

# Imagining Canada's Future: Research goals for an interconnected, evolving global landscape

McGill University's Contribution  
to SSHRC's *Imagining Canada's Future*



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# Acknowledgements

McGill University's *Imagining Canada's Future* event was organized by staff from McGill's Graduate and Postdoctoral Studies, the McGill Institute for the Study of Canada, and Teaching and Learning Services—SKILLSETS, including:

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A special thanks to Associate Provost (Graduate Education) and Dean of Graduate and Postdoctoral Studies Professor Martin Kreiswirth, keynote speaker and Director of the McGill Institute for the Study of Canada Professor Will Straw, and the graduate student participants.

We recognize the support of the Canadian Association for Graduate Studies (CAGS) and the Social Science and Humanities Research Council of Canada (SSHRC).

Cover and inside photos by McGill University (Communications & External Relations). Event photos captured by Owen Egan. Video captured by Multimedia Services—McGill University.



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# What knowledge will Canada need to thrive in an interconnected, evolving global landscape?



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# What knowledge will Canada need to thrive in an interconnected, evolving global landscape?

## Introduction

To contribute to a national discussion on Canada's research future, McGill University's Graduate and Postdoctoral Studies, the McGill Institute for the Study of Canada, and Teaching and Learning Services—SKILLSETS organized an event to foster dialogue on the production and dissemination of knowledge for Canada's future.

On Monday, April 13, 2015, McGill graduate students, faculty and staff were invited to share in this conversation. After welcoming remarks from Professor Martin Kreiswirth (Associate Provost (Graduate Education) and Dean of Graduate and Postdoctoral Studies, keynote speaker Professor Will Straw (Director of the McGill Institute for the Study of Canada) challenged some dominant paradigms in social science and humanities research cultures.

His keynote was followed by short talks by seven McGill graduate students on how their research contributes to Canada's knowledge needs in an interconnected, evolving global landscape. All participants then engaged in round-table and moderated discussions on the topic.



## Holly Ann Garnett

Imagining Canada's Future is ultimately a project aimed at looking beyond our current research activities to anticipate the needs of Canada's future policymakers, teachers, entrepreneurs and citizens. As keynote speaker Professor Will Straw explained in his address, this first requires the deeply personal development of research questions to understand the issues that need addressing. This report brings together the research of SSHRC-funded graduate students, aimed at addressing the question "What knowledge will Canada need to thrive in an interconnected, evolving global landscape?" Each of these student researchers from across social sciences and humanities departments at McGill engages with society in ways that are unique to their research program. In this way, the students featured here are exemplars of the promise of Canada's interconnected, evolving, global future.

### Interconnected

Interconnectedness extends to contact with diverse international populations, but also the unforeseen connections between disciplines. Consider Olivia Heany, a graduate student in the Department of English, who has found the heart of her research question in such disparate places as the Alberta Oil Sands and a Newfoundland documentary premiere. Heany seeks to understand how the connection between the oil and cultural industries shape us as Canadians. Blair Major sees a need for thoughtful dialogue between the study of law and religion, especially in light of news-making cases regarding religious freedom and Canadian values. These graduate student researchers are tackling questions of national significance through increasingly interdisciplinary lenses, and building bridges between research agendas that may not have had constructive dialogue in the past.

## Evolving

In an environment of unprecedented and rapid scientific discoveries, social science and humanities researchers are called upon to help Canada understand and take advantage of technological innovations. Gregory Trevors studies Canadians' need for digital literacy: how can students and citizens filter through diverse opinions and a vast amounts of data on important scientific issues? Similarly, Carlos Rueda, from the Faculty of Management, looks beyond traditional education and studies the potential of massively open online courses (MOOCs). He argues that rather than replicating or replacing traditional education in the online world, MOOCs are presenting new forms of learning and assessment for diverse populations. The democratizing potential of technology is also considered by Francois Leblanc, a graduate student in the School of Architecture. Leblanc sees a global future in 3D printing, in its ability to allow all to participate in creation labs, and by promoting local manufacturing and reducing waste. As each of these students note, the evolving technological landscape requires innovation in the ways that we use and evaluate these capacities.

## Global and Local

The SSHRC future challenge questions help position thinkers to promote and imagine Canada's global future. This future will require dialogues with diverse communities around the globe. As a country that has prided itself on diversity, we are in a good place to consider previously unheard or underappreciated voices outside our borders. However, this global future should also push us to pause and listen more closely to the traditionally under-represented voices within our borders. In her research, Vanessa Blais-Tremblay considers the forgotten history of black female musicians, singers, and dancers during the golden age of Montreal jazz. She pushes us to consider which voices we are misrepresenting today. Eun-Ji Amy Kim challenges us to consider the contributions of Indigenous voices to science education, asking how Canadian students could benefit from Indigenous Knowledges in their curriculum. Both Kim and Blais-Tremblay argue that Canadians in a global world need to consider diverse voices from the education, scientific and cultural spheres.

## What knowledge does Canada need in an interconnected, evolving, global landscape?

Together, these graduate student researchers make it clear that the knowledge that Canada needs for the future will be found both within and beyond our borders. We will reach these research goals by looking into the global future with a healthy dose of introspection. Social science and humanities researchers have a unique capacity to make sense of new technologies, new voices and new fields of interdisciplinary study. These researchers will help us shape the interconnected, evolving and global landscape of Canada's future.

# Contributors

**Dr. Will Straw** is the Director of the McGill Institute for the Study of Canada. His research deals with cities, popular culture and media.



**Olivia Heaney** is a PhD candidate in the Department of English. Her research explores the energy humanities and 'petroculture' in Canada and beyond.



**Blair Major** is a PhD candidate in Law. His research focuses on how religious and legal discourses can be engaged in constructive dialogue with Canada's values.



**Gregory Trevors** is a PhD candidate in Educational Psychology. His research explores the uses of digital literacy to engage with global and local issues.



