
- to have adequate study space, library and community resources on campus,
- to find a helpful academic, technical and administrative support environment.

Obtaining a university degree represents a considerable financial investment on the part of the student and the taxpayers who subsidize post-secondary education. All parties to the education process - students, staff, faculty, government - as well as employers and professional associations who use the university degree as a qualification benchmark, should know the value of a university's academic programs.

Holders of an SFU undergraduate degree should have:

- a thorough knowledge of at least one academic discipline,
- the ability to analyse critically and solve problems,
- a set of broadly applicable capabilities in written and verbal communications, computer use, and interpretation and presentation of numerical information,
- an introduction to research,
- the basic skills, knowledge and attitudes necessary for life-long learning,
- the ability to work independently and in a team environment.

Holders of an SFU master's degree should have:

- a high level of knowledge in their field of study that goes considerably beyond undergraduate education,
- a thorough knowledge of research methods appropriate to their discipline, if they are in research degree programs,
- a level of expertise which prepares them for employment in their specialty, if they are in professional degree programs.

Holders of an SFU doctoral degree should have:

- the ability to perform advanced, independent research,
- a thorough knowledge of the intellectual frontier in their subject area,
- sufficient skill and experience to teach or transfer their knowledge effectively.

3.2 New Programs

The academic programs of Simon Fraser University emphasize the core liberal arts and sciences, and also include offerings in applied science, business and education. Further, SFU has promoted interdisciplinary studies that encourage the evolution of traditional disciplines. Given that the total FTE enrolment at SFU is now about 15,000, typical of a mid-size Canadian university, it is appropriate to ask whether the existing program mix is the most suitable one for our current and expected student population. As shown in Table 2 of the Appendix, SFU has programs in all of the large occupational groups requiring post-secondary education, except nursing. Although SFU also has many programs in occupations that employ less than 2,000 people in BC (biologists and practising psychologists, for example), we do not have programs in a number of professionally regulated occupations that require a university education and that employ more than 2,000 people in BC. What is the employment demand for graduates, and the student demand for classroom seats, in those major disciplines not currently offered at SFU?

Because a new program developed at SFU likely would emphasize different aspects of a discipline than may be found in long-established programs elsewhere, it is difficult to obtain a precise estimate of student enrolment. However, our first concern is whether the enrolment would be above the threshold for program viability, and this is somewhat easier to estimate. Given our traditional "market share" of BC undergraduate students, if a new program at SFU is to have an annual graduation rate of 50 students, then the provincial employment level for graduates of that program should be about 4,000 (see PCUP's The Undergraduate Program at Simon Fraser University). A number of occupations with this employment level can be identified in Table 2, and include engineering, nursing, planning/design, physio-occupational therapy and social work. The enrolment in these programs at a typical Canadian university with 16,000 FTE undergraduates is: engineering (1300), nursing (430), planning/design (290), physio-occupational therapy (270) and social work (220). Each of these areas is likely to have an enrolment above the threshold for sustaining a viable program at Simon Fraser University.

A measure of the market demand for university degree-holders is the unemployment rate among graduates. A survey by Statistics Canada of the unemployment rate in 1992 of degree-holders who graduated in 1990 is given in Table 3. Of new program areas we might consider for expansion, engineering and applied science show average unemployment rates for university graduates, while degree-holders in health sciences show the lowest unemployment rates.

PCUP recommends that feasibility studies be undertaken on the establishment of several new undergraduate professional programs. The studies could be undertaken by departments, schools, Faculties or Senate. Determining the priority for developing each new discipline would be one objective of the feasibility studies, as would the assessment of student and employment

demand for the programs. On the basis of employment opportunities and analysis of student demand, examples of candidate programs may include innovative and niche areas in such traditional fields as social work, physio/occupational therapy, nursing and engineering, as well as emerging areas such as planning/design, management of cultural organizations and technology management. New approaches to professional programs involving a five-year combined undergraduate and master's degree also should be considered.

A crude estimate of the operating costs of the example programs listed in the previous paragraphs is presented in PCUP's The Undergraduate Program at Simon Fraser University. The lower division courses in new and existing undergraduate professional programs should draw heavily on, and not duplicate, existing courses in the arts and sciences. Where appropriate, Faculties also should review their existing programs to ensure that their graduates are properly prepared for current or emerging standards of practice in occupations close to their academic discipline.

