United Nations Educational, Scientific and Cultural Organization

Canadian Commission for UNESCO

Social Sciences and Humanities Research Council of Canada

Conseil de recherches en sciences humaines du Canada

Canada

Imagining the future of Knowledge Mobilization

Perspectives from UNESCO Chairs

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Foreword

The Canadian Commission for UNESCO (CCUNESCO) and the Social Sciences and Humanities Research Council (SSHRC) share a deep commitment to support the production and access of diverse and inclusive knowledge to benefit current and future generations. We recognize how important it is to link research to pressing global issues, maximizing the impact of research insights and diverse knowledge systems through effective Knowledge Mobilization (KMb) for a world in need of solutions.

Through its programs and stakeholder engagement activities, SSHRC enables connections between researchers and students with the public, private, not-for-profit and community sectors to maximize the positive impact of social sciences, humanities and interdisciplinary research in Canada and the world.

The papers are a joint effort by CCUNESCO and SSHRC to inform an ongoing dialogue built around the excellent work being undertaken by Canada's network of 28 UNESCO Chairs. Featuring six papers from Canadian UNESCO Chairs and one from a German UNESCO Chair, this collection showcases the vital role that UNESCO Chairs play as incubators of academic excellence in diverse fields. By serving as the UN ecosystem's idea lab, they address some of the world's most pressing problems through research, capacity-building and international collaboration.

KMb strategies range from co-creation, knowledge exchange and creative dissemination techniques to decolonizing knowledge and practicing open science. This collection of papers takes such ideas further, with insights on how KMb can help us confront formidable contemporary challenges like the climate crisis, international socio-economic inequities, a global pandemic and the growing menace of skepticism toward knowledge itself.

These papers not only take essential KMb concepts to the next level, but specifically recognize the importance of co-creating knowledge with communities—an approach that will be particularly vital to implementing the principles of the United Nations Declaration on the Rights of Indigenous Peoples.

Together, our organizations are pleased to showcase this leading-edge work by UNESCO Chairs, as we can continue to recognize and engage diverse expertise to create a more sustainable world that leaves no one behind.

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Imagining the future of Knowledge Mobilization: Perspectives from UNESCO Chairs

These themes weave through a new portfolio of thought leadership papers reflecting on the subject of Knowledge Mobilization.

Collaboration, creativity, and a lot of hard work.

These themes weave through a new portfolio of thought leadership papers reflecting on the subject of Knowledge Mobilization (KMb): the process described by the Social Sciences and Humanities Research Council of Canada (SSHRC) as "encompassing a wide range of activities relating to the production and use of research results, including knowledge synthesis, dissemination, transfer, exchange, and co-creation or co-production by researchers and knowledge users."[1] Such activities, and others referenced in the papers written by seven members (six Canadian and one German) of the UNESCO Chairs network, aim to bridge the sometimes-deep divide between the creation of new knowledge and its application for social benefit. As several of these papers note, the KMb enterprise has assumed heightened importance in the face of the COVID-19 pandemic and other grand challenges confronting humanity. But interest in KMb is not new, and a body of experience lies ready to inform efforts to learn and improve.

In the past, KMb techniques often focused on actions that moved information and insight directly from source to recipient upon the completion of a research project or on communications to a wide audience with the assumption that this would eventually lead to awareness, adoption, and impactful action. But the seven UNESCO Chairs suggest that these strategies are frail and increasingly insufficient approaches to the daunting issues of climate change,

inequity, and health as articulated in the UN Sustainable Development Goals (SDGs). With the ambition of strengthening our collective KMb capacities, the Chairs offer guiding principles, case studies, and specific considerations for doing better.

They also inspire with innovation, dedication, and stories of success.

The thought leadership papers have been assembled as an integrated portfolio by the Canadian Commission for UNESCO (CCUNESO), whose publications offer a space for reflection on issues of concern to Canadians and offer new perspectives to encourage cross-disciplinary dialogue. SSHRC has had a long interest in the KMb question and has championed the application of empirical knowledge in government and institutional policies, programs, and practice. Through this new initiative, SSHRC seeks to build on past work not only by tapping into the expertise of the UNESCO Chairs, but also by developing their networks and partnerships.

Early and continuous user involvement

Collaborative approaches thus feature prominently in these KMb papers. Many of the authors tout close contact and cooperation with potential users, supporting their arguments with input gathered in special consultations for the purpose of this project as well as with reference to their own research and fields of study.

When creating a technology-based product or service, industrial research and applied natural and engineering sciences often recognize the importance of tactics focused on users, branding them as market-driven development and client engagement. While social sciences and humanities have different foci and approaches to research, they too have vivid client communities and stakeholders that can contribute to effective research design and KMb.

In fact, the authors of the KMb papers speak persistently of the need for respectful engagement with knowledge holders and with those who will be most impacted by research. Many advocate for such engagement at the earliest stages of research planning and conception.

As a collective, the UNESCO Chairs suggest convincingly that:

- *early-stage user engagement should be the default approach for most research;*
- *the social sciences and humanities have much to offer in the form of creative KMb techniques such as storytelling and the use of visual art; and*
- *research aimed at effective KMb needs to incorporate strategies for overcoming the mental barriers and other hurdles posed by different ways of thinking and knowing.*

Engagement and collaboration with non-academic stakeholders

UNESCO Chair in Biocultural Diversity, Sustainability, Reconciliation, and Renewal

The paper *Foundational Principles for Intercultural and International Research with Indigenous and Rural Peoples: Connecting Principles to Knowledge Mobilization* by the UNESCO Chair in Biocultural Diversity, Sustainability, Reconciliation, and Renewal at the University of Saskatchewan makes a strong case for such early, respectful engagement with users.[2] With reference to the Chair's work in biocultural diversity, the authors describe a KMb process driven by the meaningful involvement of both potential users and responsibility holders from the design stage through the research and beyond.

This engagement links "academic, Indigenous, community, governmental and private actors" in a research partnership that sees the co-production and organic sharing of new knowledge as it is generated. The paper contrasts the continuous, collaborative approach with past attempts to transfer knowledge in a rudimentary, unidirectional process, which it labels as having "largely failed to inspire change among users, despite the best possible science."

