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Understanding change, leading innovation – OCAD University’s Master of Design in Strategic Foresight and Innovation

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Abstract

This paper discusses the need for new models of education due to the complexity and speed of change in the world. I introduce OCAD U’s Master of Design in Strategic Foresight and Innovation as one of a number of innovative programs attempting to become a responsible actor in the positive transformation of contemporary society. I reflect on the successes and challenges involved in the development and implementation of this highly innovative program.

A CONTEXT FOR CHANGE

The Master of Design in Strategic Foresight and Innovation (SFI) at OCAD University was launched in 2009, one year after a significant global economic crisis was triggered by the failure of several large financial institutions in the USA. While their questionable practices were at the heart of these failures, this crisis verified for many the interconnectedness of economies, our collective vulnerability, and the rapidity of change.

People began to realize that new skills and competencies were needed for individuals and organizations to thrive in this complex, interconnected, and changing environment. They wanted to know how to get out in front of that change; how to prepare themselves in some critical and strategic way to deal with change, find opportunities in the change, and above all, to be part of the solution to the critical problems facing the world today.

Ironically, there couldn’t have been a better time for the launch of our program. These ‘wicked’ problems cannot be solved by any single entity, and there is a need for unprecedented levels of collaboration across disciplines. Indeed, Roger Martin, the former Dean of the Rotman School of Management at the University of Toronto began promoting design thinking as a critical need in business. In his 2004 article, “The Design of Business” Martin states “...business people don’t just need to understand designers better – they need to *become* designers.” (Martin, Roger, 2013) This sparked a trend from which our program directly benefitted. After all, design thinking is home grown at OCAD. Indicating how deeply this thinking has penetrated mainstream thinking, Crossan and Apaydin stated that “Innovation is widely regarded as a critical source of competitive advantage in an increasingly changing environment. According to management scholars, innovation capability is the most important determinant of firm performance” (Crossan & Apaydin, 2010). Responding to these signals of change, we created the SFI program to prepare innovation leaders in a rapidly changing environment - to positively impact society, enhance business success, and manage complex organizational change.

A CHALLENGE FOR THE ACADEMY

Academic institutions around the globe are aware that there is an increasing demand for new skills and knowledge, and that the old educational paradigm is ripe for disruption. Unfortunately, they are often fettered by unwieldy bureaucratic systems and processes which make them slow to respond. “Historically, the classical university was based on the unity of research and teaching and served the purpose of conveying mostly theoretical knowledge. The modern university of the 20th century was based on the unity of research, teaching, and practice, and its emphasis can be seen as foreshadowing the next evolutionary stage based on the unity of research, teaching, and social transformation, with transformation literacy at its core – that is, literacy in the personal, relational and systemic foundations of leading profound innovation and change.” (Scharmer, Otto, 2014) This new focus on social transformation represents a significant shift in curriculum content and pedagogy.

A theme has emerged during the last decade for schools of art, design, engineering & applied sciences, centered around the subject of enabling innovation and positive world transformation by design. Innovation enabling became their imperative and their most progressive institutions, such as Stanford’s d.school, IIT in Chicago, School of Information at Berkley, and Media Lab at MIT, became laboratories for testing new pedagogies and educational approaches as well as supporting the transition from discipline-based education to process/problem focused education...the needed transformation should be radically centered on students and based on innovative ways of teaching, new organizational frameworks and collaborative learning environments. (Bertola, Paola, Harfoush, Nabil, & Vacca, Federica, In Press)

These scholars speak strongly to the need for academic programming which will develop innovation leaders. It follows therefore that to create and sustain such programming, significant innovation is required in its creation, its delivery, and in the necessary administrative structures and support.

THE MASTER OF DESIGN IN STRATEGIC FORESIGHT & INNOVATION AT OCAD University

In the development of the Master of Design in Strategic Foresight and Innovation, OCAD U is among these pioneering institutions who are attempting to create new models for education and aspiring to become a responsible actor in the positive transformation of contemporary society. As the first academic program in the world at the intersection of foresight and design, SFI can claim a place at the cutting edge of pedagogy and foresight practice. Combining design thinking and business thinking with futures thinking is key to improving strategic intervention.

The objective of the SFI program is to educate professionals who will design creative processes, strategies and implementation plans for collectives who

want to make transformational change. The graduates are strategists and innovators who work in the private, public and not-for-profit sectors.

