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INTERDISCIPLINARITY IN A DISCIPLINARY UNIVERSE:  
A REVIEW OF KEY ISSUES  

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A cursory overview of the mission statements and academic plans of Ontario universities suggests widespread support of interdisciplinarity. Over the past five to ten years, virtually every university in the province – even the oldest and most traditional -- has introduced interdisciplinary programs, if not developed institutional policies regarding interdisciplinarity, thus joining those institutions that have fostered this development for thirty years or more, e.g., Carleton, York, and Waterloo. The trend toward interdisciplinarity should not be construed as irresistible nor as a major threat to disciplinarity, for during the same time period a countervailing movement toward greater specialization has been at least as forceful in some disciplines.¹

The purpose of this working paper is not to debate the efficacy of interdisciplinarity or to try to define best practices, but rather, in light of the burgeoning of new programs, to highlight some key issues in the interdisciplinarity debate that deserve renewed consideration and broader discussion. Another, perhaps more urgent reason for renewing the discussion is that the impetus for the current round of interest in interdisciplinarity comes from outside the university: from governments, granting agencies, foundations, industry and other stakeholders in the production of knowledge, whose agendas and time lines may be at odds with those of the university.

The disciplinarity/interdisciplinarity debate directly challenges nothing less than the way the understanding, production, and dissemination of knowledge is structured within the academy, as well as the way and extent to which university researchers collaborate with other (non-institutional) producers of knowledge in society.

¹ This is particularly noticeable in the sciences: one need only think of the rapidly evolving new branches of physics. By the same token, many of these new specializations often find greater affinity with other departments or disciplines than their home department when it comes to the development and structuring of research projects. There is perhaps also something to be learned from the experiences of well-established interdisciplines such as Geography, where a (re)splintering along subdisciplinary lines has recently been noted.
Working Definitions and Basic Lines of the Debate

Although there is no universally accepted definition of interdisciplinarity, Liora Salter and Alison Hearn’s 1996 Canadian-based study on interdisciplinary research draws on the following distinctions cited in the groundbreaking report of the Centre for Education Research and Innovation (CERI), *Interdisciplinarity: Problems of Teaching and Research in Universities* (1972), which still can serve us well:

“Multidisciplinarity” is defined as a juxtaposition of various disciplines, sometimes with no apparent connection between them.
“Pluridisciplinarity” is defined as a juxtaposition of disciplines assumed to be more or less related: for example, mathematics and physics.
“Transdisciplinarity” is a process of establishing a common system of axioms for a set of disciplines.
“Interdisciplinarity” is defined as the interaction between two or more disciplines. This interaction may range from the simple communication of ideas to the mutual integration of organizing concepts, methodologies, procedures, epistemology, terminology, data, and the organization of research and education in a fairly large field. (Salter/Hearn, 186, n. 1)

An example of multidisciplinarity would be a European Studies program composed of courses related to Europe drawn from a number of departments: literature, history, political science, economics, and business. A course specially developed for such a program that examines one broad issue, for example “European Identity,” through the distinctive lens of two or more of the above disciplines would be interdisciplinary in its narrower typological sense. On the other hand, a course that seeks to identify structures or principles shared by a number of disciplines – literature, science, philosophy, visual art – during a given epoch, for example the Romantic era, could be considered transdisciplinary.

The term “interdisciplinarity” is also used more generally and synonymously with “cross-disciplinarity,” to describe and embrace all of the above activities. This is the way it is used throughout this paper.

Julie Thompson Klein, one of the foremost contributors to the international discussion of interdisciplinarity, draws a distinction between *endogenous interdisciplinarity*, which is “concerned with the production of new knowledge,” and *exogenous interdisciplinarity*, which “interrogates the disciplines on the demarcations they apply to ‘real life’ and demands that the University fulfil its social mission” (421, as cited in Salter and Hearn, 28). In times of economic constraint and tight funding for higher education, she suggests, research institutes and funding agencies tend to privilege exogenous interdisciplinary projects.

Salter and Hearn prefer to distinguish between *instrumental interdisciplinarity*, “a problem-solving activity that may be designed to cater to the demands of industry and government,” and *conceptual interdisciplinarity*, which is “concerned specifically with theoretical issues, epistemology, pedagogy, and the disciplining of knowledge,” and which may either “maintain a
dependence on the integrity of the disciplines” or “pose a fundamental challenge to disciplinarity” (29). Some interdisciplinary programs or departments, e.g., Women’s Studies, Canadian Studies, Environmental Studies, have at times housed faculty or research projects representative of all three.

