

THE UNIVERSITY OF BRITISH COLUMBIA



Vice President Academic and Provost

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MEMORANDUM

May 1, 2006

To: Senate
c/o Ms Lisa Collins, Manager of Secretariat Services

From: Lorne A. Whitehead
Vice President Academic and Provost

A handwritten signature in blue ink, appearing to read 'LAW', is written over the 'From' field.

Re: The Institute for the Scholarship of Teaching and Learning

I recommend that Senate receive for information the attached Report to Senate on the Institute for the Scholarship of Teaching and Learning (ISTL), May 2005 – May 2006.

The Institute was established by Senate in May 2004. The attached report is provided by Gary Poole, Director, Centre for Teaching and Academic Growth, and for ISTL.

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Attachment: The Institute for the Scholarship of Teaching and Learning: Report to Senate, May 2005 - May 2006

**The Institute for the Scholarship of Teaching and Learning:
Report to Senate
May 2005 — May 2006**

Vision Statement

The Institute for the Scholarship of Teaching and Learning will support research and reflection on teaching and learning with the aim to inform and enhance practice, locally and internationally. It will be responsive to the needs of UBC's teaching and learning community, and it will advocate for an effective reciprocity between research and practice.

The Mandate of the Institute

- * provide support for research on teaching and learning at UBC, bringing together teams of faculty from across campus, experts in educational research, graduate students, and pedagogical experts from the Centre for Teaching and Academic Growth (TAG).
- * provide research opportunities in higher education for faculty, graduate students, and post-doctoral fellows.
- * facilitate grant application processes, for both internal and external funding sources, to support higher education research conducted at UBC. This research may include comparisons with other institutions.
- * help develop a network of experts across the Faculties in higher education research and, more generally, topics relevant to teaching and learning.
- * facilitate educational program evaluations, including research involving students who have graduated or left the University.
- * disseminate the results of this research in ways that inform and enhance educational practice at UBC and beyond. This would include both publishing in the academic literature and producing working papers and other local documents. It would also involve the organizing of events designed for dissemination.
- * to be a national leader, not only by example, but also by facilitating the development of SoTL initiatives in other institutions.

Institute Web Site URL

<http://www.tag.ubc.ca/about/institute/ISoTL.php>

Administration of the Institute

Decisions regarding the directorship: Gary Poole has agreed to be the Founding Director for a period of 2 years. During that time, a committee will be struck to provide recommendations regarding the optimal model for Institute governance and its relationship to the Centre for Teaching and Academic Growth (TAG). Currently, the Institute is located within TAG.

Advisory Councils meetings: A meeting of the two Institute Advisory Councils (Research Advisory Council and Council for Strategic Planning) was held September 26, 2005. Another meeting is being scheduled for May 24, 2006.

Affiliations

The Institute is a Core Member of the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL). For two years, we were part of the Research Universities Cluster. We have applied to continue this affiliation, under the theme: *Scholarly Communities of Teaching and Learning Practice*. The team submitting the application for this continued affiliations included (alphabetically): Alice Cassidy, Lee Gass, Rita Irwin, Gary Poole, and Carl Wieman.

Gary Poole is a founding member of the International Society for the Scholarship of Teaching and Learning. Housed at Indiana University, the Society currently has members in 7 countries. UBC hosted its second annual conference. The third will be held in November at Georgetown University. The 2007 conference is scheduled for Sydney, Australia.

Campus Events

The Invited Scholars Seminar Series

The Invited Scholars Seminar Series brings to UBC some of the world's most active and prominent thinkers in the scholarship of teaching and learning. It is an opportunity to work with experienced scholars and engaging workshop facilitators to pursue important issues and hone research skills.

September , 2005 - Dr. Connie Schroeder, University of Wisconsin, Milwaukee - **Going Meta with the Scholarship of Teaching and Learning**

November 1, 2005 - Dr. Allyson Fiona Hadwin, University of Victoria - **Student Reflections as Data**

February 8, 2006 - Dr. Catherine Finnegan, Board of Regents of University System of Georgia - **Using What You Have: Observational Data and the Scholarship of Teaching**

March 10, 2006 – Mary Taylor Huber, Senior Scholar, The Carnegie foundation for the Advancement of Teaching – **The Scholarship of Teaching and Learning and Academic Careers**

May 8, 2006 – Mick Healy, University of Gloucestershire, UK – **Linking Discipline-based Research and Teaching to Benefit Student Learning**

Science Education in the 21st Century: Using the Tools of Science to Teach Science*

Dr. Carl Wieman, University of Colorado, Boulder, Nobel Prize Winner in Physics, 2001; Carnegie Professor of the Year, 2004

Mon. Nov. 21, 4:00 pm - 5:30 pm, Wine and cheese reception to follow

Over 400 people attended a talk by Carl Wieman. In his talk, he discussed research on how people learn science, which is now revealing how many teachers misinterpret what students are thinking and learning from traditional science classes and exams. Dr. Wieman also discussed research providing insights on how to do a better job of teaching science. The combination of this research with modern information technology is setting the stage for a new, more effective approach to science education based on using the tools of science.