The approach set out in this paper challenges colonial notions of what constitutes engagement by recommending an influential role for community partners and new processes for determining when and how participants are involved in each stage of the research. This includes a say in "setting the research agenda, data collection, methods, analysis and dissemination." As per current ethics processes, whole communities as well as individuals would have the right not only to refuse to participate in research projects, but also to pause and terminate participation due to community considerations. The authors cite times of major celebration, crisis, or grief as occasions when research activities can and should come to a halt.

The paper makes a particular contribution to KMb thinking in the form of five guiding principles. The application of these principles would position research for easier adoption by intermediaries such as policy makers, program managers, and service providers as well as for acceptance by the Indigenous knowledge holders and other impacted groups.

The authors argue that this, in turn, "can generate deeper and more lasting benefits" for all parties. The principles and the encompassing philosophy are also captured visually in an "Interwoven Knot" diagram that offers an accessible and practical tool that could be applied to research with a range of geographically based communities as well as Indigenous and traditional peoples.

The five principles proposed for research with Indigenous and rural peoples are:

1. *Honour self-determination and nationhood by holding Indigenous and traditional peoples, as well as many other local and rural peoples, as rights holders*
2. *Commit to reciprocal relationships and ensure that such relationships remain grounded in collaboration and power sharing as partners;*
3. *Co-create the research agenda and prioritize the voices, ideas, and realities of Indigenous and other local communities;*
4. *Approach research in a good way with self-awareness, critical reflection and self-evaluation; and*
5. *Generate benefits for communities and give back to those who have supported the academic research endeavours and aspirations.*

UNESCO Chair on Community Sustainability

The KMb paper *The Futures of Knowledge Mobilization: breaking down barriers to productive exchanges across diverse audiences* by the UNESCO Chair on Community Sustainability: From Local to Global at Brock University explores issues of relevance to many fields. It explores the familiar challenge of translating complex research concepts into a format that general audiences can easily grasp. To this end, it studies the interactions between researchers, communications professionals, and the media.

The paper argues that this activity warrants special attention in the KMb context because of the power that media and public communications have in reaching influential players in government, private, non-profit, and community sectors, and in fostering the cross-sectoral engagement needed to enhance the impact of research, notably in the social sciences

and humanities. The paper's consideration of the hurdles and opportunities in this arena was informed by interviews and roundtable discussions involving researchers, administrators, communications professionals, public relations experts, and marketing staff as well as members of local and national print, online, radio, and television media.

While the participants in these discussions recognized public communication of research as an important component of effective KMb, they had differing perspectives on its impediments.

Researchers cited the cost in terms of time taken away from research and the lack of formal recognition, training, and support for outreach activities. Communications staff described their challenges in maintaining awareness of research activities at their institutions and in overcoming the perception that they constitute another layer of bureaucracy and even a barrier to outreach. Members of the media noted the pressures of tight deadlines, reduced staff, and decline in specialization in their world, saying this generated the need for easy access to experts as well as information packaged in the format of stories of direct relevance to impacted communities.

Many of these issues have impeded research communications for decades, but some have been magnified by recent trends including, paradoxically, the move to open science and open access, which has unleashed a tsunami of unfiltered, jargon-filled information for journalists to consider. But this KMb paper also points to many positive developments, including the use of podcasts, interactive media, and the rise of journalistic-style content based on academic rigour as exemplified by The Conversation website.

Again, the notion of early and continuing collaboration permeates this analysis. Combined with the constraints of time and resources, this suggests the inevitable need for "lots of hard work" as captured in the paper's concluding *Path Forward* and considerations for action.

These concluding action areas for better public communications include:

- *provide clarity on what research funders require with respect to KMb,*
- *dedicate resources to KMb for the creation of multidisciplinary liaison functions within universities, and*
- *better communicate the roles of the various players in public communications and media relations activities.*

Innovation, open access, and the arts

The need for communication and engagement via storytelling and imaginative writing appear in many other papers. In particular, some build on these notions with real world examples that feature other tools, new technologies, amplified access to information, and varied forms of creative art.

UNESCO Chair in Community-Based Research and Social Responsibility in Higher Education

The submission from the UNESCO Chair in Community-Based Research and Social Responsibility in Higher Education (*The Power of Creativity, Knowledge and Action in Knowledge Mobilization: Reflections from International Work*)[4] reinforces the contention that effective KMb flows from collaborations in the design stage and from actions taken throughout the research.

It also stresses the importance of engaging with ultimate users and other research participants in the manner of full, respectful partnerships as promoted

by other UNESCO Chairs. In this instance, the notion is advanced under the banner, principles, and frame of Community-based Participatory Research (CBPR) and is illustrated by international experience.

This paper, however, contributes distinctively to the conversation in describing the use of creative arts and in drawing upon imagery and metaphor in both the acquisition of knowledge and its mobilization. The practice involves an integrated and open-minded process that is both intriguing and heartening. The authors sum up their case saying that they "are convinced through many years of transformative research and engagement of the power of the arts; arts to represent knowledge, arts to share knowledge, arts to link cognitive and affective knowledge, arts for the heart, arts for hope."

Their cited case studies are dramatic, relevant, and moving. They run from the experience of the catadore waste pickers in Brazil who participated in storyboarding, video capture, and editing, to consultations with abused domestic workers in India who revealed their struggles in pictures and words on a patch-work saree. The paper also tells of immigrant women challenged to access basic services in Toronto who were trained to share via spoken word presentations.

Art-based KMb clearly has a unique power to bring research results to otherwise inaccessible audiences and key stakeholders. Although conventional methods like interviews or focus groups can document a wide range of information, they do not always capture the complex ambiguity of life experience and ways of knowing. The CBPR approach enables new connections and makes these ambiguous elements visible, particularly when combined with the tools and vision of the arts. The participatory video research, for example, made the lives of the catadores visible to their local governments, NGOs, and the public in ways that gave the waste pickers unprecedented access to public policy discussions.

In this way, the CBPR methodology treats KMb as an integral part of the research cycle, not something designed as an after-thought or separately. The rationale for undertaking research in this mode must thus be articulated in a knowledge democratization process and in terms of the changes it proposes to facilitate in research, policy, and practice. But this is a labour-intensive process. It thus also exemplifies the simple notion of hard work as a key ingredient in successful KMb.

