Entrepreneurial Education in Engineering Curricula at the University of Toronto

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Abstract

The importance and implications of entrepreneurial education in engineering curricula have been well-documented, leading to its rapid growth in many Canadian Engineering schools in recent years. For undergraduate students, this education promotes interdisciplinary and diverse thought with awareness of the political, financial and social environments that inevitably influence their careers and possible business initiatives on the local and/or global stage. For graduate students developing leading-edge technologies, this education encourages the much needed commercialization of innovations in Canada.

However, entrepreneurial education is often outsourced to business schools which emphasize theory over pragmatic real-world approaches. This paper describes a latter approach: an entrepreneurial program designed for engineering students at the University of Toronto (UofT). Specifically, we report on the curriculum of courses offered and taught by practicing entrepreneurs who lecture in the context of their own experiences. The result is a program focused less on theoretical work and more on the opportunities and obstacles likely to be encountered in an entrepreneurial career.

Our program has evolved over more than 20 years. It has been a great success with students, in terms of their satisfaction as well as in their business formation and value/wealth creation after graduation. This has consequently led to its popularity; we currently serve 180-200 students each year out of the many who apply. With such demand exceeding our capacity, plans for expansion are underway and expected to run smoothly as the program is purposely designed in modules to make the courses easy to “clone”, and for new instructors to be trained quickly. Moreover, we see potential for other faculties at the UofT and other universities to adopt and modify our model to suit their future needs.

1 Introduction

In a world evolving around advanced technology, engineers are at the forefront of change. However,

despite technical competence in science and mathematics, engineers typically lack the mechanics in entrepreneurship and leadership necessary to champion their work effectively. In fact, many studies have recognized the importance of fostering scientists and engineers to become entrepreneurs through courses and/or programs at the university level [1][2]. The purpose of entrepreneurial education is two-fold. For undergraduate students, the objective is to encourage diverse interdisciplinary learning with awareness of the political, financial and social environments that will influence their careers and possible business initiatives. For graduate students who develop leading-edge technologies for their thesis work, the aim is to showcase their discoveries and their importance and applicability through commercialization. In 2006, Canada ranked 4th worldwide in per-capita production of scientific publications but lacked “converting strength in basic science into sustained commercial success” [3][4]. Achieving a higher commercialization rate for such innovations would essentially establish a stronger international presence for the University, and in extension, for all of Canada.

While more Canadian schools are infusing entrepreneurship in their science and engineering curricula, this education is often outsourced to business schools which emphasize theory over pragmatic real-world approaches [1][2][5][6][7][8][9][10]. This paper describes a “homemade” approach: an entrepreneurial program designed for engineering students at the University of Toronto (UofT). Here, we outline the curriculum of the set of courses delivered by practicing entrepreneurs who lecture in the context of their business experiences – resulting in a program focused less on theoretical work and more on the opportunities and obstacles likely to be encountered in an entrepreneurial career. Moreover, the program is founded on the belief that while the propensity to be a good entrepreneur may be innate, most individuals with a strong desire can develop such skills and knowledge. In fact, anyone can benefit from learning how business works as well as what they might do to be more successful when working for others since most entrepreneurs learn their “trade” in such circumstances and start their own company within a familiar industry.

Our entrepreneurship program, we believe, speeds up this learning process and encourages the appropriate individuals to pursue their business sooner. In all, these courses serve 180-200 students in the Faculty of Applied Science and Engineering at the UofT each year. To meet the growing demand, plans to expand the course offerings are underway.

2 History of the Program

The first course entitled “Innovation and Entrepreneurship” (CHE457) in the Engineering Faculty was taught by Dr. Andrew Szönyi in 1981. Szönyi was joined by Professor Joseph C. Paradi in 1983 who assumed sole responsibility for the course in 1989. In 1991, a set of four courses was created – one offered in each year of the undergraduate degree, with each year a prerequisite for the next. However, with a limited entry of 60 new first year students across the Faculty each year, students were accepted based on their performance on the “Entrepreneurial Personality Test” which assesses the inherent “talent” for business, or entrepreneurial qualities in one’s personality [11].