Disciplinarity is in some ways even more problematic to define: on the one hand, it means adherence to and respect for the intellectual structures we call disciplines that were largely in place in the modern university by the end of the 19th century. In this vein, Salter and Hearn speak of disciplines as “recognizable communities of scholars that develop conventions governing the conduct of research and its adjudication...[that] rely upon technical language and particular methods of analysis...[and that] develop standards of evaluation specifically suited to their methodology and objects of analysis” (20). On the other hand, in the decades following publication of Michel Foucault’s *Discipline and Punish: The Birth of the Prison*, and particularly in the 1990s, disciplinarity also took on the connotation of a repressive form of border control and academic disciplines were equated to prison houses. Speaking for those scholars whose work from the 1970s to the 1990s advocated a transcendence of disciplinary barriers and development of a unified or general knowledge, Stanley Fish bemoaned the paradoxical creation of discrete interdisciplinary units within universities: “[B]eing interdisciplinary – breaking out of the prison houses of various specialities to the open range first of a general human knowledge and then of the employment of that knowledge in the great struggles of social and political life – is not a possible human achievement” (125).

In the Introduction to their 2000 anthology, *Practising Interdisciplinarity*, Peter Weingart and Nico Stehr, take a more moderate tack in describing disciplinarity:

...disciplines are not only intellectual but also social structures, organizations made up of human beings with vested interests based on time investments, acquired reputations, and established social networks that shape and bias their views on the relative importance of their knowledge. As social organizations, disciplines participate in and contribute to conflicts over political, economic, legal, and ethical decisions, over the distribution of resources and life chances. In all these functions, scientific disciplines constitute the modern social order of knowledge, and the order of knowledge is in this sense a political order as well. (xi)

Weingart and Stehr are also more hopeful in their assessment of the university environment: “Something quite fundamental is happening to the established order of knowledge...: the organizational matrix of disciplines is beginning to dissolve” (xi). On the other hand, they do not see this as a sign of the end of disciplines, but rather of a more hospitable culture for interdisciplinary work: “...disciplines, or more generally, structures of cognition and knowledge production are not dispensable as such but nor are they immutable – by practice” (272).

**Where in the University is Interdisciplinarity Practiced and What Drives It?**

The short answer is everywhere: within departments or other similar organizing units, under the auspices of interdepartmental steering committees, in research centres and institutes, in undergraduate programs, in graduate programs and in the university-sponsored research of individual faculty members.
What drives the interest in interdisciplinarity in each of these places?

**Interdisciplinary Research:** Funding opportunities from granting agencies, governments, and industry are credited to a large extent for the renewed surge in interest that began in the late 1990s (Weingart/Stehr, 270). The proceedings of a recent international conference entitled *Transdisciplinarity: Joint Problem Solving among Science, Technology, and Society* (Klein et al) tout global collaboration led by the university sector as the best hope for solving the major global problems of our time, such as environmental degradation and sustainable development (Schneidewind, 94). But there is more at work here than marshalling the synergy of collective minds from multiple disciplines to address broad societal issues, and also more at stake. Increasingly industry-based research and development is moving out of commercially funded research departments and labs, and into public-private collaborations. As Klein pointed out twenty years ago, the economic circumstances of universities are ripe for privileging exogenous interdisciplinary projects.

- The complexity of new Intellectual Property policies is one indication of the new world of university-industry research collaborations. Does this put new constraints on the ability of university researchers to develop individual research projects?
- As exogenous projects are privileged, perhaps if only because they generate much needed funding for the universities, what research remains unsupported?

**Interdisciplinary undergraduate programs** have been on the increase over the past five to ten years. Some are geared toward providing students with an enriched entry experience that develops problem solving and writing skills in the context of a core text/history of ideas course. The highly successful “Arts One” program at UBC, now in its 39th year, has served as a model for other high calibre programs such as the Foundation Year Programme at the University of Kings College in Halifax and the Humanities Program at Concordia; it has also spawned similar programs in the same institution: “Science One” and also the more recent “Foundations Program,” that adds social science to the blend of humanities disciplines. In 2003, Victoria University in the University of Toronto launched “Vic One” with streams honouring illustrious alumni (Frye, Pearson) and is adding a science stream (Stowe-Gullen) in September 2005. Also coming this September is “LS One” at OCAD, an interdisciplinary Liberal Studies program that will replace three mandatory first-year courses.