It advocates for a process that:

- ***involves*** *deep reflection, ongoing communications, continuous review by many parties, and multiple constructions of meaning, and*
- ***recognizes*** *that symbol, metaphor, irony, and imagery as communicated by the arts can play an important role in reasoning, explaining, and understanding the world.*

UNESCO Chair in Open Educational Resources (OER)

Whereas these Community-based Participatory Research projects depict the pursuit of KMb as a labour-intensive process, another thought leadership paper points to a way of producing and implementing knowledge that has some labour-saving potential as well as other benefits. This is *The Future of Knowledge Mobilization*, the paper submitted by the UNESCO Chair in Open Educational Resources (OER).[5]

This thought-leadership paper explores the potential of the Digital Age and online connectedness in fostering Open Access (OA) and OER which, in turn, are expected to stimulate KMb in unprecedented ways. The paper argues that openness can support innovation, facilitate access to knowledge, and foster creative collaborations in all disciplines. But it also notes the new challenges OA and OER raise.

It provides a helpful resource with definitions of key concepts and an inventory of relevant Canadian

initiatives such as the *Tri-Agency Open Access Policy on Publications* and targeted programs at individual institutions. It also reviews the nature and limitations of the current paradigm and science publishing models which are seen as preventing access to scholarship and arguably thwarting its mobilization.

While the core concept presented in the paper is that KMb is facilitated when we freely circulate knowledge, it also explains how free access leads to broader participation in research and an expansion of knowledge generation capacities. These capacities, in turn, can expand the pool of potential knowledge users.

To realize these benefits, the author encourages us to see sharing via open access and open education as a social practice, not merely a technological or legal one. They are regarded as activities empowered by human interests, grand challenges, and ambitions to generate new knowledge and to mobilize it in response, independent of the simple desire to share information and techniques.

In this spirit, the paper draws a line between openness, KMb, and the UN 2030 Sustainable Development Goals (SDGs), specifically, SDG4: Education for All.

The paper describes a variety of benefits that can be derived in making teaching and learning freely available online. It cites evidence that students with free access to all learning materials are less likely to drop out and are more likely to engage when they can work collaboratively to develop new content and improve resources over time.

While acknowledging that the consulted experts are biased, being open-education devotees, the paper suggests that there is a compelling case, independent of their input, for funding models that acknowledge the reality of the online world and the benefits of openness as highlighted by the global pandemic.

The consulted experts also identify complex challenges and unresolved issues around costs, the measurement of effectiveness, and access, which impede exploitation of the KMb potential of OA and OER.

Online dissemination of resources creates opportunities to reduce education costs, but they also diminish some revenues.

Furthermore, there are difficulties in measuring the full costs of inducing the institutional culture change that openness entails. Great benefit can be drawn from assembling courses from different resources, for example. But the process of customizing course content and patching it together from diverse sources requires new skills and is far from being a common practice in the education community.

Recognizing this blend of multifaceted issues, the paper concludes with a list of suggestions for addressing them in proposals including:

- ***make investments*** *in infrastructure to, for example, establish robust, user-friendly repositories that use common metadata standards for OER materials and to package them in ways that are viewable and easily transportable between systems, and*
- ***make social and organizational adaptations*** *to support skills development and networks needed to exploit the full KMb potential of OA and OER for Canada.*

Ideology, values, and policy perspectives

Aside from technology and technique, the KMb process must also consider questions around human psychology, values, and belief systems. Sometimes the hurdles these issues pose are the most formidable obstacles to the mobilization of knowledge in government policy and programs.

UNESCO Chair for Applied Research for Prison Education

The impact of values and ideologies on KMb is described in the paper *The Future of Knowledge Mobilization: Beyond the Researcher – Decision-Maker – Practitioner axis* by the UNESCO Chair for Applied Research for Prison Education.[6]

An often subtle and overlooked consideration, value systems can be the defining factor in the process of bringing new knowledge to bear on practice. This is particularly true when an activity is encircled by public interest, politics, controversy, and conflicting operational pressures that manifest in differing ideologies. An ideological perspective limits the capacity of the potential receptors and users to accept and apply new knowledge - even when the knowledge is supported by compelling, empirical evidence and data.

Whereas some discussions of KMb focus on generalized theory and others present a selection of cases on practice, this paper instead explores experience within one specific arena of study and application. It describes the prison education paradigm, specifically the context of contrasting perspectives of prison as either a venue for rehabilitation or punishment. These differing views are glaring in the tension between the perception of prison education as a privilege to be earned or lost and the belief that it is an element of an inherent right to dignity and personal development. In exploring this paradigm, the paper makes vivid the problems researchers face in transferring knowledge for application in the corrections system.

Setting aside the merits of one perspective over another, it is obvious that research results that might inform prison education systems will be perceived differently by different ideologies. If one sees education as central to the purpose of the penal system, results in favor of education would likely be given greater weight. Even when such research demonstrates the cost-effectiveness of an approach, this knowledge can only have an impact if policy makers believe the activity is in general worthy in relation to myriad other needs. This challenge assumes greater complexity when one realizes that points of view vary through different levels of the system, from the taxpaying public through policymakers to the frontline staff working in risky and difficult circumstances. These viewpoints not only influence the capacities to adopt and mobilize new knowledge, but also constrain the collection of data and study.

A theme that colours much of the paper are the calls for engagement with users and other stakeholders. The paper notes that, with effort, prison education advocates can find common ground with those holding a conservative view of prison education, as the latter group often sees merit in training in anger management and in addiction treatment. Furthermore, many involved in the prison system have an appreciation for the field of criminology which, though encompassing different priorities, can offer opportunities for discourse and shared understandings around other academic study.

But in highlighting the impact of ideologies and differing value systems, the prison education experience provides an additional contribution to thinking on the global process of knowledge mobilization that has broad relevance.

In this sense, prison education research presents a magnified form of the challenges many disciplines face but may not fully recognize. These relate both to assembling new knowledge and to seeing it accepted and applied. Therefore, the ideas offered in this paper likely have parallels in other fields of research and human endeavour that face the barriers of ideology and values. These suggestions acknowledge that the hurdles presented by conflicting ideology are

daunting, but also suggest that they are, with insight and effort, surmountable.