**Carlos Rueda** is a PhD candidate in Management. His research examines MOOCs and new ways of organizing learning.



**Eun-Ji Amy Kim** is a PhD candidate in Integrated Studies in Education. Her research investigates Indigenous perspectives in science curriculum in the Canadian education system.



**Francois Leblanc** is a PhD candidate in Architecture. His research focus is 3D printing technology and the shift from a global manufacturing chain supply to a service-based economy.



**Vanessa Blais-Tremblay** is a PhD candidate in Musicology and Women's Studies. Her research explores jazz musicians in Montreal and colour- and gender- blind historical and nationalist narratives.



# Social and Cultural Research in Canada: What's Wrong and What's Right

## Professor Will Straw

At the end of April, 2015, my 50<sup>th</sup> doctoral supervisee will defend her dissertation. Reaching this milestone is the thing I'm proudest of in my career. Many of the people whom I've supervised did not stay to work in Canada when they completed their doctoral degrees. Some are working in Beirut, London, Berlin, New York, Pennsylvania, Cairo and Tel Aviv. Large numbers of these people came to McGill between the late 1990s and 2010. These were years in which the Canadian Research Chair program and the hiring of younger, productive new faculty made Canadian universities exciting places to be. It was a particular pleasure to involve many of these people in collaborative research projects. In these projects, my students conducted research in an interdisciplinary fashion with scholars who worked in other disciplines, in other languages and in other universities. These students were part of teams which took up questions like the place of culture in cities, or the challenges institutions face around the world in archiving their audio-visual heritage.

These students brought their research areas with them to Canada, which were refined through ongoing contact with Canadian expertise. They then took their research back with them, to the places in which they now live and work.

I must admit that I'm suspicious when anyone attempts to come up with lists of the kinds of knowledge we need in Canada, or to establish research priorities, for students or for faculty members. Graduate students and faculty are always bringing with them, to McGill and the other Canadian institutions at which they study, research

interests that were formed in their life experiences and in the places in which they've lived and grown up. Those interests hook up with larger questions and larger contexts, of course. But those interests all bear the rich, deep textures of the backgrounds in which they are formed.

When I look at the SSHRC list of Future Challenge Areas, however, I see, for the most part, areas that have been floating around the top of a great deal of academic research for most of the last twenty years. Indeed, most of the questions on that list took shape in research that was not driven by identified priorities, but that emerged from more or less unfettered inquiry. I can think of dozens of research projects that may have arrived at the questions listed in the Future Challenge Areas, but that didn't begin there.

My point is not that research in Canada should take place without any kind of social accountability or guidance. I do believe, however, that high quality, pertinent research depends on a very particular process by which research topics are formed and refined and held to account. The best version of this process, in my view, is one that marshals the widest diversity of backgrounds and interests. It is one that brings young researchers together with those who are more experienced, and that is shaped by the pressures and stimuli of the public university and its surrounding communities. I would suggest that, with all their faults, university communities offer more of the diversity we need, and solicit more of the accountability we expect, than any other public institution I can think of.





**“Most of the questions here, it seems to me, took shape in research that was not driven by identified priorities but which emerged from more or less unfettered inquiry”**

**(Will Straw)**

This is why, in 2015, and across so many disciplines, really interesting work is being carried out, for example, on the question of *performance*, and what that means for theatre, new media, public life, identity, sexualities and a range of other issues. This is why, as well, we have something called the *urban humanities*, in which those who study architecture, media, film, literature, and political theory are coming together around a profoundly shared set of ideas about the character of cities.

And this is why the study of *indigeneity* is cutting sharply across most of the disciplines in the social science and humanities—not just as one more sub-area to be developed or one more identity to be acknowledged, but as a profound challenge to the ways in which we imagine knowledge, organize scholarly work and rethink the social and ethical mission of the university.

These areas have not arrived in the academy magically, or even organically. People have struggled and argued for them, in both intellectual and institutional ways. But they have emerged in ways that depend at least in part on the independent pursuit of intellectual inquiry.

The two university systems I’ve visited in the past few years which have most impressed me are those of Norway and Brazil. In Norway, the national government has been committed to investing large amounts of energy revenues in social infrastructure, like universities. This has

resulted in a significant expansion in the number of full-time professors, postdoctoral fellows and funded research projects. The other system that impresses me is the Brazilian system, and particularly the Brazilian network of federal universities, which has expanded quite remarkably over the last decade or so. I’m impressed by a number of things: by the insistence on the integration of research and teaching, for example, and by the integration of faculty and students in focused, team-based research which aspires to the highest quality and interest.

The back and forth between Brazil and Canada these days has much to do with what I see as similarities in our research cultures. In both places, the borders between the social sciences and humanities are porous, particularly in the cultural field. In both, the commitment to individual inquiry is balanced by a deep interest in collaboration. In both, as well, there has been a strong commitment to the public university, to public support for research, and to a view of research they simultaneously protects its independence and seeks new ways of making it public.

These are the things we need in Canada: a strong commitment to public universities, but also an expansion of the graduate fellowships, postdoctoral funding and research grants, which are a significant reason for our international success.



## Professor Will Straw

Will Straw is a professor in the Department of Art History and Communications Studies at McGill University and currently serves as Director of the McGill Institute for the Study of Canada. His work deals with cities, popular culture and media. He is a winner of the David Thomson Award for Graduate Teaching and Supervision.

# Canada's Place in the Energy Humanities

Olivia Heaney

The exploration of humans' relationship to energy and its production is one of the most transnational issues at the forefront of contemporary Canadian scholarship. The analysis of petroleum culture, or petroculture, is particularly relevant within the Canadian context because of our natural-resource based economy, which relies heavily on oil extraction and production. Thus, the energy humanities are a perfect example of a knowledge area that Canada needs to cultivate in order to thrive in an interconnected, evolving global landscape.

In an opinion piece in *University Affairs*, Imre Szeman and Dominic Boyer set out to broadly define the energy humanities by drawing attention to the fact that our energy concerns often derive from issues of habit, institution, and power—all of which are areas of expertise for the humanities and social sciences. By allowing us to explore Canada's contemporary cultural production about oil, the energy humanities help us imagine the kind of relationship between energy and society that is needed for future worldmaking.