*Supported by the National Science Foundation and Kavili Operating Institute.

The Institute's Network

The Network, coordinated by Dr. Alice Cassidy, now has more than 100 members. Regular messages go out to the Network informing them of Institute events and other news and opportunities associated with SoTL. The Network has now formed a Journal Club and will soon be forming Writing Circles to support journal article production and other writing projects.

International Work

2nd Annual Conference of the International Society for the Scholarship of Teaching and Learning, Oct. 14-16, 2005

With the Carnegie Foundation and Malaspina University-College, UBC hosted the highly successful 2nd Annual Conference of the International Society for the Scholarship of Teaching and Learning, Oct. 14-16, 2005. Keynote speakers included Lynn Taylor (Dalhousie University) and Carolin Kreiber (University of Edinburgh).

Participation data:

<i>Countries Represented</i>	<i>Number of Registered Delegates</i>
Australia	11
Canada	235
Chile	1
China (Peoples Republic of)	1
New Zealand	2
Singapore	1
Sweden	2
United Kingdom	45
United States of America	348
Total	646

Consultation with U21 Global: Online Learning Research

For 2 weeks in November, Gary Poole worked with colleagues at U21 Global in Singapore, analyzing student data from their online MBA courses and helping plan for an International Centre for Research on Online Learning.

Active Research

CFI planning group

A group of people from 7 Faculties put together a CFI proposal related to the Institute. The proposal was one of UBC's CFI submissions in February, 2006.

The Student Transitions Project

This project is supported by funding from the B.C. Data Management Association.

Walter Sudmant, Director, Planning and Institutional Research, UBC

For the vast majority of Canadian high school graduates it has become almost a necessity to continue on to post-secondary educational institutions. For the individual, the continuation of education beyond high school is a life-transforming event. For our systems of public education, the transition is complex and multifarious. Post-secondary institutions must plan and co-ordinate transitions from numerous jurisdictions and institutions, while secondary schools have devoted enormous efforts in the preparation of their students for a successful transition. However, unlike any of the prior transitions in the students' educational lives, this transition is marked by a quantum leap from the public school system to a post-secondary system; indeed, in British Columbia the systems are even represented by different ministries.

The research from this project seeks to bridge the current gap in the collection of information across the secondary/post-secondary boundary. The public benefits will occur in two areas:

- * system-wide planning, and
- * accountability/feedback/quality enhancement cycles between the systems.

The B.C. universities have been well served by the Ministry of Education in terms of the individual information required for admission. Universities have, for many years, been the beneficiaries of extremely efficient data collection and transmission for the sole purpose of admitting students to our institutions. This research of the Student Transitions Project (STP) will allow us to use much the same information for planning purposes. For example, we currently have only estimates for critical issues of system-wide and local capacity. The STP database will allow us to assess, on a regional basis, and using a variety of admission criteria, the extent to which the system actually can provide seats to qualified students. Among other projects, project members will model predictors of academic success, and plan for the provision of programs and increased access to minorities such as aboriginal communities with the aid of this data.

To add value to accountability in public education, universities must be able to work collaboratively with the public schools. To this end the research will provide an essential feedback mechanism. How successful are students in post-secondary endeavors, vis-à-vis their public school experiences? These questions can be complex, and over time, the project will address them on an aggregate level, as well as in great detail, at the level of individual subject, school, and socio-economic level. The resulting benefits will be a better understanding of what works well, what is not working well, where resources and improvements are needed, and finally, the identification of best practices, in the schools, in the universities, and the liaisons between them.

Progress reports

* The research protocol agreement and protection of privacy

The production of a large-scale research file linking data across multiple systems presents serious issues concerning data privacy, data sharing protocols, and governance. A major milestone for the project was achieved with the signing of the Research Agreement between the two ministries, and the B.C. universities. We believe the agreement is unique in Canada in both describing explicitly the methods and objectives of the STP project, and providing the protection and governance measures necessary under ethical guidelines and British Columbia privacy legislation. Copies of the agreement are available from PAIR. The steering committee has been formed and has met several times to plan and oversee the project.

* Specific research questions

Clearly, from the outset of the project, many interested parties had questions for the research data file could provide answers. Through system-wide consultation, a series of research questions was developed, and the steering committee prioritized the list of questions. The committee benefited from the input of the B.C. Council on Admissions and Transfer and a staff member from BCCAT has been added to the steering committee. The steering committee is also grateful for the input provided by the Fraser Valley Consortium for Post-Secondary Transition, and plans to continue to invite interested institutional researchers to attend meetings as advisors and observers.