This paper suggests that practitioners should:

- ***think and act*** *beyond what it calls "the Researcher – Decision-Maker – Practitioner axis" in paving the way for knowledge mobilization. In respect to prison education, the framing interests and influence of the general public are particularly important considerations to be addressed on an ongoing basis;*
- ***involve*** *the media and political leaders in prison graduation ceremonies, the promotion of success stories, and the delineation of links between theory and practice;*
- ***appreciate*** *the need for nuance and rigor in effective communications between groups with differing world views; and*
- ***see themselves and their work*** *as part of a network of participants and activities contributing to the co-construction of knowledge.*

UNESCO Chair in Island Studies and Sustainability

The paper *Insular knowledge: Building a community of islands through knowledge mobilization* from the UNESCO Chair in Island Studies and Sustainability[7] also describes challenges encountered due to bias and differing perspectives.

Additionally, it echoes an appreciation of traditional knowledge and ways of knowing generated by association with geographic place. This paper expands the concept and highlights the implications for Canada through a convincing description of island cultures: the customs, institutions, and knowledge-sharing practices of communities defined by encircling water.

It argues that as much as knowledge on and about islands is informal, it is undervalued. Consequently, the importance of island cultures is neither widely understood, nor are the dynamics of knowledge mobilization on islands appreciated.

In some circles, island communities might be viewed simply as a microcosm of larger political and geographical entities and even treated as scaled down laboratories for social research. But island studies leaders point out that people who view themselves as islanders share a world view that is founded on a close association with water and the natural environment, often shows sensitivity to Indigenous and traditional forms of knowledge, and values local institutions and services. These associations manifest in a greater degree of volunteerism and in knowledge mobilization structures that rely on chance encounters, personal sharing of skills, bulletin boards, and community gatherings.

While island life can pose challenges and can include a particular wariness of strangers, its peculiar features also result in cohesiveness and assets that create a resilient culture with a unique capacity to translate knowledge into local action. Building and maintaining these strengths appear to be critical to preserving sustainable island communities. There are also lessons to be learned in the study of island culture and its KMb systems. This has importance for Canada, as island life is, arguably, an integral part of Canadian geography, history, and identity. As this paper notes, our borders enclose more islands than any other nation. They include the world's largest freshwater island and large urban areas surrounded by water, as well as tens of thousands of islands in the Arctic and off the east and west coasts.

The paper concludes with proposals to:

- ***bolster*** *this study and understanding by expanding and strengthening island networks that share resources, data, and stories;*
- ***establish*** *legislative and administrative structures that would ensure that policies and programs are*

filtered through an island lens before being adopted and applied to island communities; and

- ***foster*** *the co-creation of knowledge and collaboration between academic institutions, community organizations, policy makers, and other players in KMb.*

Knowledge Mobilization and profound societal change

The papers in this portfolio offer insights that illustrate how knowledge mobilization in specific arenas might assist us in addressing major challenges facing society. The grand societal challenges, as exemplified by the COVID-19 pandemic, hover in the background of all discussions and considerations, but they are perhaps most clearly described in the submission from Europe.

UNESCO Chair on Global Understanding for Sustainability

The sum of ideas, experiences, and lessons chronicled in the KMb thought leadership papers are embraced by the overview set out in *Knowledge Mobilization for Deep Societal Transformations* by the UNESCO Chair on Global Understanding for Sustainability, Friedrich-Schiller University of Jena, Germany.[8]

This final paper reflects the Chair's quest to understand the process of generating and sharing new knowledge in ways that impact our social, cultural, and natural environments. It also speaks directly to the question of why the issues around KMb are of urgent importance and why they are worthy of the attention this SSHRC-CCUNESCO collaborative exercise has given to them.

The paper describes great transitions underway around the globe, noting that while they have intensified with the COVID-19 crisis, they are driven by other forces including the shifting dynamics of globalization, the impact of unsustainable development and the anthropocene, and the Digital Revolution.

These pressures could manifest in varied changes ranging from a reduction in global connectivity in some areas, such as the movement of goods, to an increase in the mobility of ideas and information. Respecting this latter development, the paper suggests that all human endeavour is being increasingly influenced by digital technologies that are neither neutral nor objective and are often controlled by well-capitalized autocratic regimes and unrestrained corporate interests. It also notes that hope that the Digital Revolution would stimulate knowledge mobilization has been dampened by the fragmentation and bias that has fomented "echo chambers." This phenomenon has also made information less reliable with its value measured by dubious processes that count followers, retweets, and "likes" driven by agendas and artificial intelligence from abroad.

Now, with the post-pandemic paradigm looming, other variables and unknowns have been introduced into the challenge. Knowledge production and dissemination without face-to-face interaction and over distance will demand new strategies and new instruments.

These trends not only amplify the need for effective and efficient KMb, but also frame and constrain knowledge mobilization activities.

To consider the implications and possible measures in response, the authors of this paper interviewed experts bilaterally and through structured consultations. This feedback has informed a set of considerations that not only draw on established understandings, but are also informed by the giant social experiment that currently engulfs the world.

While some questions remain to be resolved in the fullness of time, the feedback and considerations are infused with a consensus that the challenges confronting humanity will demand knowledge mobilization processes that put our entire

understanding of science and science-society relationships to the test. The complexity of the issues, in turn, points to a need for robust collaboration across disciplines, particularly between so-called "hard sciences" and social and human sciences and between research centres and societal actors. While acknowledging the strengths of the disciplinary mode of thinking in the development of analytical skills and specialist knowledge, it cautions against taking disciplines as the sole basis for institutional design and for developing curricula.

There are other counteracting forces that can work against collaboration within the scientific community and between science and society. Aside from those cited, competition among researchers is intense in some sectors, inducing conflict and incentivizing unethical behavior. Together with the destructive effects of "post-truth politics," corporatization in the academic realm tends to erode scientific authority and public trust in science.

Knowledge Mobilization for deep societal transformations suggests scientists should:

- ***engage*** *in more public outreach activities, noting that public understanding of how science fundamentally works is a necessary condition for addressing today's complex problems;*
- ***assume*** *the role of authentic partner in knowledge production with incentives and career rewards aligned with this function; and*
- ***move*** *everyday practices and individual behavior to the center of future knowledge mobilization strategies.*

Conclusion: the opportunities in creative collaboration

The sum of the ideas and lessons embraced by these thought leadership papers not only point to a need for individual researchers to engage in new approaches to knowledge mobilization, but also for significant changes within institutions, the scientific community, and society as a whole.