With the restructuring of the UofT’s engineering curriculum in 1994 for a common First year, the four courses became three with no loss of material as the removal of one course was offset by more hours of instruction per week. In 2000, another restructuring involved an overall course load reduction from 6 to 5 per term. This led to the replacement of the three courses with the two current in-depth courses, designated APS234 (*Entrepreneurship and Small Business* offered in the Fall term) and APS432 (*Entrepreneurship and Business Management* offered in the Winter term), which are now core to the engineering entrepreneurship program at the UofT. Open to *all* undergraduate engineering students after their first year, these courses have been extremely popular with interest far exceeding the capacity of 50 students who are also selected by the “Entrepreneurial Personality Test”. In fact, a typical year sees over 200 applicants. To accommodate this demand, a group of five new courses were introduced in September 2005. Collectively denoted as DDD488, all five courses are identical in content but delivered by different instructors. Their content is a condensed version of that covered in APS234 and APS432 and is packaged into a single course in a single term. This course-set has since been offered every year, once to each of five departments in the Faculty: Chemical Engineering and Applied Chemistry (CHE488), Civil Engineering (CIV488), Electrical and Computer Engineering (ECE488), Mechanical and Industrial Engineering (MIE488), Materials Science and Engineering

(MSE488). In January 2008, the graduate-level equivalent of DDD488 (i.e. APS1088) was introduced as part of the ELITE program¹. For a visual timeline, please refer to Figure 2.1.

Figure 2.1: Timeline of the engineering entrepreneurship program at the University of Toronto

3 The APS Series Curriculum

The APS series is the core of the entrepreneurial program designed for undergraduate engineering students at the UofT. A student who takes APS234 in the Fall is assumed to continue with APS432 in the Winter, although scheduling conflicts may force him/her to skip a year between the courses. In this case, s/he typically takes APS234 in his/her second or third year and APS432 in the fourth year. Upon the successful completion of both courses, a student is awarded a Certificate signed by the Dean and the Course Director (Paradi).

There are two main components of this program: 5 hours of in-class instruction and an additional 2 hours of guest lectures each week, and an intense workload of approximately 4-6 hours per week which excludes the extra 20-30 hours required for the term project.

3.1 Lectures and Course Material

Seven modules are covered across two terms: The Business World (A); Organizing to Start-Up (B); Finance and Accounting (F); The “Nuts ’n Bolts” of Business (C); Marketing and Sales (D); Legal (E); and Human Resources (H). They are taught by different instructors all external to the university (except for Paradi) who are successful and serial entrepreneurs or practicing professionals in Law or Human Resources, for example. Each week, a different topic within a module is covered in comprehensive detail (Tables 3.1

¹ A series of UofT courses in Entrepreneurship, Leadership, Innovation and Technology in Engineering

and 3.2) with concepts from various textbooks coloured with lecturers' experiences. The primary reference for students is a series of lecture notes developed and updated annually by the instructors.

Table 3.1: Topics covered in APS234

Module	Topic
A1	Profile of the Entrepreneur
A2	Canadian Business Environment
A3	Discover the Enterprise; "What is a Business?"
A4	Business Organization
A5	Legal Forms of Organizations of a Business
A6	Intellectual Property Issues in Canada
A7	Innovation
A8	The Business Search
B1	The Business Plan – Part 1
B2	The Business Plan – Part 2
B3	Franchising
B4	Retail Business
B5	Manufacturing: The "Fading" Sector?
B6	Services Business
B7	Internet Entrepreneurship
B8	Branch Operations
B9	Import/Export
B10	Ethics in Business Management
B11	Small Mistakes and How to Avoid Them
F1	Accounting: The Nuts and Bolts
F2	Accounting: Financial Statements and Their Use
F3	Finance: The External Analysis Phase
F4	Finance: Management Use of Financial Analysis
F5	Finance: Raising Money, Leverage and Taxes
F6	Acquisition of a Business
F7	Cashing In

3.2 Entrepreneurs' Forum

To complement the lecture material, a real-world entrepreneur is invited to speak about his/her business each week in a special 2-hour "Entrepreneurs' Forum". The Forum exposes students to diverse perspectives and backgrounds as the guest speakers are the founders, CEOs and/or presidents of businesses in industries, ranging from manufacturing firms to health care services, and catering companies to not-for-profit organizations. It is also an opportunity for students to interact with role models. Unlike most subjects taught in engineering, business and value/wealth creation is more about *how* one applies oneself than what formula is appropriate in a particular case. Student feedback has been overwhelming positive – a testament to how guest speakers enrich their learning experience.