* Research Question #1: What is the nature and distribution of the transition from the K-12 education system to the public post-secondary institutions within a given timeframe (2002/03 – 2003/04)

A work plan was prepared and the first eight stages of the work plan are complete. On Oct 27 2005 the steering committee met to discuss the draft version of the final report and establish an annual schedule for data collection and reporting. The draft report has been reviewed by college and university Institutional Research directors, and ministry staff, and minor changes recommended. A final report will be presented to a joint committee of the two ministries in December of 2005. The report is still in draft form, but discussions are underway for public dissemination.

* Research Question #2: Expansion of data collection to include additional fields, and multiyear analysis K-12 data 2001/02 - 2004/05; post-secondary data 2002/03 – 2004/05; study of student mobility between post-secondary institutions

This phase will expand upon research question 1 with the inclusion of more years of data and additional data elements. Formats for the data exchange have been developed, and will be distributed by the Ministry of Education. Data collection will begin in January 2006., with matching and validation to follow soon after.

Data matching, to include data on:

- * High school GPA;
- * Program/faculty; and,
- * Aboriginal status (K-12 and post-secondary records).

The Research Collaboration Program (Third round of funding)

Following a Call for Proposals due February 27, 2006, the third offering of the Research Collaboration Program received another strong collection of proposals. The objective of the program is to help create teams to conduct research on teaching and learning that would otherwise be difficult to conduct without the provision of specific research expertise, help with networking, and other resources.

Submissions were reviewed by a committee consisting of past Research Collaboration participants, members of the Institute for the Scholarship of Teaching and Learning's Network, and the Institute's Advisory Councils. Based on the committee's recommendations, the following projects have been supported.

Four projects with RA support and consultation with members of the Faculty of Education and the Institute for the Scholarship of Teaching and Learning

RETAINING WOMEN IN COMPUTER SCIENCE

Computer Science is a relatively new subject area where, given the gains that women have made in society, one would expect to see a substantial number of women. However, Dryburgh notes that the proportion of women Computer Science graduates has been declining in the last 15 years from 27 percent in 1982 to 20 percent in 1992. (2000: 181) This low rate of women participating in Computer Science is reflected at UBC where only 20-24 per cent of students enrolled in the Computer Science program are women. This rate is particularly discouraging given that women make up 40 percent in the introductory Computer Science programming course (CPSC111). Dryburgh also notes that, while studies indicate the importance of role models and mentors, these terms were often confused and the results are not clear about the impact of each role on women. The research question: What is the significance and impact of role models and mentors on women students in Computer Science? **Lead Researcher:** Tamara Munzner (Department of Computer Science).

ASSESSING THE ROLE AND IMPACT OF REFLECTIVE LEARNING ACTIVITIES IN POLITICAL SCIENCE CLASSES.

Political science classes at UBC, and elsewhere, generally focus on enhancing students' critical thinking and analytical skills. Students are expected to assume an objective standpoint and to understand and develop arguments based on empirical evidence. Readings are drawn from textbooks and scholarly journals or monographs, while assignments typically consist of examinations and an analytical term paper. The structure of assignments is partly driven by the fact that, in Political Science, class sizes of 65 or more students are the norm. In these settings, the conventional model for teaching political science is less than adequate as a means to fully engage students at intellectual and emotional levels. Research questions: How do exercises designed to engage students emotionally and personally affect the learning experience in political science classes? And how can such exercises be designed effectively and be integrated into the more traditional aspects of the course? **Lead Researcher:** Ken Foster (Department of Political Science).

INCREASING INTERACTION AND ENGAGEMENT IN INTRODUCTORY PHYSICS

Our major goal is to make large lectures more interactive by fostering student-centered learning environments. The first step in this process was using the Peer Response System (PRS) for interactive questions during the lecture. The PRS has been used in our physics classes for a few years. Although we do not yet have sufficient research-based evidence of its effectiveness, student feedback and increased lecture participation suggest that PRS use made lectures more interactive and student-centered. The second step was encouraging student participation in lecture demonstrations, which effectively became Interactive Lecture Experiments (ILE). The difference between ILE's and traditional lecture demonstrations is that ILE is based on using modern data collection equipment (such as Logger Pro) to collect data live during the lecture experiment conducted by the instructor with the help of student volunteers, then upload it on the web and allow students access in order to perform the data analysis as a group project outside of the classroom. It has become clear that, in order to conduct thorough and systematic analysis and evaluation of these new teaching methods (PRS and ILE) for the large introductory physics courses, we need to design and conduct a rigorous research-based study as well as compare its results with the results of similar studies conducted at other universities. **Lead Researchers:** Marina Milner-Bolotin, Andrej Kotlicki, Fran Bates, Georg Rieger.