Over the next decade, we expect that enrolment in conventional research-based graduate degrees will continue to reflect the number of faculty available to supervise research, and will not change dramatically unless the faculty complement does. However, PCUP anticipates rising demand for course-based professional master's degrees, which need not be extensions of undergraduate programs. While difficult to identify specific subject areas for expansion of graduate programs, both because the enrolments are small and because topical research areas evolve rapidly, PCUP believes that there are considerable opportunities in interdisciplinary subject areas at both the undergraduate and graduate level, such as

- software and systems engineering
- environmental engineering
- management of technology
- planning and design
- cultural studies
- public policy analysis
- interdisciplinary programs in biology, chemistry, physics and engineering science
- health-related programs.

There are also opportunities in new approaches to traditional disciplines, an example being SFU's master's in liberal studies.

Both new and existing programs at Simon Fraser University should strive to have desirable characteristics not found in programs elsewhere in BC. Further, new programs chosen for development should be consistent with the academic mission of the University, and should emphasize:

- strong academic foundations
- adaptability to changing professional requirements
- co-operative education
- interdisciplinary studies.

Some programs may best be offered through a separate subsidiary of the University, as discussed in Sec. 2.2. It may also be advantageous to use clinical professorships in these and other programs.

3. New Directions

The recommendations in Sec. 2 are general and apply across the University. PCUP has given considerable thought to two specific issues, namely Cooperative Education and the need to modify or expand the program base. We summarize here, the somewhat detailed recommendations relating to these two issues.

3.1 Co-operative Education and Trimester Operation

Students, employers and governments consistently rank co-operative education as a very important feature of post-secondary programs. SFU's trimester operation and urban location provide the bases for a co-operative education option in many programs. In 1993-94, SFU had the fourth largest number of co-op placements nationally (1560), following Waterloo (8100), Sherbrooke (3020) and Victoria (2140). In all Faculties except Arts, there is approximately one co-op placement per year for every four FTE undergraduates.

There is strong opinion within the SFU community that co-operative education should be one of the hallmarks of the University, and PCUP recommends that steps be taken to expand co-operative education at both the graduate and undergraduate levels. SFU has a co-op administrative infrastructure that includes placement officers and advisory boards, and this administrative structure can be used to identify and establish new co-op programs. Particular attention should be given to the development of co-op in the Faculty of Arts, in which the student participation rate is much lower than the participation rates in other Faculties.

The co-op advisory board supports the expansion of co-op in graduate, particularly master's, programs. While the type of infrastructure needed to support graduate co-op is already in place, greater faculty involvement will be necessary to help identify and supervise suitable projects. The establishment of graduate co-op should be helped by the presence of liaison committees and the increased flow of research personnel between SFU and other institutions, as recommended elsewhere in this report.

There are many ways in which the functioning of co-op options could be improved in undergraduate programs:

- Departments should adopt at least one co-op sequence in their course scheduling.
- Targets for increasing the number of co-op placements should be set and staff resources should be allocated in accordance with those targets. For example, it may be feasible to double the number of co-op placements over a period

of five years. The number of co-op staff per placement should be brought in line with competing institutions.

- Resources should be devoted to raising the number of inter-provincial and international co-op placements.

The flexibility of the trimester system offers significant challenges to course scheduling, and often presents a bewildering array of options to the incoming student. The SCIMO report has identified, and presented possible solutions to, these challenges, but the implementation of the proposed solutions is incomplete. Efforts should be made to streamline programs and reduce the number of low enrolment courses while maintaining the same graduation rates. There are a number of simple actions that could be taken to reduce scheduling conflicts:

- The scheduling of courses offered by one academic unit, but required in the program of another, should be coordinated between units.
- "Same year" co-requisites should be disallowed in upper division courses except in special circumstances.
- Departments and Faculties should identify related courses in other academic units that could be used as alternate co-requisites.
- Departments and Faculties could define a core course sequence for each program, and publish a guide in the Calendar for completing the sequence in 8 study-semester.
- The University could implement a variant of block scheduling.

4. The Operation of the University

PCUP has recommended that excellence should be one of the four defining characteristics of Simon Fraser University. Achieving and maintaining excellence is not a simple exercise: it requires fair assessment of the quality of students, programs and personnel, a budget that rewards innovation and productivity, and mechanisms for dealing with programs that fail to meet the criteria for continuation. While there are policies already in place to review faculty, student and program performance, there remains room for improvement, particularly in the means for allocating the budget.

4.1 Assessment and Accountability

The performance of students and faculty is evaluated regularly at Simon Fraser University. Students who fail to meet the performance standards of the University are asked to withdraw; tenured faculty who no longer meet performance expectations have their salaries frozen and may be dismissed in extreme situations. However, procedures for assessment of administrative and support staff need to be established in a similar way as they are for students and faculty. Indeed, the institution as a whole should evaluate its performance by regularly measuring student and employee satisfaction. A further weakness in our current assessment system lies in the evaluation of programs.