The SFI program develops competencies in foresight, business and design innovation methods that, when applied, will develop solutions that are strategic, transformative and sustainable—economically, socially, and environmentally—and which address human needs. It interweaves design methods, social science, systemic design, futures thinking and business design with the aim of providing the skills and knowledge to better identify critical issues, frame problems differently and develop innovative strategies, solutions and implementation plans. Through holistic thinking in a co-creative environment, a highly diverse group of students learn how to develop together the skills required for innovation leadership.

Per Judith Donin, “New multidisciplinary approaches need to be adopted where teams from a wide range of disciplines and departments are able to work together to allow for more dynamic and innovative thought.” (Donin, Judith, 2014) Our strategic innovation model, Figure 1 below, illustrates the integration of design, business, and futures thinking through systems thinking. This integration allows our students to move through an iterative design thinking process, understand the business context to ensure viability and develop deeper insights into the challenges a sector or organization might be facing through futures thinking. Systems thinking and mapping locates these complex challenges in a larger system and makes clear the patterns and interconnectedness of the issues; and visual thinking ensures more effective communication of complex data. At the centre of it all is the focus on the human factor. Key to the success of any innovation is how well it addresses human needs, motivations and behaviours.

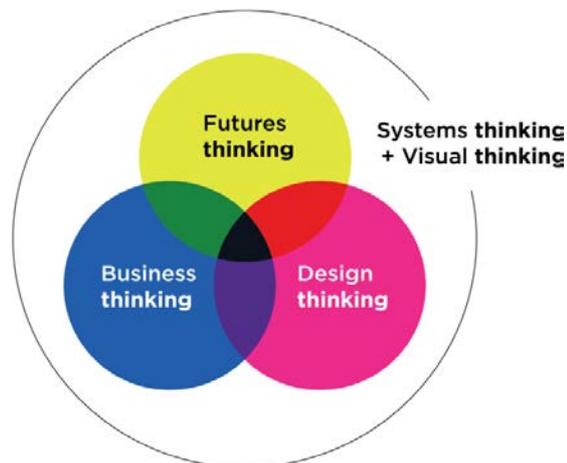


Figure 1 – The SFI Program’s Strategic Innovation Model

Our innovation process includes: Problem finding – foresight
Problem framing – strategy
Problem solving – design

Foresight is a differentiator for the SFI program. It can be defined as “a systematic, participatory, future intelligence gathering and medium-to-long term vision-building process aimed at present-day decisions and mobilizing joint actions” (Gavigan, James et al., 2001) Our graduates can significantly enhance an organization’s success by looking further into the future at changes that may be coming. It allows an organization to make smarter decisions today – to essentially ‘future proof’ itself – a very critical advantage in a rapidly changing environment.

Students think creatively and holistically – exploring, challenging and finding meaning in order to reframe and guide both present and future actions. The program curriculum focuses on breadth, connecting the diverse skills and expertise of the students to form effective groupings that can address complex problems. Most of the students do not have a design background. “Fortunately, the skills that make for a great design thinker – the ability to spot patterns in the mess of complex inputs; to synthesize new ideas from fragmented parts; to empathize with people different from ourselves – can all be learned.” (Donin, Judith, 2014)

SFI Pedagogical Principles

Application to ‘Meta’ Problems

Application of knowledge and methods is a priority in a program focusing on change-making. Research methods, design thinking and foresight tools are applied to ‘meta’ problems in a variety of sectors. Topics of exploration include health futures, strongly sustainable business models, media futures, urban systems, visualizing emergence, and education futures. All theory learned is done in the context of relevance to application. Case studies are examined to enhance real world understanding and industry ambassadors are invited to participate in many of the courses. They provide a real world context and subject matter expertise for course project work as well as valuable mentoring. With OCAD U’s home-grown expertise in ‘studio-based’ education, many of our classes provide opportunities for in-class project work and individual coaching.

Opportunities for students to apply their knowledge are provided outside of the classroom as well. Strategic Innovation Lab (sLab) as well as other OCAD U research labs, hire students as research assistants for scholarly and/or contract research projects. In addition, there are several faculty-led research groups where interested students are invited to participate. A recent collaboration with the Schulich School of Business at York University in Toronto, teamed students from both institutions to explore innovative health care related ideas in the context of our aging population.

Transdisciplinarity

Multidisciplinarity is key to addressing complex issues. In developing a curriculum that crosses many disciplinary boundaries, and through fostering exceptional faculty and student collaboration, a holism or ‘transdisciplinarity’ is achieved.