3.3 Course Work

Students are expected to complete a set of assignments (graded by teaching assistants) and term

projects (graded by lecturers). The marking scheme is summarized in Table 3.3.

Table 3.2: Topics covered in APS432

Module	Topic
C1	Financing the Business
C2	Locating the Business
D1	Marketing in Perspective
D2	Market and Product Management
D3	The Rest of the Mix: Pricing, Distribution, Promotion
D4	Market Research
D5	Sales Management
D6	Sales process
D7	Marketing Specialties: Advertising, International and Others
E1	The Canadian Framework
E2	Business Structures
E3	Business and Government Partnership
E4	Getting Started
E5	Relationship with Outsiders
E6	Financing the Business
H1	The Human Resources Management Context
H2	Manpower Planning and Staffing
H3	Management of Human Assets
H4	Reward Systems
H5	Health and Safety, Employee Relations/Labour
C3	Computing Needs for Small Business
C4	Managing the R&D function
C5	Business Succession Issues
C6	Risk Management
C7	The Seamy Side of Business
C8	The Ten Commandments of Business

Table 3.3: Marking breakdown by course

Task	APS234	APS432
Class Participation	5%	5%
Entrepreneurs' Forum Summaries	5%	5%
Case Studies	6%	-
Business Search Assignment	5%	-
Franchising Assignment	5%	-
Finance and Accounting Assignment	4%	-
Entrepreneur's Biography	20%	-
Market Research Assignment	-	5%
Legal Assignment	-	5%
Legal Project	-	5%
Human Resources Project	-	5%
Business Plan	-	20%
Final Examination	50%	50%

3.3.1 Business Press Review (BPR)

Before every lecture, students must read the appropriate Canadian business press² and write a half-

² e.g. Globe and Mail ROB, National Post's Financial Post, Financial Times, The Wall Street Journal, The Economist, Canadian Business

page review on their choice of article. The article must discuss economic, political or personal issues affecting businesses such as a change in interest rates, currency matters, government actions, approvals of financing, bankruptcies, etc. At the start of each lecture, up to 5 students have one minute each to present their article from the viewpoint of wealth creation, entrepreneurship and small business. This encourages students to develop the habit of reading Canadian and global business news daily and to practice public speaking.

3.3.2 Entrepreneurs' Forum Summaries

Students must summarize learnings from each guest of the Forum. Their work is scrutinised with additional feedback gathered from a survey on presentation quality to decide whether the guest should be invited back. From this process, we have created and are constantly updating a list of excellent speakers.

3.3.3 Participation

Participation is assessed based on attendance in lectures and the Forum, submission and presentation of business press reviews, in-class performance during case studies and debates, instructor-posed questions, and general attitude towards the material.

3.3.4 Introductory Case Studies

Early in the Fall term, 3 case studies are assigned as important business lessons. After submitting answers to questions on these cases, in-class debates are led by the instructor. This allows students to critique their own work and manage different points of view.

3.3.5 Business Search Assignment

Before writing a business plan, a student must have a potentially valuable business idea. This exercise is a methodical approach to finding an idea, beginning with the brainstorming of ideas and the establishment of personal criteria based on one's expectations of a business, followed by the evaluation of each idea against the criteria to ultimately select the one which is most suitable to the student's personality. While real entrepreneurs seldom apply this method, the process teaches students how to examine ideas critically.

3.3.6 Finance and Accounting Assignment

This assignment requires the student to evaluate a listed firm on the stock exchange by calculating a

series of financial ratios (i.e. current ratio, profit margin, assets turnover, return on equity) from its financial statements. The student must comment on what these numbers mean to a potential investor.

3.3.7 Franchise Research Assignment

Each student must find a willing franchise operator to interview about his/her life and business approach with respect to satisfaction, returns, contracts, rewards and constraints. This is then documented in a report.

3.3.8 Entrepreneur's Biography Project

This is a significant term project where the student produces a written biography on a highly accomplished Canadian entrepreneur. Each student is responsible for searching out and persuading such an entrepreneur to give him/her the opportunity to observe first-hand how they operate their enterprise and to establish the feeling of entrepreneurial success. Aside from describing the business and innovation, the student must report on the entrepreneur's background, motivation and future business aspirations, satisfaction with their life, and the trials and tribulations they experience.