Even though program quality is evaluated periodically at SFU by review panels drawn from peer institutions, the reviews more than occasionally tend to focus on the research success of the faculty, rather than the attributes of the program. While the membership of a review panel must have strong representation from experts in the discipline, there also should be representation from the constituencies that employ graduates of programs. A review should include an evaluation of the performance of the personnel in the program and the faculty level as evidenced by the availability and quality of courses and, in the case of graduate programs, colloquia. Further, the evaluation of program excellence should not be exclusively academic (i.e., number of scholarship winners) but should reflect the desirability of entry to the program (through the number of applicants) and the demand for graduates of the program (through the success of graduates in obtaining employment upon degree-completion, for example). Once a program has been assessed, the recommendations of the review should be acted upon.

If these reviews are to have credibility, nationally applicable indicators must be established and used to assess the quality of an academic program. PCUP recommends that SFU participate fully in the development of such indicators. Further, the stake-holders in SFU's operation should be provided with an annual report that not only rejoices in our achievements, but also summarizes the reviews carried out in the preceding year, and the steps taken to deal with shortcomings pointed out in the reviews. The time between successive evaluations of a given program, currently more than four years, may be too long; the University should consider shortening this time frame, particularly in those instances where an external review has pointed out serious deficiencies.

Finally, in the face of ever growing demands on the time of all members of our community to meet their obligations for teaching, research, learning, support and service, PCUP suggests that the University take a serious look at the time and resources

devoted to collegial institutional government. Do we really need all of the committees that exist at SFU? Could we significantly reduce the numbers and sizes of the committees? Could we entrust more responsibility and accountability to individuals who serve on committees and/or assume administrative responsibilities? How could we evaluate and recognize such activities?

4.2 Unfreezing the Budget

PCUP has heard complaints that the course and program approval process is time-consuming and leads to lengthy delays in establishing new programs. While PCUP appreciates that the approval process could be streamlined, we believe that a greater problem lies in the budget allocation process. There need to be continuing and clearly identified mechanisms in the budget to support innovation and reward productivity in research and teaching at the Faculty level. The budget must be made more fluid.

We propose two changes to the way resource allocation is currently handled at the University:

- (i) Continuing faculty positions should be allocated to Faculties largely according to productivity in teaching and research, as outlined below. Support staff positions and other Faculty resources required for discipline-specific purposes would continue to be distributed using current mechanisms.
- (ii) Funds should be available for innovation in new and existing programs. We propose that the University permit sufficient budget reallocation every year to allow for the possibility of a complete turnover of programs across the University approximately every 50 years, although we are not recommending that SFU seek to reinvent itself twice per century.

Rewards for productivity

As academic disciplines evolve, the desirability of a program as seen by students and employers, and the necessity of maintaining a research specialization, also change. While one must be careful not to be misled by short-term fluctuations in enrolment, or short-term priorities of granting agencies, the staffing complement of a Faculty ultimately must reflect its teaching and research productivity: the priorities of the University must be driven, in part, by demand.

Currently, the budget given to SFU by the province specifies the number of undergraduate and graduate students that the university is expected to admit. We propose that these two enrolment figures, including appropriate weightings, be used as the primary, but not exclusive, determinants for the allocation of continuing faculty

positions (CFLs) to the Faculties. Because graduate students generally draw more heavily on faculty time than do undergraduates, graduate enrolment should receive a higher weighting than undergraduate enrolment in determining resource allocation. For example, graduate students in science and engineering require about 3 times as much weekly contact per FTE as undergraduates. How much attention should be paid to the different resource requirements for graduate students in course-based programs, or in disciplines where graduate students work with minimal supervision, is an issue we have not addressed. In the suggested allocation mechanism, the research productivity of a Faculty is recognized through its graduate enrolment, and a CFL position would continue to comprise one research and two teaching semesters per year.

At the present time, there are about 21 FTE undergraduate students for every full-time faculty position at most Canadian universities with doctoral programs but without medical schools, with some variation about the mean. Using a 3:1 ratio for weighting graduate students, there are about 27 weighted FTE students per full time faculty position at SFU, essentially the same as the Canadian average for universities with doctoral programs but not medical schools. The ratio of weighted FTE students per full time faculty is within 10% of the SFU mean for the three largest Faculties at SFU, but is higher for the two smaller Faculties of Business Administration and Education. The variations among the largest Faculties are within the range that one would expect, given that the Vice-President Academic should have some latitude to recognize economies of scale, and the changing priorities of the University.