Other institutions offer full undergraduate “majors” that are interdisciplinary: Carleton, Waterloo and York, among others, offer Cognitive Science programs, Women’s Studies, and others such as Social and Political Thought, Management Studies, Public Policy and Administration. Carleton and Waterloo also offer Directed Interdisciplinary Studies or Independent Studies options that enable students to build their own programs of study. Ryerson has recently introduced a new BA in Arts and Contemporary Studies that combines a core texts program with management studies and four major themes that cut across a number of disciplines: Culture & Entertainment, Diversity, Globalization, and Science & Technology.

What drives the development of these programs is a fairly recent acknowledgement that the two basic goals of an undergraduate education – to prepare young people for active participation as
fully productive citizens of Canada, and to maintain a steady supply of teachers and academics – are not necessarily well served by the same curriculum. Students who have no intention of joining the ranks of their professors have become more demanding of explicit linkages between theory and practice, just as the world of work and the knowledge economy are demanding so-called “employability skills” (e.g., the Conference Board of Canada). According to this view, university graduates need breadth and flexibility of mind to cope with a rapidly changing world, and perhaps an interdisciplinary education is the best preparation for this.

- To what extent should an interdisciplinary program have a disciplinary foundation?
- What advanced study opportunities exist or should be developed for the graduates of interdisciplinary bachelor’s programs?
- Will this result in a greater streaming or silo-ing of undergraduates than currently obtains?

The impetus for interdisciplinary graduate programs seems to have two main sources: a) the recognized need for advanced study and research in an interdiscipline that has (nearly) achieved the status and recognition of a discipline, e.g., Cognitive Science, with both academic and industry career opportunities available to the graduates of these programs, and b) the desire for advanced degrees (for a competitive edge in the job market?) that reflect the interdisciplinary culture of new technologies and new industries and that develop interdisciplinary problem-solving skills. Examples of programs in this second category are more extensive, e.g., the program in Social and Political Thought at York, the joint York-Ryerson program in Communications and Culture, as well as a multitude of Special Arrangements or Individual Interdisciplinary Master’s and Ph.D/ doctoral programs where students develop their own program of study under the wing of a faculty program.

- Again at this level there is the question of whether these programs should have a disciplinary foundation, i.e., should the graduate students have a home discipline and perhaps even pursue a more traditional discipline-specific dissertation topic before embarking on interdisciplinary research?
- Are students who enter these programs, especially individually tailored programs, aware of the pitfalls of privileging breadth over depth? There is certainly evidence of newly-minted interdisciplinary Ph.Ds applying to teach courses in each of the disciplines they have combined in their studies. Do they have the depth of knowledge to teach even introductory undergraduate courses in multiple disciplines? More pressing, are they even aware of the depth issue with regard to their education and career preparation.

There are no pat answers to these questions, but jobs – whether in academe or in private industry – seem to lie at the heart of both the questions and the possible answers.

Benefits and Pitfalls of Interdisciplinarity

In brief, experience with interdisciplinarity points to the following benefits and drawbacks:
Benefits:

- Broad-based liberal arts and sciences learning (perhaps the original interdisciplinary studies) as a solid foundation for specialized learning.
- Synergy of multiple perspectives and discipline-specific methodologies in addressing major social and political issues.
- Explicit linkage between theoretical and applied learning.
- Engagement with real-world problems, cultures, environments.

Pitfalls:

- “Pidgin minds” (Long/Cerroni-Long), lack of depth of knowledge, lack of program coherence.
- Career risks for young scholars who choose interdisciplinary research topics at the doctoral stage or even embark on interdisciplinary research prior to obtaining tenure (Sperber; Green).
- Lack of interdisciplinary experience/knowledge among committees adjudicating interdisciplinary grant applications (Sperber; Wekerle).
- Difficulty of assessing the quality of interdisciplinary programs and projects (Wekerle; Mansilla/Gardner).
- Difficulty within the reward structures of the university for a department and faculty member to receive “credit” for supervising interdisciplinary graduate students and for faculty members with cross-departmental appointments to meet the service demands of two departments (or for the departments, especially small ones, to get the service they feel they need).