3.3.9 Market Research Assignment

This assignment involves researching a product or commodity, in terms of its use, industry segmentation, manufacturing process and cost, and import, export and production history. While the product might not be related to the student's business idea, the purpose is to learn an important market research step, "statistics scan". Most students find this a rewarding effort to learn about the product flow level and where opportunities may lie for new business ventures.

3.3.10 Legal Assignment

Teaching the legal issues relevant to a business can be dry but necessary. To stir interest, each student must attend an actual court case in a real court of law, or a board hearing of a business case, or tribunal proceeding regarding a commercial matter. S/he reports the details of the case being tried, when it arose and when the proceedings started; a list of participants and order of events (i.e. questioning of witnesses, presentation of agreements, delivery of decision); and an assessment of the judicial system and its effectiveness. Generally, this is a new and memorable event for most students.

3.3.11 Legal Project

In pairs, students learn the details of a recent legal event provided by the lecturer (i.e. BCE Inc. privatization; Maple Leaf Foods contamination; Subprime mortgages; bailouts, etc.). In evaluating the happenings of the business world, students realize that not all information is transparent or readily available. When such is the case, they are to critically search for the truth and propose solutions to the problems at hand.

3.3.12 Human Resource (HR) Project

Without a doubt, a company's most important asset is its people. Hence, there are many laws, regulations and rules that have to be observed, including privacy, fair treatment and equal opportunity. Each student is assigned a case study related to HR planning and selection, employee hiring, layoffs, etc. S/he must identify the issues within the case, articulate particular HR concepts to support their analysis, and apply relevant HR theory and methodology when offering recommendations and solutions.

3.3.13 Business Plan Project

The capstone project is a full and complete business plan for a company founded by the student and approved by the instructor as "his/her business". Specifically, once a student identifies a new business idea, s/he explores its potential by developing a business plan (roughly 15-20 pages in length). The idea can be a new venture based on a novel or existing innovation that the student discovers, a start-up in an industry s/he knows well, or a new market or technology for an established company. It can also be based on the idea brainstormed in the Business Search Assignment, a "spinoff" effort when an existing larger company wants to sell off a segment of its business, a major change in direction for an established, but ailing firm, or a family business. Certain businesses that are not acceptable because they do not make good technical business plans include restaurants, house renovations, dry cleaners, bakeries and convenience stores, etc. Each year, there are numerous excellent projects presented to near professional standards.

3.3.14 Final Examination

The final examinations are open book and comprise of case studies that draw upon content presented in the course, readings from the textbook and class discussions. The aim is to test the students' level of understanding of the material and their ability to exercise critical judgement when given certain facts and circumstances.

Thus, clear and logical thinking together with common sense is emphasized as opposed to memory work.

3.4 Experiences

The APS course series and its predecessors have been available to undergraduates for over 20 years. While success may be measured in terms of student satisfaction (E-mails, verbal appreciation and future contact), the most important measure is successful business formation and value/wealth creation. Two papers have been published on student alumni successes in start-ups [12][13]. Research has shown that over a 15 year period, nearly 50% of graduates of one of these courses has been a business owner for some time after graduation – almost twice the rate of those who did not take a course.

4 The DDD488 Course Set

The engineering entrepreneurship program at the UofT is currently under expansion to provide equal opportunity for students who cannot take the APS series due to constraints in class size and their timetables. Any undergraduate student may now take a single-term course within their Department (CHE488, CIV488, ECE488, MIE488 or MSE488) without writing the "Entrepreneurial Personality Test". Offering the same course multiple times enables a smaller cohort per class (25-30 students), promotes active classroom dialogue and guarantees high quality teaching through mentoring. DDD488 condenses the content covered in the APS series (130 hours of instruction over one academic year – two terms) into one course (39 hours in one term) (Table 4.1). It has 3 hours of in-class instruction and 2 hours of guest lectures each week (joined with the APS series). Its workload lessened by fewer deliverables (Table 4.2).