This will mean:

For individuals:

- *Adopting a participatory culture aimed at new levels of engagement with potential users from the earliest, design stage of research projects as well as a greater effort in framing information in transferable structures such as storytelling that communicate knowledge, facilitate deeper understandings, and empower audiences to make better decisions.*

For institutions:

- *Introducing measures to encourage epistemic diversity, to support transdisciplinary projects oriented to societal benefit, to facilitate meaningful knowledge translation between researchers, media, and various publics, and to encourage fluid movement and immediate action.*

For funding bodies:

- *Greater clarity in requirements for knowledge mobilization and the allocation of resources to support researchers in nurturing new relationships, innovative modes of study built upon collaborative networks, and the pursuit of knowledge mobilization as a fundamental objective.*

For governments:

- *Recognizing the broad public importance of knowledge mobilization and its alignment with high-level objectives, such as the UN Sustainable Development Goals (SDGs), in creative policies based on grass roots engagement with marginalized stakeholders and collaborations to confront humanity's greatest challenges and improve the quality of every-day life everywhere.*

[1] **Social Sciences and Humanities Research Council (SSHRC).** Guidelines for Effective Knowledge Mobilization. Accessed 23 June 2020: https://www.sshrc-crsh.gc.ca/funding-financement/policies-politiques/knowledge_mobilisation-mobilisation_des_connaissances-eng.asp

[2] **Maureen G. Reed, M.G., Robson, J.P., Lindgren, A., Friedrichsen, P., Brock, T., Davidson-Hunt, I., Lichtenstein, G., Shackleton, S., Vasseur, L., and Worthen, H.** (2020), Foundational Principles for Intercultural and International Research with Indigenous and Rural Peoples: Connecting Principles to Knowledge Mobilization, The UNESCO Chair in Biocultural Diversity, Sustainability, Reconciliation, and Renewal at the University of Saskatchewan.

[3] **Vasseur, L. and Baker, J.**, (2020), The Futures of Knowledge Mobilization: breaking down barriers to ensure productive exchanges across diverse audiences, UNESCO Chair on Community Sustainability: From Local to Global, Brock University

[4] **Tandon, R. and Hall, B. L.**, (2020), The Power of Creativity, Knowledge and Action in Knowledge Mobilization: Reflections from International Work, UNESCO Chair in Community-Based Research and Social Responsibility in Higher Education, University of Victoria and the Society for Participatory Research in Asia (PRIA)

[5] **McGreal, R.**, (2020), Leadership paper on the role of open education in mobilizing knowledge creation and transmission, UNESCO/ICDE Chair in OER, Athabasca University

[6] **Armstrong, F., Béguet, V., Perreault, G., and Miron, J-P,** (2020), L'avenir de la mobilisation des connaissances: Au-delà de l'axe Chercheurs-Décideurs-Praticiens, Chaire UNESCO de recherche appliquée pour l'éducation en prison

[7] **Randall, J. and Brinklow, L.** (2020), Insular knowledge: Building a community of islands through knowledge mobilization UNESCO Chair in Island Studies and Sustainability. University of Prince Edward Island

[8] **Werlen, B., Kauffman, J., and Gaebler, K.** (2020), Future Knowledge Mobilization for Deep Societal Transformations, UNESCO-Chair on Global Understanding for Sustainability, University of Jena, Germany.

01

The future of Knowledge Mobilization : Beyond the researcher – decision-maker – practitioner nexus

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Introduction

Knowledge Mobilization comes with challenges, and education in prison is no exception to the rule. However, certain difficulties, not to mention challenges, are exacerbated by the particular realities of the prison environment.[1]

Prison education research implies standing up for a fundamental right: the universal right to lifelong learning, including for society's most vulnerable and marginalized members.

In this think-piece prepared by the UNESCO Chair in Applied Research for Education in Prison, we will present some of these challenges by identifying characteristics of the prison environment that pose additional difficulties for those who would like to improve the impact of research on prison education practices and policies. These characteristics — for example, a wide range of subject matter, problematic communication between researchers and practitioners, and the presence of actors with divergent interests — are clearly not unique to prison education. Nonetheless, by describing them, we can show how and why the future of knowledge mobilization needs to be considered outside the researcher-decision-maker-practitioner nexus.

Another essential feature of this research field requires special attention. Prison education research implies standing up for a fundamental right: the universal right to lifelong learning, including for society's most vulnerable and marginalized members. This right is not respected in every country in the world and, even in jurisdictions that recognize prison inmates' right to education, it can be in conflict with ideas that the main role of prisons is to protect society and "punish" offenders, and that education in prison would be a costly privilege.[2] Even if research can demonstrate that prison education can be beneficial and cost-effective, this finding can only

[1] In this text, the concept of education embraces both formal *and* non-formal forms. UNESCO defines *formal* education as "education that is institutionalized, intentional and planned through public organizations and recognized private bodies and, in their totality, make up the formal education system of a country." Formal education programs generally lead to the delivery of recognized certificates. Non-formal education, on the other hand, is defined as "education that is institutionalized, intentional and planned by an education provider [and which] is an addition, alternative and/or a complement to formal education within the process of the lifelong learning of individuals." Non-formal education does not generally lead to recognized certification. See UNESCO Institute for Statistics (UIS) (n.d.), *Glossary*.

[2] Note: The public safety and punitive conceptions of the role of prisons should not be conflated. On this subject, see footnotes 12 and 13 below.

have an impact if decision-makers believe that this is true albeit just for instrumental or economic reasons. Taxpayers also have to believe in the benefits and cost-effectiveness of prison education too. In other words, knowledge mobilization in the prison education field also involves — and even requires — mobilization and awareness at the political level. We will also describe the kinds of tensions that this political dimension can engender for prison education research.