Student and Faculty Diversity

Prime SFI candidates are mid-career professionals representing a diversity of subject matter expertise, age, gender, world-views and cultural backgrounds. Their professional experience is in the public, private and not-for-profit sectors and their disciplinary backgrounds include science, social science, humanities, computer science, engineering, design, art digital media, strategy, marketing finance, economics, law and journalism.

We very consciously ‘design’ each of our cohorts. We create a matrix of the students’ attributes and carefully consider the make-up of each cohort as we make our admissions decisions. Academic achievement is only one of the many criteria used to predict success in SFI – we also consider diversity of experience and accomplishment in professional practice, level of responsibility, personal maturity, life experience and the students’ motivations for joining the program. Emphasis is placed on exceptional inter-personal skills, openness to new ideas and intellectual curiosity.

Our faculty are a highly diverse group as well due to the multi-disciplinary curriculum. There are both practitioners and scholars and they consist of futurists, designers, systems experts, social scientists, ethnographers, engineers, business consultants and strategists. Due to the curricular imperative to apply new knowledge in real world contexts, it is critical that the majority of the faculty be practitioners. As a result, many are part-time, which is anomalous in a traditional university setting, although less so in professional programs.

Collaboration, Co-creation and Facilitation

An exceptional level of collaboration is needed between faculty, and between students. Course curriculum is intertwined, most project work is team-based, and assignments are often coordinated between concurrent classes. The depth and breadth of knowledge represented by both students and faculty is critical to make a ‘co-creation’ environment possible. The classroom environment is highly interactive. Faculty and students together engage in information-sharing and ideation where the faculty act more as guides than as masters.

Collaboration skills are also critical for participating in and leading innovation processes. Representatives from a range of disciplines must work together to provide the requisite skills and knowledge when addressing complex issues. Our classroom diversity provides a perfect ‘test bed’ for this scenario. Similarly, engaging key stakeholders is critical in the innovation process, both for the information and insights they can provide but also for including and empowering them in the process. If stakeholders participate in the innovation process, they will be advocates rather than resisters of change. Facilitation skills are essential for providing this leadership.

Lectures, seminars and workshops that teach teamwork success, effective communication and negotiation skills and facilitation methods are provided throughout the program so that students can apply these skills most immediately to course project work and ultimately to real world problems.

SFI Core Curriculum

The SFI program is a course-based program which culminates in a Major Research Project (MRP). Transformative change-making skills in the SFI program are driven by the development of the following competencies:

Sensemaking and Futuring

Our *Human Factors*, *Research Methods*, *Systems* courses and *Foresight Studio* build the knowledge and skills to make sense of complex information and develop the insights necessary to properly find and frame problems. Fundamental human factors and systems theory and concepts are learned in the context of their applicability to social and business innovation. Ethnographic and participatory research methods ensure that people's needs are consistently at the heart of all research investigations.

We have a uniquely developed practice in our *Systems* course, where student teams select complex social system problems for which they conduct human-centred research and build system maps representing their research and design proposals. Visualization of complex data is critical in all project work and is particularly evident in the GIGAmaps where the students create and visually communicate a narrative that provides a snapshot of the complex problem understanding and suggests opportunities for interventions. Classic foresight techniques are studied and applied to challenges entitled 'The Futures of X' where topics such as healthcare, human communication and financial services are explored. Environmental scanning reveals trends and drivers of change that provide the critical uncertainties on which to build future scenarios.

Ideation and co-creation

In our introductory *Business and Design Thinking* course, design and business techniques as applied to an identified problem space, demonstrate the importance of design thinking to business success. A 'hands on' project experience is developed through a business simulation and the creation of an innovation design solution. Students are introduced to key design thinking methods including problem definition, information gathering and analysis, idea exploration, idea testing/prototyping, and evaluation and selection.

The culminating project in the *Foresight Studio* is the 'Time Machine' project where students bring their futures to life. Time machines press design thinking, prototyping and transmedia storytelling into service as teams materially and performatively immerse visitors in future scenarios whose logic they have spent the semester developing. The Time Machine deepens the understanding of how a scenario holds together, and with what strategic implications. It is the insights, implications and strategies that can be drawn from these possible futures that are so critical in helping organizations thrive in changing environments.