Table 4.1: Topics covered in DDD488 and APS1088

Week	Topic
1	The Entrepreneur and the Canadian Business Environment
2	Business Plan and Finding a Business Idea
3	Buying a Business, Franchising, Taking over a Family Business
4	Market Research
5	Marketing Strategies Promotion and Pricing
6	Sales
7	Finance – Raising Money & Accounting
8	Managing the Business – People
9	Legal issues
10	e-Business
11	Managing the Business – Things to Know
12	The Exit – Succession and Other Options
13	Risk Management

Table 4.2: DDD488 and APS1088 marking scheme

Task	DDD488	APS1088
Class Participation	10%	5%
Entrepreneurs' Forum Summaries	8%	8%
Business Search Assignment	4%	6%
Market Research Assignment	4%	6%
Business Plan	24%	40%
In-Class Presentations	-	10%
Final Examination	50%	25%

The sheer number of classes and the fact that they typically run concurrently, require multiple lecturers. Thus, some important matters in the organization of the DDD488 course set deserve explanation.

- All instructors are external to the UofT (except Paradi) and are successful and serial entrepreneurs. Therefore, some allowances must be made for the inevitable last minute unavailability as business may take priority over teaching.
- Each class is assigned a teaching assistant (a graduate student) who plays an essential role and their views, observations and suggestions are seriously considered.
- Administration is centralized on the UofT's online course portal.
- All courses are held on Monday evenings to avoid interference with business and to make it easier for students with heavy daytime schedules to attend.
- As all five 488 classes are taught with the same set of lecture slides, the same course content is delivered by all instructors. This allows students to take a course that is not sponsored by his/her home Department (n.b. course code shows sponsorship) and gives them the option of joining a different class in another term if they do not have an appropriate elective time slot in the term when his/her Department offers its course.
- All assignments and term work are identical but students must work individually.
- Should an instructor not be able to teach on a particular night and there is no substitute available, his/her class is simply combined with a concurrent one and the lectures continue without interruption. Also, instructors sometimes teach a lesson to a colleague's class to offer yet another perspective.
- All students across the 488 classes write the same final examination in the same location at the same time. This final exam is collectively set by the instructors. Each creates an equal number of questions under a given theme and is responsible for grading them for all students. This ensures complete consistency in marks across the classes.
- Course notes and materials are set for an academic year; however, in the summer, instructors update

them after discussing modifications and additions to be instituted for the next academic year. These changes are often a response to feedback from student evaluations on content and performance.

It is essential for courses in entrepreneurship to be organized along business-like methods in order to mitigate the complexity from often difficult scheduling, timetables, staff availability, etc. Consistency between the simultaneous courses is also crucial to prevent students from moving from one class to another in significant numbers because they feel that the instructors are not comparable.

5 The APS1088 Graduate Course

The engineering graduate level entrepreneurship course (APS1088) was piloted in January 2008 and is open to any graduate student in the Faculty; if appropriate, even an individual in the Sciences (i.e. the Departments of Chemistry or Forestry) is welcomed. The motivation for offering APS1088 stems from the need to provide graduate students with the same skills available to UofT undergraduates (n.b. many graduate students have Bachelor degrees from elsewhere). Moreover, there is a need to commercialize intellectual property (IP) of the professors and graduate students of our University. Although it is acknowledged that the majority of them are unlikely to start a business, some have the propensity to become entrepreneurs. In fact, general interest has resulted in each of the past two offerings being over-subscribed; with a limited capacity of 24, students are screened by the "Entrepreneurial Personality Test".

While the lecture material is the same as DDD488, the greater maturity and experience of graduate students allow for reflection on their individual and group projects during lectures. The heaviest weighted components of the final mark are the business plan and the final examination which consists of mini case studies (Table 4.2). However, other tasks are important since the UofT's passing grade at the graduate level is 70% (B-).

The APS1088 business plan is a team effort focussed on a technology with potential for commercialization. In fact, this course is designed to encourage graduate students to either see their IP as a business opportunity, or to adopt someone else's IP as their mission for a business. We believe that every successful business requires at least one "champion" who will "make it happen" regardless of the obstacles faced on the way. To follow their progress, students formally present important aspects of their business strategy every second week. This not only forces them to develop the various parts of their business plan, but

to practice team work, presentation skills, conducting in-depth research and making valid business decisions.