We will also explore the role of networks and how they can generate contacts between decision-makers and those for whom prison education is most important: the inmates themselves. In this Chair's experience, these contacts have a significant impact on decision-makers' opinions, particularly when first-person testimonials or academic achievement ceremonies are extensively covered in the media. It can even be assumed that such impact is often greater than research reports. In our opinion, this example clearly shows the predominant role of the human-interest factor in mobilizing knowledge. Apart from statistics that substantiate lower recidivism, prison education has non-measurable impacts that can only be discovered through human contact. Although we do not possess special expertise in generating these kinds of contacts, many of the people we contacted in preparing this paper acknowledge the importance of such contacts and made suggestions on how to develop a network that would foster them.

For this paper, we interviewed seven of the people we contacted, who are all involved in prison education.[3] These individuals work in a variety of fields: Canadian educational institutions, college or university research, the judicial system and prison education. The interviews lasted approximately one hour each and followed a questionnaire provided in advance.

Every interviewee acknowledged the urgent need to mobilize knowledge, especially in the prison education field. All of them mentioned the many challenges specific to prison education research and the importance of developing networks to co-create knowledge. Their comments and our own experiences have been the inspiration for advancing these ideas about the future of knowledge mobilization.

Some comments are shown in *italics*. This is because we do not necessarily endorse all the interviewees' comments, nor claim objectivity, but simply report individual views that collectively provide an overview of knowledge mobilization in prison education. At the same time, it is important to stress that the statements quoted resonate across all interviews.

Prison education research in context

A dual mission for prisons

It is generally understood that prisons discharge a dual mission: on the one hand, they protect the public by isolating criminals and violent offenders (the "public safety" mission), and, on the other, they help prepare inmates for their reintegration back into society (the "social reintegration" mission). These two roles are naturally interrelated. For example, it can be argued that the social reintegration of inmates helps protect society. Nonetheless, all the people we contacted stressed that these two missions exist and are often in conflict with each other. In short, it can be said that some people in the prison system prioritize public safety, while others lean more towards social reintegration.

[3] See Appendix for more information on these interviews.

Before going any further, an important clarification is required: what we call the "public safety" approach should not be confused with a "punitive" or "retributive" approach. In the case of the latter, someone who commits a crime must be punished, regardless of any subsequent intervention. Punishment is an end in itself, and criminals do not necessarily have to be "rehabilitated" or "reintegrated for prisons to fulfill their mission.[4] However, even people who favour the public safety mission of prisons do not necessarily subscribe to this exclusive view of the penal sentence and can acknowledge that prisons may ultimately contribute to the social reintegration of inmates by providing, for example, quality education.

This is an important nuance because the value of prison education seems to enjoy a certain consensus that is exceptional in a sector where opinions often diverge.[5] In fact, it is apparent from UN official documents that education constitutes a point of convergence between the two approaches described above. According to the United Nations Standard Minimum Rules for the Treatment of Prisoners (the so-called "Nelson Mandela Rules"), "the purposes of a sentence of imprisonment... are primarily to protect society against crime and to reduce recidivism" (UNODC, 2015). Thus, even though the initial priority is public safety, it is emphasized that this purpose can only be fulfilled if prisons strive to ensure the *social reintegration* of inmates. In this context where prison education acts as common ground between the two approaches, "prison administrations and other competent authorities *should offer education, vocational training and work*" in order to support the social reintegration of inmates (Ibid., emphasis ours).

In short, the positive impact of prison education is universally recognized for two reasons: (1) it gives inmates a better chance of successfully reintegrating into society, which is conducive to public safety, and (2) it gives them the tools to do so. Furthermore, most studies on the subject corroborate these insights.[6] However, this consensus does not necessarily facilitate knowledge mobilization because it masks fundamental differences about the value of education and the functions of research.

What goals for education and what functions for research?

The opposing views described above have major consequences for research priorities. Those who prioritize the public safety function of prisons will want to prioritize measuring how prison education affects recidivism, which is, in fact, the objective of the vast majority of existing studies. In other words, if participation in a given educational program is correlated with a decrease in recidivism, prison education can be said to positively contribute to the first purpose of penal justice. From another perspective, the success of a given program can also be assessed by measuring its impact on employability. In other words, if participants obtain and maintain a job after their release from prison, their likelihood of recidivism decreases and prison education will be seen to positively contribute to the prison mission.

In both cases, the intrinsic value of education seems to be downplayed compared with its instrumental value.[7] On the other hand, many people feel that prison education should not be prioritized *primarily because of* its public safety function, given that,

[4] We will not enter into the potential differences between the concepts of "social reintegration" and "rehabilitation."

[5] The term "exceptionalism" was used by one of the people contacted.

[6] See, for example: Davis et al. 2013; Duwe 2018; Duwe and Clark 2014; Ellison et al. 2017.

[7] In this instance, the term "instrumental value" is not used pejoratively. We simply want to underscore that the value of prison education can be assessed in terms of its capacity to contribute to important objectives other than public safety or social reintegration. By only assessing the intrinsic value of prison education, it can be said that prison education is important even if it does not contribute to public safety or social reintegration.

besides being a right, education has a value. Moreover, its positive impact cannot be measured only in terms of levels of recidivism or employability. So long as prison education is conceived more broadly and even independently from its contribution to public safety, current research priorities can be annoying to some prison education professionals.

For this group, prison education must be defended at all costs, that is to say, without waiting for "evidence" that it "works," and is justified even *"if you save [only] two or three."*[8] Indeed, making prison education services conditional on "evidence" of their success is a dangerous game. Although decision-makers can cite statistics and numerous credible research studies to the effect that prison education "works" (Davis et al. 2013), others can cite equally credible research suggesting that prison education produces mixed results (Austin 2017; Ubah and Robinson 2003). As all the interviewees recognized, a conflict emerges in the knowledge mobilization process when the primary purpose of the research is to "prove" that prison education contributes to the public safety mission of prisons. Access to quality education in prisons should not be made conditional on this evidence.

The UNESCO Chair in Applied Research for Education in Prison acknowledges this conflict, but also recognizes the importance of demonstrating the impact of prison education. The positive effects of prison education in practice are clear-cut in terms of both public safety and social reintegration. However, since decision-makers base their decisions on reports and figures, they still need to receive them.[9] Far from conditioning the right to education, the use of empirical research supports the mobilization of another type of knowledge: the knowledge, at times implicit, of prison education practitioners. They know that prison education has positive impacts, and not only because it reduces recidivism. However, they do not always have the time or the tools to mobilize this knowledge. That is why it is crucial that their insights are shared with researchers who can then formalize them for wider dissemination.