Like oil itself, the energy humanities cross borders that are both geographic and disciplinary. This transnational interdisciplinarity is reflected in current

research, which is being carried out across Canada and in conjunction with other countries. "Petrocultures" was the theme of the McGill Institute for the Study of Canada's annual conference in 2014, which brought together leading figures within the energy humanities from around the world to discuss the role of oil and energy in shaping social, cultural and political life; likewise, the University of Alberta's Petrocultures research cluster brings together scholars from all areas of the humanities whose research is related to the socio-cultural aspects of oil and energy in Canada and the world.

My research is situated within the porous boundaries of this rapidly emerging field. As a study of human/nature relations in Canada, it attempts to locate contemporary Canadian film and theatre within recent transnational cinema and performance that reflects widespread eco-anxiety.

In the past 10 years, there has been a wave of Canadian cultural production with subject matter that is rooted in the nation's natural resources. This trend has had a particular resonance in film and theatre about oil. My dissertation looks at how the affects, narrative structures, and styles of contemporary film and theatre address







**“His comment made me curious about modes of dwelling in the impasse that is created by our dependence on oil.”**

**(Olivia Heaney)**

relations between humans and nature in Canada, particularly as these relate to the natural resource-based economy.

My primary texts come from Alberta, Quebec, and Newfoundland and range from theatre to film. For example, the project includes analysis of an applied theatre piece about the sinking of the oil rig *Ocean Ranger*; a feature film about raising public support for a petrochemical factory in rural Quebec; and an interactive web documentary called *Fort McMoney*. The project is regional in scope, but focuses heavily on the connections between the cultural productions of these regions. Like the study of energy itself, cultural productions from these regions transcend literal and figurative boundaries.

Many of the cultural productions examined in my project either dwell upon cultural- and eco-anxiety or attempt to mask it through comedy, nostalgia, and sentimentality. When I attended the Newfoundland premiere of one my chosen films, I asked the director why he chose to use comedy to explore the issues it broaches, and he responded by saying, “Well, a story about oil has got to be a comedy.” His comment made me curious about modes of dwelling within the impasse created by our dependence on oil, and about what is literally left out of the frame or off the stage in cultural productions about oil. How do comedy and laughter reflect or complicate the affects produced by our relationship to such forms of

energy? What does our recent cultural production about oil say about the gap between thought and action that characterizes eco-anxiety?

In 2013, the World Energy Council reported that if we continue within the current “affordable and accessible” impasse, by 2050 we are likely to be using 60 percent more total energy than what we use today. Oil and gas will be the forms of energy we continue to depend on the most. In a world where oil tankers built in South Korea take on crude from pipelines in the Persian Gulf for refining on the coast of rural Newfoundland, studying Canada’s cultural productions about oil will help us better understand our place. So, in answer to the question, “what knowledge does Canada need to thrive in an interconnected, evolving global landscape?”, I posit that we need the energy humanities, and the study of petroculture in particular.

This area of research will allow us to better understand the habits, institutions, and structures of power that facilitate our attachment to modes of living that aren’t sustainable. It will allow Canada to propose new theoretical tools for shaping relations between humans and nature on regional, national, and global scales.

*(Work Cited: Dominic Boyer and Imre Szeman. “The Rise of Energy Humanities.” University Affairs 12 Feb. 2014. Web. 1 April 2015.)*



## Olivia Heaney

Olivia Heaney is a PhD candidate in the Department of English at McGill University. Her dissertation, “Canada’s Cultural Greenhouses: Anxious Human/Nature Relations in Contemporary Cinema and Performance,” uses approaches from ecocriticism and petroculture to explore the ways in which Canadian film and theatre have responded to cultural and economic precarity in the age of globalization. Olivia holds a SSHRC Joseph-Armand Bombardier Canada Graduate Scholarship Doctoral Award. She has also worked extensively as a practitioner in the film and theatre industries.

# The Insight of Overlap in the Dialogue(s) Between Religion and Law

Blair Major

Given the growing interconnectedness of our global community, Canadian society is becoming more and more socially complex. Part of the complexity can be seen in the intersections – which sometimes look more like spectacular collisions – between religion and law.

There are two recent examples of this. One is the story about Ms Zunera Ishaq, a woman who would like to wear a religious face covering while taking the oath to become a Canadian citizen, and the government who opposes her. Another is the story about a private Christian University, Trinity Western University, that would like to open a law school, and the law societies and lawyers that oppose it. The arguments and ideas batted back and forth in both situations are emotionally charged and polarizing. Meaningful public dialogue about them has become almost impossible. As a result, both of these situations are now proceeding through the court system.

Confronted with situations like these, we often find ourselves prone to a misguided faith in the power and promise of “knowledge” – that if we can just find the right idea then everyone will agree, or we can feel confident in silencing those who don’t. I suggest that we should hesitate in making claims about what it is that Canada needs to “know” in order to find answers to the questions we encounter in the interactions between law and religion.

The difficulty is that law and religion are complex things, with complex histories. There is no clear way to

establish that one is “right” and the other “wrong” – that religion needs to bend to law or law bend to religion. Constant attempts have been made to do this over at least the last 900 years, but still without sustaining results. Perhaps instead of trying to find the ways to decide *between* religion and law we should think more about the ways that they agree with each other.

“Agreement” between religion and law is not the best way to approach the matter, though, because it might fail to escape the mentality of finding “right” and “wrong” positions. In my research, I have found it better to think about the connections between religion and law in terms of *overlap*. There are three specific points of overlap that reframe the way we think about interactions between law and religion, which might be helpful in the discussions of *Canada’s Research Future*.

First, both religion and law ascribe special meaning to things through their own constructed symbolic systems. These symbolic meanings are grounded, for both religion and law, in real experiences and real actions. Second, both religion and law constantly struggle to define their *boundaries* – for law, what is unlawful; for religion, what is unorthodox. These boundaries constantly move, and are always pushed and pulled by dissenting voices. Thirdly, for both religion and law, *community* plays a central role, especially in constructing meanings and defining boundaries of belonging.