6 Instructor Training

Perhaps the most critical aspect of designing and delivering courses on entrepreneurship is the hiring and development of the *right* people. While teaching techniques can be learned, instructors must have a proven record of starting, growing and managing companies, and creating wealth. While some may argue that the skills of successful entrepreneurs have been extensively studied and can thus be taught by any dedicated teacher, we are committed to the idea that credibility of an experienced entrepreneur is indispensable if students are to believe that such a career is possible for them. Aside from being role models, instructors must be able to answer questions and resolve conflicts. Experiences in stressful business activities (i.e. firing an employee) provide an edge to instructors who are also entrepreneurs because they have practice handling emotional situations.

Moreover, we look to attract individuals who are not only willing to teach, but can also make the time to do so with minimal stipend. Many individuals have approached us to be involved in our program and are typically in their late 50's or early 60's – a time in their lives where they are financially independent and healthy with the desire to contribute back to the society that has given them the opportunities to be successful. When a prospective instructor is selected, s/he is given an opportunity to deliver a few lectures across the different classes. Current instructors then judge whether the candidate would be a good addition to the program. If this is the case, s/he is invited to sit

References

- [1] Blais, R. A. 1997. *Technological entrepreneurship and engineering in Canada*. Ottawa: Canadian Academy of Engineering
- [2] Duke, C. R. 1996. Exploring student interest in entrepreneurship courses. *Journal of Marketing Education* 18, 3:35-46.
- [3] Freeman, R. 2006. RESEARCH Infosource Inc.
- [4] The Committee on the State of Science and Technology in Canada, Council of Canadian Academics, *The State of Science & Technology in Canada*, 2006, p.25
- [5] Gartner, W.B., and K. H. Vesper. 1994. Experiments in entrepreneurship education: Successes and failures. *Journal of Business Venturing* 9, 3: 179-189
- [6] McMullan, W. E., and K. H. Vesper. 1987. Universities and community venture development. In R. G. Wyckam, L. N. Meredith, and G. R. Bushes, eds., *The spirit of enterprise*. Vancouver, Canada: Simon Fraser University, 350-370.

through a whole term to witness how current instructors deliver the material.

It is important to note that the entire program requires a university "insider" (i.e. a tenured faculty member) to serve as Course Director for administrative work inherent in the bureaucracy within a university. Having an internal coordinator is a critical success factor in this endeavour. Often, it is difficult for an external instructor who is unfamiliar with the university system to deal with room assignments, broken equipment, timetable changes, student affairs and disciplinary issues, etc., when s/he is not on campus frequently. As previously mentioned, the role of Course Director at the UofT is filled by Professor Paradi who not only has the experience and knowledge of what is needed, but also the *savoir faire* on how to execute tasks on behalf of the external instructors.

7 Conclusion

With interest in entrepreneurship learning through our program far exceeding its capacity, plans for expansion are currently underway. Because the courses are purposely modular in design and easy to "clone", it is anticipated that this demand can be met simply by introducing new "copies" of the courses, with the only caveat being that the proper resources are in place, particularly with respect to recruiting new instructors who can be trained quickly. Moreover, we see great potential to expand further into different faculties at the UofT as well as for other universities to adopt our model in the future.

- [7] Menzies, T. V., and Y. Gasse. 1999. *Entrepreneurship and the Canadian universities: A national report on entrepreneurship education*. St. Catharines: Brock University
- [8] Vesper, K. H. 1993. *Entrepreneurship education* – 1993. Los Angeles, CA: University of California, Los Angeles Center for Entrepreneurial Studies
- [9] Vesper, K. H. and W. B. Gartner. 1997. Measuring progress in entrepreneurship education. *Journal of Business Venturing* 12, 5: 403-421.
- [10] Vesper, K. H. and W. E. McMullan. 1988. Entrepreneurship: Today courses, tomorrow degrees? *Entrepreneurship: Theory and Practice* 13, 1: 7-13.
- [11] M. Levin and S.M. Pollan. *The Field Guide to Starting a Business*, Simon & Schuster, New York, USA, 1990.
- [12] Menzies, T.M. and J.C. Paradi. 2002. Encouraging Technology-Based Ventures: Entrepreneurship Education and Engineering Graduates. *New England Journal of Entrepreneurship* 5, 2: 57-64.
- [13] Menzies, T.M. and J.C. Paradi. 2003. Entrepreneurship Education and Engineering Students: Career Path and Business Performance. *The International Journal of Entrepreneurship and Innovation* 4, 2: 121-132.