A special environment and a controversial topic

To adequately understand the challenge of mobilizing knowledge about prison education, it is important to understand the prison context. The prison environment is closed, tense, under-funded, and characterized by mutual mistrust and many prejudices. First, security concerns constitute a major obstacle to both acquiring and mobilizing knowledge, and second, these concerns can also affect relations within the researcher-decision-maker-practitioner nexus. As previously mentioned, many actors in the prison system prioritize its public safety mission. Their role is to protect the public above all. This work is often difficult and invariably thankless since the general population is not interested in the penal system apart from possibly complaining about its cost and deficiencies. In this context, both correctional institution management and correctional officers mistrust 'outsiders,' especially academics[10] who lack practical experience "on the ground" or so-called "activists" who might paint an overly negative picture of prison reality.

It should also be pointed out that for much of the population, which obviously includes some prison

[8] Comments taken from the interviews.

[9] In section 3, it will be shown that a success factor in knowledge mobilization is investing in both qualitative research and events that raise awareness through human contact.

[10] Criminologists to a lesser extent (see below in this paper).

[11] According to Payne et al., studies generally show that the population at large is "punitive," even though it subscribes to an ideal of rehabilitation in certain cases (Payne et al., 2004, p. 196). Punitive attitudes are dependent on many factors, but we do not have room in this paper to discuss this question further.

system employees, incarceration basically constitutes punishment.[11] In this regard, education programs can be viewed as privileges. Indeed, it is clear that research on the prison environment in general, particularly if it aims to improve inmates' living conditions, will not find favour with those who think that incarceration should be a punishment.[12]

Researchers who are interested in the effects of prison education and those who want to promote it thus find doors shut in their faces both physically and ideologically. This implies that effective acquisition of knowledge will only be possible if a considerable effort is made to justify the relevance of prison education for both research practice and prison practice.

Conceptions of knowledge mobilization: between knowledge and policy

Described in the abstract, knowledge mobilization is about ensuring that practices and policy decisions are based on the best available real-world knowledge. In otherwords, the primary goal of researchers is to provide a *neutral* picture of the real world. This picture, if it is given any attention, should be sufficient to inform decisions. However, in the real world, neutrality is almost non-existent. When you rely on research to justify the relevance of prison education in the context described above, you are not neutral.

Founded by passionate practitioners, the UNESCO Chair in Applied Research for Education in Prison is very much true to its name. Indeed, the Chair fully assumes its commitment to education in prisons. All its activities, including its research, are devoted to promoting access to quality education suited to inmates' needs. In this regard, knowledge mobilization involves using every available tool to promote inmates' access to quality education, including empirical research that documents the reality of prison education. Obviously, in the context described above, knowledge mobilization clearly goes beyond the researcher – decision-maker – practitioner nexus, since it involves raising public awareness of the importance of prison education. Indeed, this awareness-raising must be accomplished by various means, including a political mobilization of knowledge.

However, all researchers are not at ease with such an engaged approach since it is felt that research should, in principle, aspire to a certain objectivity. Furthermore, it is difficult, even impossible, to isolate the "education" variable when measuring its impact on both inmates and society, both quantitatively and qualitatively. In short, research will never be able to claim beyond all reasonable doubt that prison education contributes to either public safety or the social reintegration of inmates. In this context, some militant advocates for the right to education in prison could be tempted to focus primarily on raising awareness and mobilizing public opinion.

That said, two of the people we contacted suggested that more qualitative research might shed new light on prison education. Without replacing quantitative studies, qualitative research could produce a more "human" picture that would speak to the heart as much as the mind. The dissemination of such studies could thereby diminish prejudice and ultimately raise public awareness about the importance of prison education research. However, it must be realized that this type of research is difficult, costly, time-consuming and under-funded.

[12] Here again, the punitive approach and the public safety approach should not be conflated. The purpose of the latter is to protect the rest of society from crime and/or criminals. The methods for achieving this are varied, hence the spectrum between punishment as such and rehabilitation. Indeed, many advocates of the public safety approach feel that education can produce better results for public safety than punishment pure and simple.

It must also be recognized that the adoption of a more activist strategy is potentially delicate in a conservative environment like prisons. While there is some consensus on prison education, the balance between the public safety and social reintegration approaches is tenuous. Moreover, when budgets are tight or when there is a change of government, prison education and other programs perceived as "privileges" will be at risk. As we explain in section three, those who take part in the mobilization of knowledge about prison education must therefore demonstrate excellent human and political sensitivity.

Prison education research: knowledge mobilization challenges

The many challenges in mobilizing knowledge in general include lack of resources and time, difficulties in establishing effective interdisciplinary dialogue, and lack of agreement among a given field's stakeholders about their research or practice objectives. Although prison education researchers face similar challenges, some are exacerbated by the realities of the prison environment. Since these challenges are linked to the context described in the previous section, our description below is abridged.

Difficulties in collecting data

Prisons are difficult to access for security reasons. It is therefore a challenge, even under ideal conditions, to collect data. However, these difficulties are exacerbated by the ideological tensions described above. For example, if a local prison administration thinks that researchers have a "political agenda" or if the prison's previous experience with researchers did not go well, it might be more reluctant to provide access to new researchers.

According to one interviewee, these difficulties are less severe for criminologists since most prison professionals are trained in that discipline. Access to prisons also seems to be more problematic for sociologists or education researchers. While criminology is clearly a pluralistic discipline insofar as all criminologists do not subscribe to the same vision of prison reality, this closed-shop mentality limits our ability to know more about the non-measurable contributions of prison education. Nonetheless, one of our contacts mentioned that symposia, learned societies and various community networks are all potential sources for valuable interdisciplinary contacts. We will see in section three some examples of measures that enable these contacts.