**“[It’s] a matter of trying to reframe the way that we think about these two entities... or discourses in religion and law.”**

(Blair Major)



No doubt, law and religion are different, and they often times disagree. But maybe if we focus our attention on these points of overlap we might start to see that they can speak to each other in constructive ways, even in their disagreement.

As an analogy – we might think of law and religion as playing a similar tune. Like two members of a jazz band, their differences can be played together, and feed off each other. Since they are both trying to play the song together, the tension between them helps make the song what it is.

So, what does Canada need to “know” to thrive in the future? How can we address socially volatile situations like those involving Ms Ishaq and Trinity Western University? To answer the question in a somewhat cheeky way, I propose that the less we claim to “know”, and the less we attempt to resolve the tensions between religion and law, the better off we are. Such an attitude enables us to take the risk that is essential – to let religious and legal ideas of meaning and belonging push and pull each other in the song we are writing together, in constructing what we

call “Canadian Values” or “Canadian Society.”

It is not that we should be ignorant of the natures of legal and religious discourses, or that we should believe their differences to be intractable. To the contrary, it is to delve into the depths of both religion and law, and in that process to discover the insight of intellectual humility in addressing these important social questions. Sherman Clark, a professor of law at the University of Michigan, phrased it well when he said,

*“Crucially, what we seek is not the murkiness that can come from confusing things that could be clear, nor from mucking up something shallow until it is murky enough to seem deep. Rather, the uncertainty we acknowledge and seek comes from seeing clearly how deep something really is. This capacity, which might better be called intellectual humility, is not the opposite of clear thought but a consequence of it.”*

*(Work Cited: Sherman Clark, “Law School as Liberal Education” (2013) 63:2 J Legal Educ 235 at 241 )*

## Blair Major

Blair Major is a PhD candidate in the Faculty of Law at McGill University. He completed his undergraduate education at Trinity Western University, followed by his first law degree at the University of Alberta. Blair is a member of the Law Society of Alberta, and practiced law in Edmonton prior to pursuing graduate studies in law. Blair completed a Master’s degree in law at McGill, which focused on religious freedom in the field of international human rights. His current doctoral research focuses on exploring overlaps and connections between legal and religious discourses. Blair holds a SSHRC Joseph-Armand Bombardier Canada Graduate Scholarship Doctoral Award, and a Richard H Tomlinson Doctoral Fellowship from McGill University.



# Diving into Controversy and Developing Digital Literacy

**Gregory Trevors**

Scientific insights into our world have never been as necessary as they are today. However, in schools, curricula often present a straightforward march of scientific facts, hiding debates between researchers behind closed laboratory doors. In contrast, scientific discourse is often depicted in the media as fabricated controversies, granting equal air time for dissonant claims as if they were opinion. This creates a misalignment between what individuals believe to be the nature of science knowledge and the underlying epistemology of science that ultimately undermines their ability to make informed decisions. The end result is many urgent questions without many actionable answers: Are we causing our climate to change? Are children safer if we forgo vaccinations? How should we teach evolution in our schools?

If we fail to address these questions we cause serious harm to society. However, the persistence of misconceptions on these issues is indication that we are not doing enough to equip individuals with the requisite knowledge-based skills. I contend that one potential response to this complex issue is to strengthen Canadian's digital literacy skills, and in particular, to strengthen the ways we prepare students to evaluate and adjudicate between valuable and spurious knowledge, and real and fabricated controversies.

Educational psychologists look at the psychological constructs and processes underlying learning across contexts and the lifespan. The context my research considers how individuals go about learning from

conflicting documents on socio-scientific issues, like climate change, evolution, or genetically modified foods, which individuals often encounter online in the form of news articles, blogs, or message forums. In this research, I focus on one aspect of digital literacy — specifically, on individuals' personal beliefs about the nature of science knowledge and knowing. Researchers find that how successful individuals learn from conflicting information is affected by their expectation that science knowledge is composed of answers that are either simple or complex, complete or evolving, and derived via personal reflection, experts, or corroboration from multiple sources.

To see how these beliefs all work together, imagine, for example, a concerned mother who wants to learn about whether or not to have her child vaccinated. She wants to know, "Are vaccines safe?" For many people, that begins with online search engines, like Google, which likely bring up millions of links to websites and advertisements. These search results often will present multiple, overlapping, and at times conflicting sources, evidence, and conclusions. Some will claim unequivocally that vaccines are safe. Others will claim unequivocally that vaccines are not safe. Some websites will be from scientific institutions, like the Centres for Disease Control or the Public Health Agency of Canada that present long-term statistical trends. Other sites will cast aspersions on such organizations and present anecdotal but relatable evidence from other concerned parents.



**“Individuals may come to the situation thinking knowledge is simply right or wrong and they’ll likely gravitate to passively accepting those sources that already confirm their personal opinions rather than privileging expert sources or applying the rules of inquiry.”**

**(Gregory Trevors)**



So, a parent embarking on such a learning task might be presented with a complex, uncertain situation that requires active processing of diverse evidence and expertise. However, individuals may enter this situation already believing that the knowledge they are seeking is simple, absolutely right or wrong, and they will likely gravitate towards passive acceptance of the sources that confirm their personal opinions rather than privileging expert sources or applying the rules of inquiry. These two ends represent a continuum of how science knowledge, or science epistemology, can be viewed. Misalignment between the epistemic nature of this context and individuals’ personal epistemic beliefs may undermine their ability to make personally relevant decisions based on their understanding of science, like assessing the relative safety of childhood vaccines. So how do we promote individuals’ epistemic development? We can cultivate this facet of digital literacy if we explicitly highlight ambiguity and varied interpretations in science classrooms. However, this must be paired with instructional supports for students to develop the skills to make sense of varied interpretations. These skills include finding explanations for contradictions, deciding what counts as scientific evidence, and evaluating information critically and judiciously.