EVALUATING PATHOLOGY 417, AN ONLINE CASE-BASED LEARNING COURSE THAT INCORPORATES SELF-DIRECTED LEARNING WITH E-PORTFOLIOS ALONG WITH SMALL GROUP PEER TEACHING AND LEARNING.

Student responses form an important part of the evaluation strategy for PATH 417 (and will be collected this next academic year to garner a more credible response rate). However, they need to be backed up by data mined from what went on in this online course. These data are present in course transcripts, which could be used to assess how well the PATH 417 course addresses each of the Seven Principles for Good Practice in Undergraduate Education (Chickering & Gamson, 1987). This project will bring together a team skilled in both qualitative and quantitative methodologies to analyse transcripts and other data. **Lead Researcher:** Niamh Kelly (Department of Pathology and Laboratory Medicine).

Scholarship of Teaching and Learning Graduate Student Support

SEARCHING FOR CLINICAL REASONING IN A DENTAL CURRICULUM

Problem-based learning (PBL) in healthcare is a popular educational model that pays particular attention to problem solving. However, the benefits of this in relation to improving clinical reasoning skills are uncertain; in part because it is not clear what particular problems should be resolved by a new graduate and what reasoning strategies should be used directly or reflectively to identify and solve the problems. Our study is guided by two main research questions: 1) What are the differences in clinical reasoning of dental students in the latter part of 3rd and 4th Year when they address different types of clinical problems in three clinical vignettes? 2) What is the significance of the differences in clinical reasoning of students in relation to the six domains of

competency identified in the Competency Document produced by the Faculty of Dentistry? **Graduate Researcher:** Shiva Khatami, (Ph.D. Candidate, Dentistry), **Faculty Principal Investigator:** Michael Macentee (Faculty of Dentistry).

Project with Consultation Support

FACILITATING SOCIAL UNDERSTANDING AMONG ENGINEERING STUDENTS

At times, students attended to the technical details of an issue and disregarded the social ramifications of the problem. This lack of appreciation of the social context and demands of engineering practice can be compounded by students' feeling that "soft" skills are unnecessary or that these are things they will pick up on the job when, in fact, they are expected of engineering graduates. The problem, as we see it, takes place on two levels. On a micro-level, the problem involves students modeling sample answers without critically thinking about the context to which they transfer their knowledge and skills. On a macro-level, the problem involves students not critically thinking about the larger context in which they will be practicing their chosen profession. The problem, as we currently perceive it, is that students remain disengaged from the social context in which they one day will be practicing. We would like to know what we can do about this.

2005 – 2006 Conference Presentations

Nakonechny, J., & Poole, G. (2006). Pursuing the scholarship of teaching and learning through multidisciplinary teams: Bridges and precipices. Winter Conference of the Educational Developers Caucus, Victoria, B.C., February 23, 2006.

Nakonechny, J., & Poole, G. (2005). The collaboration process in an interdisciplinary research context, or: "What language are you speaking?". Second Annual Conference of the International Society for the Scholarship of Teaching and Learning. Vancouver, October 15, 2005.

2005 – 2006 Publications

Butler, D.L., Pollock, C., Nomme, K., & Nakonechny, J. (in press). Promoting authentic inquiry in the sciences: Avoiding and overcoming students' nonscientific epistemology. In B. M. Shore, M. W. Aulls & M. A. B. Delcourt (Eds.), *Inquiry in education: Where ideas come from and where they lead*. Mahwah, NJ: Erlbaum. (41 pages).

Future Plans

Visiting Scholars in Residence.

In 2006, we will initiate our Visiting Scholars in Residence program by welcoming Dr. Raymond Perry from the University of Manitoba. Dr. Perry is an award-winning researcher in the area of attribution theory and student learning.

We are also making plans with the University of Alberta to co-host Dr. Angela Brew from the University of Sydney. Dr. Brew is the author of *The Nature of Research: Inquiry in Academic Contexts*. She is also the editor of the *International Journal of Academic Development*.

In addition to pursuing their scholarship while visiting the Institute, our Visiting Scholars in Residence will conduct seminars for the Institute and work with interested UBC faculty.

Further Development of the Institute Profile for External Funders

With a team from the Development Office, a case has been developed to be taken to external funders. Also, a list of potential funders (Foundations) has been identified. We are in the process of refining this case so that it can be more widely presented.

Summary

The emergence of the Invited Scholars Seminar Series, the doubling of the number of projects supported through the Research Collaboration Program, and the encouraging growth of the Network indicate that the Institute has made progress during its second year of existence. Important future goals will be to support further publications and other forms of research dissemination, and to secure external funding.