Strategy, Business Modeling and Action Planning

To meet our program objective of building skills to *make* change, the final three courses of the program emphasize actionable outcomes in the form of strategies, business models and implementation planning.

In the *Strategy Development* class, emphasis is placed on exploring strategy development as it occurs in organizational settings, and as an adaptive response to the ongoing imperative to maintain relevance and generate value. Students explore the formulation of strategy in the context of emerging foresight, stakeholder expectations, market demands, internal capabilities and organizational culture. The course collaborates with the *Foresight Studio*, sharing topics and student teams, and students work with the insights and implications from the *Foresight Studio* to define the strategy challenge, conduct analysis and develop final strategies.

The role of the business model in strategy development and innovation management has become clearer in recent years, and our *Business Model Innovation* course equips students with a cutting-edge set of tools, techniques and frameworks that integrate strategy, business modeling and innovation.

Collaborating with the *Business Model Innovation* course, *Leading Innovation* provides skills development in leading and implementing innovation. Key concepts include: types of innovation, styles of leadership, frameworks for change, positioning innovation and overcoming barriers to change. Student teams are assigned a real client organization and tasked with solving a business challenge using their combined learning from the two courses. They present their recommended solution in one integrated report to their client.

Major Research Projects

The following sample of research questions from the students' Major Research Projects illustrates how students apply their new skills to very diverse topics:

- How might wearable, implantable or ingestible technologies affect us in the next 30 years?
- How might we re-design the response of primary care to better address the social determinants of health of patients?
- How can developing countries plan for housing market transformation that addresses both national goals and international climate change targets?
- How can we disrupt people's eating patterns and make nutrition a higher priority for all stakeholders in Toronto?
- How are science fiction storytellers and futurists designing experiences that help 21st century audiences explore the implications of technological changes in our world?

Student Opportunities and Successes

Awards and Competition Wins

- Rotman School of Management, Toronto, Business Design Challenge: SFI teams placed first in 2012 and placed second and third in 2013.

- Hult Prize Competition 2014, Topic – Early Childhood Education in Urban Slums: Two SFI teams of 250 were selected from 20,000 original submissions to proceed to the semi-finals, held in early March, 2015.
- Recent graduate Ryan Church's company, BiomeDesign, was nominated in December 2014 for a Design Management Europe (DME) award. BiomeDesign integrates sustainability and innovation with human centred design foresight and biomimetic design in three areas of focus: energy, healthcare and society.

Research

Our associated research lab – Strategic Innovation Lab (sLab), is strongly linked to the success of the program. sLab develops innovative solutions by applying design thinking, business intelligence and strategic foresight to envision alternative futures. sLab is a hub for collaborative relationships between OCAD U and government, industry, not-for-profit and community groups, combining advanced methods of academic research, project-based consulting and participatory engagement. The research projects provide important opportunities to test our methods; critical for informing curriculum development as well as providing the students with opportunities to apply their learning. Faculty-led research groups including the Strongly Sustainable Business Model Group (SSBMG), SystemCity, Envision Health, Media Futures and Design Emergence Media Organization (DEMO) have emerged as foci of research within sLab. A number of other OCAD U research labs including the SuperOrdinary Lab and Situation Lab again complement and provide thought leadership for the SFI program. A speaker series as well as explorations seminar events attract the OCAD U community and relevant external community audiences to interact, explore, and discuss new thinking with notable thought leaders.

Employment

The employment opportunities for the graduates include: enhancing their professional skills and increasing their impact at their current organization; career advancement to leadership positions in current or new organizations; bridging to new but related professions; entrepreneurship in general and social entrepreneurship in particular. Some of the positions our graduates hold include: *Director of Innovation*, BBM Canada; *Director, Strategy and Creative*, Green Living Enterprises, Toronto; *Senior Innovation Consultant*, Dublin, Chicago; *Facilitation Strategy & Systems*, Centre for Addiction & Mental Health, Toronto; *Manager of Transformation*, Elections, Ontario; *Manager, Policy Context & Capacity*, Executive Council, Government of Alberta.

LESSONS LEARNED AND FUTURE EVOLUTION

Ongoing Program Development

The program has been diligent in eliciting feedback from students through face-to-face discussion as well as through regular surveys, to ensure that the program is meeting their expectations. This has provided the information

needed for us to shift emphasis in curriculum, adjust course sequencing and eliminate and/or add courses.