Ultimately, we should remember that new ways of communicating science knowledge online present a double-edged sword. On the one hand, now more than ever, science knowledge is widely accessible. On the other hand, it is also now commonplace to be exposed to unbridled skepticism of science that undermines our understanding of it. This leaves us to wade through complex, evolving, and controversial information.

Researchers in educational psychology are learning how to equip Canadians with an adaptive stance and skill set to contend with controversial knowledge found online. In this research, we hope to contribute meaningfully towards the goal of cultivating individuals’ digital literacy skills to evaluate between valuable and spurious knowledge and real and fabricated controversies. In so doing, we can empower individuals to make informed decisions about issues of personal and global significance.

We’re getting closer to this goal but we’re not there yet. But the urgent issues we face, like the controversies surrounding climate change, vaccinations, and teaching evolution, mean we cannot go without leadership in this area of education any longer. We can move forward if we are not afraid to dive into controversial knowledge. Canada can thrive when we learn how to make sense of interconnected, evolving global knowledge.



## Gregory Trevors

Gregory Trevors is a PhD candidate in the Department of Educational and Counselling Psychology at McGill University. His research has been funded by SSHRC at the Master’s, doctoral, and recently at the postdoctoral levels. Gregory investigates the psychosocial factors underlying learning from educational texts on controversial socio-scientific issues like evolution, climate change, and genetically modified foods. In particular, he has examined individual differences in cognitive processes, beliefs about knowledge and knowing, emotions, and self-identity as factors relating to success or failure of skilled self-regulated learning and controversial document comprehension.

# How Can Massively Open Online Courses Revolutionize the Way We Learn?

**Carlos Rueda**

Crowds, or “masses,” are going online to learn from each other, and universities are starting to understand the nature and potential of this relatively recent phenomenon on the Internet. Massively Open Online Courses (MOOCs) have been the first expression of this. The revolutionary aspect for human learning, however, is in the making.

The first MOOC happened in Canada. In 2008, George Siemens and Stephen Downes, two Canadian academics, decided to offer their course on *Connectivism and Connecting Knowledge* to the general public on the Internet simultaneously with the regular class. The 25 tuition-paying students were joined by 2,200 non-paying online learners. With this experience the idea of large crowds taking a free online course together was born. Only four years later, in 2012, three large MOOC providers were launched: Silicon Valley’s Coursera.com, Harvard-MIT’s edX.org, and Google’s coursebuilder. Today, there are more than 20 million MOOC learners from more than 100 countries taking 1,500+ courses offered by the best universities worldwide.

Although Universities wanted to spread access to their courses, the MOOCs movement became an innovation in an unexpected way: as an online massive learning party. A MOOC represents a gathering of thousands of people, coming to the Internet for a few weeks to learn about a common interest. Distance open education never really put people “together”, and traditional online education never reached “massiveness.” It is in this sense of massive-togetherness-to-learn where the revolutionary nature of MOOCs may be found. But there remain questions: How can we re-organize learning in new ways that better fit the Internet as a place where we come together? What would be the pedagogy of the Internet?

I am part of an amazing initiative and team at McGill University creating the MOOC *Social Learning for Social Impact*. Two years have been put into the design and development of this MOOC, which will be released through edX.org in the fall of 2015. This practical and conceptual journey has pushed us to answer the aforementioned questions with concrete answers (seen below). Some of

## MOOCs: A Pedagogy for the Internet

- Anyone interested in the same (broad) topic can participate.
- All learners find and work on their own learning agenda.
- Everyone is a learner and a teacher.
- Your life community (team, family, friends) is your learning community.
- Your life space (office, home, coffee shop) is your learning space.
- We will share moments of global “togetherness.”
- Everyone finds and creates the knowledge they need.
- Knowledge can be shared by anyone, and to anyone or to everyone.
- “Real life” experiences are at the center of learning.
- The learning experience provokes critical thinking and action.
- The MOOC can also be a social movement for a cause.
- Pedagogues are platform developers, facilitators and organizers.





“When we have a new medium or new technology we tend to fall into old habits.”

(Carlos Rueda)

these elements will be built into to the first prototype, some won't; some may produce results, some may not; but we are truly excited to contribute to the innovation in human learning with our particular approach to learning on the Internet with MOOCs.

MOOCs are unlikely to make campus learning disappear, as some scholars and media have suggested. On-campus and Internet learning will co-exist, and traditional MOOCs will also co-exist with new forms of MOOCs. Some people argue that MOOCs will never be as good as the campus experience, and, for most cases, they are probably right. But MOOCs do not have to be as good as the campus experience. They can be better in ways that the campus experience has yet to explore. And that is the aim of this research: MOOCs are not an educational revolution; they are, fundamentally, a learning revolution.

The massive-togetherness-to-learn can be understood as the innovative aspect of MOOCs. From there, learning theories have much to contribute. Authors such as Dewey, Freire, Piaget, Montessori, Schon, Lave, and Downes can be re-visited in the context of MOOCs in order to bring their ideas on experience, reflection, critical

thinking, autonomy, communities and networks into the design of innovative MOOCs. However, pedagogical innovations in MOOCs need to come together with technological innovations to create these learning structures online. In this regard, the field of “social computing” (the area of computer science concerned with the intersection of social behavior and computational systems) when applied to learning also has important contributions to make. Pedagogy and technology will have to come together; one stimulating innovations in the other. This is promising for the intersection of learning theories and social computing.

What knowledge will Canada need to thrive in an interconnected, evolving global landscape? The learning systems that MOOCs are building won't tell us what we will need to know to thrive, but they can help us to form the interconnectivity and the worldliness that information networks need to make the knowledge relevant and timely for immediate change and action.

## Carlos Rueda

Carlos Rueda is a PhD candidate in the Desautels School of Management at McGill University. His research focuses on MOOCs and the pedagogy of the Internet. He is also a faculty member and tutor with the *International Masters in Health Leadership* program, and instructor for the McGillx MOOC: *Social Learning for Social Impact*, which will be released by edX in October 2015. Carlos co-authored two articles with former McGill Principal Heather Munroe-Blum: *The Strategic Repositioning of Research Universities to Fulfill their Global Promise* (2013), and *Universities: Serving as, and Educating Global Citizens* (2012). Both were presented at, and published by *The Glion Colloquium*. He is a former SSHRC-Vanier Scholar, Fulbright Scholar, and Jeanne Sauvé Scholar.