Defusing Tensions and Negotiating Paths for Interdisciplinarity

Universities have tended to respond to the demand for interdisciplinary programs in one of two ways:

1) Encouraging the development of interdisciplinary courses and programs by cultivating an interdisciplinary culture or mindset in the absence of or in advance of specific institutional guidelines or policies that would address the above noted pitfalls. The institutions in Ontario best known for their interdisciplinary “accent” fall into this category: York, Carleton, Waterloo. Commitment to interdisciplinarity and established policies do not necessarily go hand in hand, e.g., York University’s current Academic Plan Review suggests an even greater embedding of interdisciplinarity as a planning principle in the restructuring of academic units and the development of strategic objectives (www.yorku.ca/secretariat senate/committees/appc/reports/w004-05/041028.htm).

2) Developing comprehensive guidelines and policies in anticipation of the expansion of interdisciplinary courses and programs. The University of Calgary Undergraduate Curriculum Redesign Team (1998) felt the need to define interdisciplinarity and to establish four “defining elements” to “effect the success of an interdisciplinary component
with the Institutional Framework”: a) a strong disciplinary foundation, b) interdisciplinary expertise, d) rewards, and d) structure (www.ucalgary.ca/Transformation/INTERDIS.html). The University of Ottawa recently completed an extensive exercise in producing a discussion paper and comprehensive policy recommendations regarding “the vision, coherence, objectives, relevance and governance of interdisciplinary programs and initiatives.” The recommendations may be found at www.uottawa.ca/vr-etudes-academic/en/senate-rec-inter.html and the full report at www.uottawa.ca/vr-etudes-academic/en/reports/RapportInterEng.pdf.

A third approach worthy of mention is exemplified by the recommendations of a report compiled by the Centre for the Study of Co-operatives at the University of Saskatchewan, Interdisciplinarity and the Transformation of the University (2000). The authors argue for the nurturing of a culture for interdisciplinary research and studies through the creation of networks that build on the existing disciplinary structures of the university and its academic journals:

Whether in graduate or undergraduate education, in extension, or in research, the common theme is that the administrative-structural changes that are necessary to promote interdisciplinarity may be less than one would at first assume. The real issue is where and how work is done. The real difficulties lie not so much in university rules, but in culture and attitudes, which are only partly embodied in rules and procedures. This has a positive side. Every member of the university – faculty, administrators, staff, and students – if they wish to be involved in interdisciplinary work, can begin to create the necessary culture by striving to embody it in their own thoughts and actions…. Working in an interdisciplinary, networked fashion requires tolerance and a willingness to share power. Seeing oneself as part of a network implies attaching respect to relationships, connections, and community. It also implies valuing people and ideas precisely for their differences, since it is the differences that add to the capabilities of a team. (40)

Recognizing that much encouragement and problem solving occurs at the departmental or faculty level, it is hard to judge which of the above approaches creates the best environment for interdisciplinary research and study, and the least frustration for all parties involved. More likely, the sterling examples are to be found at the program level, not the institutional, and an assessment of these certainly lies outside the parameters of this discussion paper. The attached Works Cited list and Recommended Readings and Websites offer some guidance for further investigation of the ongoing debate.
WORKS CITED

Fairbairn, Brett and Murray Fulton. *Interdisciplinarity and the Transformation of the University.* Centre for the Study of Co-operatives, University of Saskatchewan, 2000.


**RECOMMENDED READING AND USEFUL WEBSITES**

“Rethinking Interdisciplinarity” online seminar guided by Chrisophe Heintz and Gloria Origgi (April 2003 – March 2004) at www.interdisciplines.org/interdisciplinarity/papers. “The overall aim of the www.interdisciplines.org project of which our seminar is a part, is to develop specific tools to investigate and promote interdisciplinary research. It creates a virtual locus where researchers from difference fields and disciplines can meet. It thus allows discussions that usually take place within the boundary of one’s department or discipline to emancipate from such boundaries.” The eight papers and comments from this seminar, as well as papers from other interdisciplinary seminars, may be viewed or downloaded and printed from this web site.

University of Tennessee, Knoxville. “Interdisciplinarity Resources” maintained by the University Studies Program, a serendipitous collation of websites for programs in support of interdisciplinary programs and essays addressing interdisciplinarity: http://notes.utk.edu/bio/unistudy.nsf. The website includes a downloadable copy of *A Blueprint for American’s Research Universities – The Boyer Commission on Educating Undergraduate in the Research University – 1998*, and links to many sites including:

The Association for Integrative Studies. “An organized voice and a national source of information on integrative and interdisciplinary approaches to the discovery, transmission and application of knowledge”: www.units.muohio.edu/aisorg/. This website includes a list of sponsored publications and current online issues of *Issues in Integrative Studies*.