Focus on Application

The message we have consistently heard from the students is that they want to develop skills to *make* change. The focus must be on application, and any theory included in courses needs to be presented in the context of how it informs application. This has incited a good deal of healthy debate between the scholars and practitioners in the faculty, and we constantly strive to meet the students' wishes while maintaining an appropriate level of scholarly learning and work.

Teamwork

Student collaboration is one of the program's greatest strengths and is also its biggest challenge. Team selection, effective teamwork in a non-hierarchical environment and differing motivation or contribution of team-mates are ongoing challenges. We learned that it is important for the faculty team to actively monitor and identify at an early stage, the tensions emerging in student teams, and proactively intervene. We are considering using more frequent self and peer evaluation throughout a project as well as including team performance in the evaluation of course project work.

Curricular Intervention

Teaching highly diverse classes does create some challenges as there is an inevitable variance in knowledge and skill sets across our student cohorts. In order for our multi-disciplinary collective to become a more holistic transdisciplinary collective, we mount targeted workshops in a 'workshop week' each semester. We also use these workshop weeks to address curriculum gaps that we have identified through the ongoing refinement and evolution of the program. Our workshop weeks are highly adaptive and serve as an excellent tool for immediate curricular intervention.

Professional Identity and Labelling

In a transdisciplinary program, employers (and students) have difficulty articulating their skill set in an employment market still defined in vertical disciplines. In the first years of the program this resulted in student (and faculty) anxiety about the kind of jobs graduates might pursue. The integration of SFI students in sLab research projects and the ambassador-supported class project work, showcased the students' skills to clients, who began to worry less about assigning them a standard label. Today we have an established track record of student achievement and employment in various sectors. As the reputation of the graduates spreads this issue will all but disappear.

Program Growth

Growing an innovative program such as SFI is particularly challenging due to the difficulty in finding faculty who truly understand the program and have in addition to the academic and professional expertise required, the personal qualities essential to become part of the SFI faculty team. Beyond the challenges of creating suitable salary levels for part-time practicing faculty

from a range of disciplines outside of the traditional art and design domains, there is the challenge of finding faculty passionate about creating new models of education; faculty who are exceptionally collaborative; and who are willing to invest the time to engage with team colleagues and to mentor and coach students outside of the classroom. Adding a full-time option was very challenging in this regard. Faculty who appeared eminently qualified to teach in the program struggled to meet the student and program demands, and in a number of cases simply did not meet expectations. Issues were resolved quickly, such as providing additional mentors to the faculty and bringing in guest speakers to address learning gaps.

The SFI program is young; the curriculum has been actively evolving since its launch in 2009 and in 2013 a full-time option was added. The program has grown from an initial cohort of 22 students to a total enrolment of over 100. There is no immediate need to grow in size, but for reasons of reputation and credibility, there is an interest in carefully considering the following options:

- partnering with other institutions either locally or internationally
- creating a low residency model that would attract part-time students from greater distances
- offering intensive certificate programs
- student and faculty exchange with similar programs
- providing more options or streams within the current program that would allow targeted study in areas such as public policy or business innovation.

Administrative Challenges

Traditional educational structures don't easily support new models of education nor the students they attract, and can be slow to respond to challenges that arise. While OCAD U is philosophically supportive of the SFI program, there inevitably have been significant challenges in administering the program. We are exploring new methods and arenas for recruitment and promotion, and new approaches and policies for non-traditional research projects, faculty appointments and admissions and registration processes. As an interim measure, we often develop 'work-arounds' to accommodate student, faculty and operational needs. While there have certainly been growing pains, much has been accomplished since 2009 as the SFI program and OCAD U together learn what is needed for this ground-breaking program to thrive.

CONCLUSION

Despite the significant challenges associated with change, academic institutions must be more versatile – providing program competencies that will create citizens of the world who are adaptable, creative, socially responsible and contribute to building new futures.

Education based solely on past models will fail, whereas education that learns from the past, based on navigating through uncertainty, and built on cooperation, can lead us to create a world we want to live in and pass on to generations to come. The future needs people who are able to synthesize and contextualize information, keep an open mind to

continuous change and emergence and look for, and see, a bigger, much bigger picture. Specialist expertise is still essential, but should be linked with other specialist expertise to generate a more comprehensive understanding of the expanding complexity of the emerging world. (Hodgson, Tony, 2014)

The SFI program is one of a growing number of innovative programs which can inform our thinking about the future of education. The challenges are certainly great, but within them lie abundant opportunities.

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