# What Do Our Schools Teach About “Our Home and Native Land?” Indigenous Knowledge(s) and Science Education

Eun-Ji Amy Kim

In an interconnected, evolving global landscape, success in science education is strongly linked to the economic success and security of a nation. Current science education curricula in Canada caters to governments’ democratic agendas of developing informed citizens who are prepared to deal intelligently with science-related social issues and are highly qualified in the science, technology, engineering and mathematics (STEM) fields. Amongst OECD countries, Canada continues to be among the top performers in reading, mathematics, and science in PISA (Programme for International Student Assessment). However, the low achievement and participation of Aboriginal students in science classes has been continually reported by many Indigenous and non-Indigenous agencies and scholars. Some associate the lack of motivation to learn science among Indigenous students to curricula devoid of Indigenous Knowledge(s).\*

My doctoral research examines the current status and treatment of Indigenous Knowledges in the largely

Eurocentric education system in Canada, Australia and New Zealand. It considers the ways in which Indigenous cultures and perspectives are being included in educational curricula, pedagogy, and assessment policies. It recognises the ongoing disparities in science education outcomes for Indigenous students in Canada and the misrepresentation and appropriation of Indigenous cultures and Knowledges within the mainstream Eurocentric educational system. As an ally, I am particularly interested in Indigenous students’ experiences in Canada’s education system, as well as their status in today’s larger scientifically and technologically driven society. I argue that Canadian science education systems need to respect and value the diverse Knowledges and experiences of Indigenous peoples of Canada.

As the original inhabitants of Canada, Indigenous peoples have Knowledges that were acquired over thousands of years of direct human contact with the environment. Numerous scientific and technological contributions of Indigenous peoples have been

*\* Here, I use plural term for Indigenous Knowledges to acknowledge the diversity of knowledges related to the strongly rooted place-based traditions of their cultural foundations.*







**“Educational success in the field of science and technology is strongly linked with a nation’s economic well-being and security.”**

**(Eun-Ji Amy Kim)**

incorporated into modern applied science. For example, the federal government of Canada recommends the involvement of Indigenous peoples in environmental impact assessments, as biologists and chemists working in the field acknowledge that Indigenous practitioners can often detect changes in the environment, such as the taste of water, at levels below those of contemporary testing equipment.

These Knowledges are gaining much recognition and attention across popular media and academic circles. The United Nations officially recognized the role of Indigenous peoples and the value of Indigenous Knowledges for sustainable development with the signing of the Convention on Biodiversity in 1992 at the UN Conference on Environment and Development. These UN initiatives encouraged researchers and planners to pay closer attention to the Knowledges of Indigenous peoples in resource management and environmental studies. Indigenous peoples are also initiating global forums on the environment, through activities such as the Indigenous

Peoples Global Summit on Climate Change.

Despite these important contributions to science, many scholars state that in the majority of cases, the Knowledges of Indigenous peoples are incorporated into decisions only when doing so fits within current conventional scientific models of thinking. This can lead to biopiracy, or the misrepresentation and appropriation of Indigenous Knowledges.

It is essential that the Canadian government and Canadian researchers collaborate with Indigenous peoples so that Indigenous Knowledges and experiences can be valued and showcased in local, national, and global forums. In particular, we should take stances as allies in order to transform the current Eurocentric focus of education so that students are taught to honour Indigenous cultures and global ecosystems, engage in relationships of respect, and recognize the responsibility that comes with caring for the land.



## Eun-Ji Amy Kim

Eun-Ji Amy Kim is a PhD Candidate in the Department of Integrated Studies in Education at McGill University. Amy’s research interests include educational policy and the impact of integrating local Indigenous Knowledge(s) into science education in Commonwealth countries. Her doctoral work is supported by a SSHRC Joseph-Armand Bombardier Canadian Graduate Scholarship Doctoral Award, a Walter A. and K. Mary Marsh Fellowship, and a Jackie Kirk Fieldwork Support Award.

Amy holds a Bachelor of Science (Biology) from the University of Manitoba and a Bachelor of Education from the University of Ottawa. She completed her Master of Arts in Education at the University of Ottawa, where she explored the integration of Indigenous Knowledge(s) in current Canadian science curricula. A former secondary school science teacher in Ontario and Quebec, Amy collaborates with teachers and pre-service teachers on various research projects throughout the province of Quebec.

# Developing Creative Entrepreneurship and Resilience Through 3D Printing

**François Leblanc**

Like more than 1.5 millions of other Haitians, Michaëlle found herself homeless following the 2010 earthquake. Her house was part of the estimated 250 000 residences that had to be rebuilt. Left without a shelter, she ended up sleeping in the newly created shantytown in Port-au-Prince. Rebuilding the crumbling dwellings of the city has not been an easy task and has heavily depended on international cooperation to find creative solutions to the humanitarian crisis. Yet, five years after the tremor, slow traditional construction practices and scarce building materials have prolonged the tragedy; Michaëlle still lives in a temporary shelter with 200 000 persons like her.

Creative entrepreneurship could ensure that Michaëlle's tragedy won't happen again with the adoption of new methods of fabrication based on digital design. 3D printing, a fabrication method that adds material layer by layer, is a promising technology that has recently demonstrated the capacity to quickly intervene on a global scale to housing crises. Thanks to a global community of designers and "makers," this technology has become much easier to operate by unskilled workers and is increasingly affordable. Advances in the construction of new prefabricated house components allows for the building of small home units for five thousand dollars in twenty-four hours with a single machine. 3D printing in architecture is still very experimental, but there are considerable

possibilities. Two recent projects have built successful 3D printed prototypes showcasing new approaches to traditional construction intended for reconstruction following devastation from natural disasters and war: the Chinese firm WinSun and the Dutch design office Dus Architects. In the first case, the 3D-printed concrete houses were developed to quickly respond to a high demand for affordable houses after natural disasters. In the second case, 3D-printed plastic extrusions using recycled material have triggered a new paradigm in construction for the design of sustainable architecture with limited resources. Creative entrepreneurship can emerge from these opportunities. This technology will be centred on on-demand design, specific to each crisis, and using available resources already on-site.