The principle of resource allocation according to teaching and research productivity is an important one, and it should be implemented to allow us to respond more quickly to the budgetary and enrolment challenges ahead. It also provides a mechanism for evaluating the financial impact of decisions at all levels in the University - since the provincial and tuition component of the University budget is, in fact, almost entirely determined by enrolment. As indicated in the previous paragraph, the senior University administration should continue to have some latitude in allocating CFLs, but the general guidelines to the Faculties for obtaining CFLs should be clear. Faculty deans should have the freedom to distribute CFLs in accordance to their perception of the needs of the disciplines within their Faculties. That is, formula allocation should apply only at the Faculty level, and not necessarily at the departmental level.

What caveats should be put in place to prevent abuse of formula allocation?

Faculties can be protected from large scale fluctuations in staffing levels caused by yearly fluctuations in enrolment by placing a ceiling on the number of positions to be reallocated annually at the University level; for example, a ceiling of 1-2% of the total faculty complement would be appropriate. Senate approval of admission quotas can be used to prevent Faculties from lowering admission standards for the sake of obtaining more CFLs.

Funding for innovation

A step to encourage program innovation has been taken through the establishment of the Academic Enhancement Fund. The resources of this fund are modest, only \$250,000 in 1994-95 and \$300,000 in 1995-96. We propose that this figure be raised to 0.5% of the funding received from the province - or \$600,000 per year. The terms of reference of the fund should remain approximately as they are now.

What are the budgetary implications of the combined effects of formula CFL allocation and innovation funding? If half of the innovation funds is directed to CFL positions, and if the University places a ceiling of 1% on the number of CFL positions to be reallocated according to a productivity formula, then the total flow of CFL positions among Faculties is only 1.2 to 1.3% per year. In other words, it would take more than 70 years for the University to completely change its program mix if it so wished. While this rate of change may be too slow for a young institution like SFU, it is typical of older institutions: for example, the University of Michigan annually channels 1.3% of the university budget through a program renewal fund.

4.3 Program Closure

The changing demand for programs has always been with us, but the review and reallocation process outlined in Sections 4.1 and 4.2 will make these changes, and their consequences, more apparent to all of those involved. Eventually, there will be programs that must be closed, either because of very weak demand or because of low quality. The SCIMO report has recommended policies regarding minimum course enrolments required for faculty to receive credit for teaching a course. What is still needed are policies for the closure of a program.

Several criteria should be met if SFU is to sanction and offer a program:

- it must have high quality, as determined by the external review process adopted by the University
- it must have a minimum graduation rate.

Adequate terms of reference for program and departmental review are already laid out by the University (and in Sec. 4.1). There should be minimum graduation rates required from a given program for the program to continue. Recognizing that SFU graduates more than 2000 students per year, we recommend that a degree designation be revoked if there are fewer than 10 graduates per year for undergraduate degrees and 3 graduates per year for graduate degrees, averaged over several (perhaps 3 to 5) years.

Revoking a degree does not mean dismantling the department offering the degree. There are several alternatives:

- amalgamation and restructuring with another SFU program, including another program offered by the same department, or
- amalgamation with a similar program offered at another BC university.

Of course, if these remedies fail as well, then it may be necessary to close the academic unit, restructure it as a service department, or transfer it to a university-owned corporation.

Appendix

The recommendations of this report have been developed for the environment in which we expect SFU to operate for the next decade. We summarize here the statistical snapshots of that environment to enable readers of this report to place the recommendations in context. More extensive analysis, as well as references to the original sources of information, can be found in PCUP's reports The Undergraduate Program at Simon Fraser University and Graduate Studies and Research at Simon Fraser University.

A.1 Undergraduate and Graduate Studies

Undergraduate enrolment

Simon Fraser University draws more than 80% of its undergraduate students from the BC Lower Mainland, a fraction almost identical to UBC. About one-third of the new students admitted annually come directly from BC Grade 12, and about one-third transfer from community colleges. Although "non-traditional" students represented a large fraction of our student body two decades ago, fewer than 10% of our admissions are now in that category, and the average age of our undergraduates is a youthful 22 years. Almost half of our full-time undergraduates come from communities on the eastern side of Burnaby Mountain.

Undergraduate admissions

Our undergraduate admission standards have increased steadily in the past decade, and are now very high, typically in or near the top five in Canada. Correspondingly, the undergraduate degree completion rate is also very good. It is expected to pass the 70% completion mark in the near future.

Projected enrolment

For the past thirty years, our full-time equivalent (FTE) undergraduate population has increased by an average of 330 students per year, with some variation about the mean. Using population projections from the Ministry of Education, we anticipate that enrolment will continue to climb by 400 students per year if funding rates are kept at their current level, and if our admission standards are not raised further. The FTE undergraduate population is expected to climb from 12,100 in 1993/94 to 16,000 in 2003/04.