These technological developments were born in "fablabs," a network of shared workshops or fabrication laboratories operated by a community of makers, serving as incubators of new ideas. These grassroots infrastructures are operated locally while sharing globally their architectural achievements online. In other words, ideas tested in fablabs can generate creative solutions through the fabrication of prototypes and then share their knowledge through the Internet. These designs can then become physical in fablabs where a community of local makers, inventors and creators have access to 3D printers



“Suddenly we have unleashed an incredible amount of creativity in society.”

(François Leblanc)



and laser cutters. The newly created digital models can then be sent through the Internet and 3D printed on-site responding to a crisis. With 3D printing, there is no need for large infrastructures, factories, or shipping overseas; almost any design can be fabricated with the same machine. Therefore, design and fabrication can occur in different places, during the same day, can be tailored to a specific need, and can be shared through a network of other creative entrepreneurs.

Canadian designers and entrepreneurs can make a difference when time and resources are scarce. As technology continues to progress, there are many exciting possibilities. For example, houses and shelters could be co-designed online to meet specific needs. Additionally, 3D printing presents a promising capacity for producing more with less material, a crucial factor in disaster relief. By building layer-by-layer 2D sections, the process adds material instead of the cutting and carving techniques employed in today's construction. In this way, the technology can reduce by almost 15% the amount of material needed to produce quality houses, while

generating no waste. Furthermore, researchers in architecture and engineering are working on the optimization of forms, which can reduce the amount of resources needed to build structurally-sound houses reducing a further 30% of total material. This new design model combined with local fablabs enables quick innovation at a very low cost, facilitating rapid changes and resilience in response of unseen global events. Together, Canadian researchers, local fablabs and the online makers community need to consider a new model of collaboration to find creative solutions to humanitarian crises supporting an interconnected network of researchers, innovators, and entrepreneurs.

By being at the forefront of 3D printing technology, Canada can provide sustainable and affordable solutions for housing and other material needs. This will bring the resilience that Canada needs to thrive in an increasingly global and uncertain future.

## François Leblanc

François Leblanc is a PhD candidate in the School of Architecture at McGill University. He has taught computation and digital fabrication processes in architecture at McGill University, Université de Montréal and also in France. As a head researcher at the multidisciplinary digital fabrication laboratory LIPHE, he investigates material optimization, 3D printing and computer-controlled technologies. A 2012 McGill Engineering Doctoral Award (MEDA) fellow, he holds a Joseph-Armand Bombardier Canadian Graduate Scholarship Doctoral Award for the development of advanced architectural prototypes using 3D printing technologies. His current work investigates how 3D printing technologies can provide new capabilities to reform and enhance the design of optimized architectural forms and material variations. As an expert in prototyping, he is also involved in the Montreal maker's community and seeks to democratize 3D printing in order to expand capacities of creative entrepreneurship.



# Music and Nation in Times of Scarcity: Remembering the Jazz Age in *La Belle Province*

Vanessa Blais-Tremblay

In a new century that is marked by increasingly scarce resources and upsurges of ethnic nationalist discourses, it is essential that researchers and historians insist on the defining part that non-white and foreign-born citizens have played in the shaping of what most makes us “us,” as Canadians.

The past two provincial elections in Quebec capitalized precisely on anxieties around issues of ethnicity and race in order to “divide and conquer” the electorate. Similarly, debates around the varying levels of access to the judicial system—between women who wear or who don’t wear veils in front of the court for instance, or between indigenous or non-indigenous missing women—are sure to be harnessed in the upcoming federal election. Yet despite current ideological tendencies to frame “ethnic” Canadians as somewhat less belonging to national discourses, as soon as we scratch the surface of our histories, we must recognize the economic, cultural, and political significance that non-white and foreign-born citizens have had.

The archives of the so-called “golden age” of Montreal’s jazz scene (roughly from 1925 to 1955) points to an important gap between Quebec’s musical past and its sense of history: Why don’t Montreal jazzmen and jazzwomen appear in histories of Québécois music, along with singer-songwriter Felix Leclerc for instance, or fiddler Jean “Ti-Jean” Carignan, despite the fact that dancing “le Charleston” *belongs* to the memories of most of those who came of age in Quebec in the interwar years? More alarmingly, the link between Montreal’s international

reputation for good times—with the economic benefits that this has entailed for nearly a century—and the importance of the black community in developing its nightclub industry is too often poorly acknowledged.

It was out of the province’s need for black train porters to travel across the US border that the core of Montreal show biz grew. Specifically, as is becoming clear in studies of the early days of jazz in New Orleans and Chicago, it was also at the sites of black women’s sexual labor that the jazz scene developed in Montreal. To be blunt, jazz during the interwar years was advertised here less as a sonic phenomenon, or even a musical genre in the traditional sense, than as a black female teasing body. Flipping through pages of Depression-era newspapers makes clear the centrality of nonwhite exotic dancers in the articulation of Montreal’s jazz scene, and as such they figured prominently in the gradual transformation of gender ideals and sexual practices in a state that was openly Catholic and socially conservative until the end of Maurice Duplessis’ reign in the late 1950s. In other words, the advent of jazz in Montreal marked a crucial moment in the development of modern identities and pleasures in Quebec, and our histories of women’s rights should better acknowledge the importance that black women’s labor onstage has had in the trajectory towards the so-called “sexual revolution” of the 1960s.

Despite substantial archival evidence to the contrary, there is only one “story” available to “ethnic” citizens in Quebec nowadays: “They” come from the

**“The problem with such processes of distancing is that they obscure the recognition that non-white and foreign-born Canadians are equally ours.”**

**(Vanessa Blais-Tremblay)**





Outside; “They” are just “in-transit.” First, re-positioning the role that the black community had almost a century ago in the development of Montreal’s tourism economy, and that black women in particular have played in the transformation of gender and sexual roles and ideals in Quebec, can help unveil the utter falsity of such narratives.

Even more importantly, historical research allows us to identify similarities between the current emergence of ethnic nationalist discourses, and the strategies of distancing that surfaced during the worst period of scarcity that Quebec encountered in the past century, the Great Depression. For instance, the jazz shows were advertised as coming straight from Harlem despite the fact that they featured local musicians and local dancers. More insidiously, the bodies of black female dancers were exoticized in the press as well as in performance; that is, they bore names like “The Gardenia Girl from Tahiti,” or “Heat Wave,” and they wore exotic costumes that referred less to specific cultural traditions than to a common lack of exposure to Quebec’s winter weather. These two strategies of distancing worked conjointly with numerous others to shape views of non-white women as de-facto outsiders in Quebec, regardless of their actual citizenship. Ultimately, one of the most important consequences of such processes

is that they obscure the recognition that nonwhite and foreign-born Canadians are equally “ours,” equally deserving of “taxpayers’ money,” of federal and provincial services and institutions, and equally deserving of the Canadian Charter of Rights. Against a national average of unemployment of 28% during the worst of the Great Depression, more than 80% of the black community was unemployed.

It would be quite a cliché of course to end with the old saying: “Those who don’t know history are bound to repeat it,” or the much-easier-to-trace-back “Je me souviens.” Ages of scarcity are divisive—any look at Depression-Era Montreal teaches us as much—and ethnic nationalist discourses have very material impacts on the lives of non-white and foreign-born citizens, as well as on the very possibility of maintaining social peace within the geographical boundaries of this nation. But a sense of solidarity can be helped today by appealing to the collective memories of a shared cultural past between the local and the foreign-born, and between the white and the non-white citizens of Canada.

What knowledge will Canadians need in order to thrive in a global, interconnected world? To remember who “we” are, and precisely how “we” came to be.

## Vanessa Blais-Tremblay

Vanessa Blais-Tremblay is a professional violinist and a PhD candidate in Musicology and Women’s Studies at McGill University. Always looking for better balance between performance and research, Vanessa has played and toured everywhere in Canada, often as the soloist of ensembles of classical, gypsy, jazz, or popular music. The core of her research focusses on issues of identity in Canadian music of the past century. She was the recipient of both a Masters and a Doctoral Joseph-Armand Bombardier Canada Graduate Scholarship from SSHRC (2010 and 2012) and was awarded the prestigious *SOCAN Award for Writings in Canadian Music* in 2014 as well as 1<sup>st</sup> Prize in essay writing from both the Schulich School of Music and the Institute of Gender, Sexuality, and Feminist Studies at McGill in 2015. Vanessa presented some of her work at the meetings of the *American Musicological Society* (2013) and *Society for American Music* (2015), and she is set to speak at the *7ème Congrès International des Recherches Féministes dans la Francophonie* (CIRFF) as well as the *Feminist Theory and Music* conference in August. She also contributed a chapter in the recently published Ashgate edited collection *Eroticism in Early Modern Music*.



# What knowledge will Canada need to thrive in an interconnected, evolving global landscape?

## Conclusions



**“We need to provide Canadians with the tools to... obtain a new knowledge at a time when they need to.”**

**(Chris Corkery)**

## Holly Ann Garnett

For the student researchers featured in this report, the knowledge their research produces comes from varied experiences, whether it be from an accomplished violinist learning about the men and women who built the Montreal music scene, from a science educator wondering why Indigenous Knowledges are ignored in curricula, or from a young lawyer considering the role of religion in law in light of ‘hot-button’ issues about religious freedom. Our research future depends on Canadian researchers exploring the world around them, and asking questions we would not have previously imagined.

Another important concern is the need for emerging researchers to consider how to discuss their findings in ways that make the knowledge accessible, intelligible and democratic. As moderator Dr. Chris Corkery explained in the event’s concluding remarks, researchers need to share their knowledge widely to help Canada thrive. Like the

development of research questions, knowledge dissemination will face new challenges in an interconnected, evolving global landscape. The role of the featured student researchers is to engage directly with practitioners, citizens, and communities. The feedback from these interactions advances the research programs and further clarifies the questions being considered.

Canada needs social science and humanities researchers who will advance previously unheard voices, harness the potential of new technology, and link disparate disciplines in novel conversations. We require researchers that will draw on their experiences of the interconnected, evolving global landscape to ask new questions of their fields of study. But most importantly, we need researchers who will boldly disseminate their findings back to Canadians.

## Holly Ann Garnett

Holly Ann Garnett is a PhD candidate in the Department of Political Science at McGill University. Her research focuses on election management bodies and electoral integrity in comparative perspective. She recently served as a project intern with the Electoral Integrity Project in 2014. Holly has held SSHRC-Joseph-Armand Bombardier Canada Graduate Scholarships at the Master's and Doctoral levels. She holds a Bachelor of Arts (Honours) in History and Political Science from Nipissing University and a Master of Arts in Political Studies from Queen's University. She also studied as a Killam Fellow at Cornell University in 2009. Holly currently works as a Graduate Education Assistant with Teaching and Learning Services—SKILLSETS.

A full recording  
of the event is available  
on YouTube.

Search: 'Imagining  
Canada's Research Future'  
on the McGill University  
youtube channel.



**McGill**

# *What knowledge will Canada need to thrive in an interconnected, evolving global landscape?*

Seven SSHRC-funded graduate students from McGill University explain how their research will help provide Canada with this knowledge. It also shares some commentary on the future of social science and humanities research in Canada from keynote speaker Professor Will Straw.

This project was made possible by the support of the McGill University's Graduate and Postdoctoral Studies, the McGill Institute for the Study of Canada, McGill's Teaching and Learning Services—SKILLSETS, the Social Science and Humanities Research Council of Canada and the Canadian Association for Graduate Studies.

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