Graduate enrolment

Our graduate student population has grown along with the faculty complement, and in

1994 there were 1679 FTE graduate students, representing 13% of our total student body. Visa students made up about 14% of our total graduate student population in 1994, close to the Canadian average. The fraction of female graduate students has risen from 43% in 1989-90 to 46% in 1993-94, and one might expect that the gender balance will have shifted to a female majority by early in the next decade, just as it has already in the undergraduate population. Most graduate students study on a full-time basis: in 1993/94, more than 90% of the FTE graduate students were registered full-time.

A.2 Research Activity

Research funding SFU received \$15.3M in research funds from federal sources out of a total of \$21.4M from all sources in 1994/95. Private sector funding for SFU research from Canadian firms and foundations has increased steadily from \$1.4M in 1990/91 to \$3.5M in 1994/95. Unfortunately, research support from BC government sources has declined from \$3.3M to \$1.1M in the same period.

National comparisons

National data are not uniformly available for all institutions and for all indicators of research activity that one might wish to construct. On the basis of available data, PCUP defines a comparison group of 19 universities that represents most institutions with extensive research and graduate programs (Alberta, UBC, Calgary, Dalhousie, Guelph, McGill, McMaster, Memorial, New Brunswick, Ottawa, Queen's, Saskatchewan, SFU, Toronto, Victoria, Waterloo, Western Ontario, Windsor, York). Comparisons within this group, as shown in Table 1, should be regarded only as descriptive. Commonly used descriptions of research activity, such as funding levels per eligible researcher, are frequently of limited value in describing the quality of a research program.

Table 1.

Comparison of research and graduate studies at SFU against a 19-member comparison group. The term "faculty" means "eligible faculty member". The database used to generate these comparisons was compiled by the Association of Universities and Colleges of Canada and Maclean's (1994).

Indicator	SFU Comparison group			Rank (of 19)
	Low	High		
FTE graduate enrolment	1679	690	5789	13
Total federal research expenditures	\$12.6M	\$5.3M	\$87.0M	17
NSERC \$ / faculty	\$40,000	\$24,100	\$78,700	14
SSHRC \$ / faculty	\$5,500	\$720	\$9,400	6
NSERC graduate scholarship funds/faculty	\$5,500	\$830	\$8,750	7
SSHRC-funded graduate students/faculty	1.33	1.330	1.13	8

A.3 Demand for Degree-holders

Occupational employment in BC The largest employment categories (more than 4000 employees expected in BC by the year 2001) which routinely require university education are listed in Table 2. The rate of growth R (in the table) is a compound rate; for comparison, the compound rate of population growth for BC is expected to be 2.1%.

Table 2.

BC occupational employment in positions often requiring university education in 1992, with a projection to 2001 from the Canadian Occupational Projection System. The rate of compound growth, is R, and N indicates no specific program for the category is available at SFU.

Occupation	1992	2001	R	SFU
Nurses*	35,630	48,190	3.4%	N
Specialized managers	24,270	35,190	4.2%	
Elem. school teachers	23,690	28,770	2.2%	
General managers	16,250	20,250	2.5%	
Sec. school teachers	13,890	15,740	1.4%	
Systems analysts*	12,890	23,110	6.7%	
Financial management	9,570	11,230	1.8%	
Communications	9,560	11,390	2.0%	
University/college teachers	7,890	9,750	2.4%	
Social workers	6,830	9,200	3.4%	
Physicians/surgeons	6,180	7,310	1.9%	
Lawyers/notaries	6,160	7,710	2.5%	
Civil engineers	4,660	5,920	2.7%	
Personnel officers	4,210	4,790	1.4%	
Education administrators	4,180	4,730	1.4%	
Electrical engineers	3,990	5,270	3.1%	
Writers/editors	3,830	4,890	2.8%	
Physio/occup. therapists	2,890	4,230	4.3%	
Architects/planners	2,970	4,220	4.2%	
Health administrators	2,870	4,140	4.2%	

* "Nurses" includes R.N.'s and B.S.N.'s; "Systems analysts" also includes software systems analysts and programmers.

Table 3.

National unemployment rates in 1992 according to degree received in 1990, shown as percentages.

Field of study	Bachelor	Master	Doctoral
Fine and applied arts	15%	16%	27%
Humanities	13	15	14
Mathematical/physical sciences	11	11	6
Agriculture/biological sciences	15	9	5
Social sciences	12	7	6
Engineering/applied sciences	11	9	3
Education	9	3	4
Health professions	5	5	3