A diversity of interests and a diversity of disciplines

Multidisciplinary research fields invariably entail knowledge mobilization challenges for the simple reason that experts in different disciplines do not always share the same interpretation of concepts or phenomena. Prison education research is no exception to this pattern, given that there is no agreement, for example, on what the terms "education," "recidivism" and so on mean.[13]

However, some friction in knowledge mobilization are caused by the fact that not all stakeholders see the objectives of prison education, the role of prison, or the impact of education in the same way. The usual frictions associated with a diversity of disciplines and the conceptual diversity it implies are then exacerbated by the ideological tensions inherent in the prison system.

[13] One of our partners mentioned that a former inmate who was charged for a crime committed *before* his detention is currently counted as a "recidivist".In fact, it may very well be that this person would have committed a new crime.

A preponderance of human factors in developing knowledge mobilization networks

Communication difficulties within the researcher – decision-maker – practitioner nexus are a well-known obstacle to knowledge mobilization (Dimmock 2016). This challenge is even more difficult to address when disciplinary and ideological diversity are involved. For example, inmates have to follow the correctional plan set by their correctional officers. These plans often, but not always, include participation in a prison education program. However, some officers prefer programs that directly address criminogenic factors such as addiction treatment or anger management. These officers therefore do not prioritize education even if it is well-known that participation in prison education programs facilitates inmates' social reintegration. Thus, if an academic comes to a prison to promote and even impose new practices, there will very likely be frictions, and these frictions may increase when practitioners feel as if they are not being listened to or even considered by researchers. It is therefore essential to ensure humane and effective communication among stakeholders, which requires substantial translation efforts.

The penal system is a small sector in which everyone ends up knowing each other. Since such tightly-woven networks are very difficult to join, those who would like to do so in order to promote prison education research must be aware of the aforementioned ideological tensions. They must also have the required interpersonal skills to speak to people of different and even divergent backgrounds and opinions about education and the purpose of incarceration. Since such people are few and far between, the responsibility for creating and maintaining knowledge mobilization networks often falls on the shoulders of a few individuals, which can make these networks very fragile.

A politically-charged and unpopular topic

The public perception of prisons and inmates is generally negative, and a significant proportion of the population does not believe in the social reintegration of inmates.[14] In this context, funding for research and prison education as such is not substantial and is very much at the mercy of changing political fortunes such as changes in government. Even if some jurisdictions, notably Quebec, prioritize social reintegration, the public safety aspect of prisons will always be a top priority. Thus, to ensure that research on prison education has an impact on the practices and decisions of prison administrations, knowledge mobilization in this area requires, first and foremost, raising awareness among the general public.

Success factors

During the interviews, our partners discussed what they see as success factors for knowledge mobilization in prison education. Although some of these factors are specific to the prison environment, we believe that most of them apply to knowledge mobilization in general.

Sound and effective communication between researchers and practitioners

Communication is a fundamental component of knowledge mobilization. Unfortunately, there are several friction points in communication within the researcher – decision-maker – practitioner nexus: research often appears disconnected from the

[14] As noted above, attitudes towards the mission of prisons vary due to many factors, and we do not suggest that the vast majority of the population supports their punitive role. It is, however, plausible that this opinion is shared by a significant proportion of the population, including in the prison system itself. That, at any rate, is the view expressed by the people we contacted.

reality on the ground; practitioners feel looked down upon; decision-makers want figures, and so on. Many of the people we contacted therefore stressed the importance of reconceptualizing this nexus to establish a relationship of knowledge co-production.

Rather than simply interpreting or popularizing research for the benefit of decision-makers and practitioners, rather than abandoning theory in order to focus solely on applied or quantitative research, it is necessary to ensure that the knowledge of the people on the ground informs the researchers' theoretical work.

The objective is not to abandon more abstract theories about the role of prison education, but rather very simply to encourage researchers to include practitioners' views in their research practice. Practitioners, in turn, must have resources. Simply put, it is necessary to *"popularize research and theorize practice."*[15]

It is also necessary to disseminate information about services and results in condensed formats. In this regard, PRET 2000 and CEGEP Marie-Victorin's prison education services provide annual activity reports, and for several years distributed a newsletter to many correctional service employee groups (program managers, program officers, correctional officers, parole officers, teachers, etc.).

Effective communication also needs to be nuanced and rigorous. As previously noted, many researchers are also activists on behalf of prison education. Even though neutrality is impossible and even undesirable in this field, it is important to be discerning and strategic. It is true that budgetary reductions can tempt prison administrations to cut back on prison education. Instead of hammering away about the importance of the right to education — which according to some of the interviewees could conversely push decision-makers to offer a bare minimum, well below actual needs — there is a need for rigorous demonstration of the effectiveness of programs. In this case, studies and executive summaries showing that prison education offers a positive return on investment are very useful. However, prison administrations also need to be encouraged to adopt a broader concept of "effectiveness" by rigorously demonstrating the limitations of the accounting approach. To this end, qualitative research and testimonials in mainstream media can, according to our partners, help raise the awareness among both prison administrations and the general public.

Examples of raising awareness

Along the same lines, the importance of examples and testimonials as awareness-raising factors and, ultimately, knowledge mobilization, should not be overlooked. Although the idea of prisons and inmates generates anxiety and fear, when the time comes to persuade someone about the importance of prison education, nothing is more convincing than first-person testimonials by the people concerned. When an inmate tells his peers: "it took me 35 years but I finally got my grade 12!" or when another inmate mentions their previous academic failures while proudly brandishing their first diploma, or when the future seems a little less bleak in a student's eyes, who wouldn't be convinced about the human and personal importance of prison education. Research therefore needs to look beyond statistics to provide decision-makers and the public personal stories about the benefits of prison education. The prison education network should also establish ways and

[15] Comment made during the interviews.

means of promoting these examples, notably by either organizing academic achievement ceremonies to which government dignitaries would be invited or by disseminating academic success stories to the mainstream media.

The importance of political sensitivity in developing networks

All stakeholders in prison education research and practice should be able to form solid networks in which each member's interests could be expressed and where researchers could apply their research in order to influence prison-related practices and decisions. However, this type of network will remain a pipedream if researchers or knowledge-brokers[16] are not sensitive to the particular realities of their research environment. This means that those involved in mobilizing knowledge or promoting prison education must be aware of the existence of disagreements over the penal system's main function. They must also be aware that some people will only be convinced if they are shown hard numbers or solid data, whereas others will be more influenced by data about employability or the prison environment. Finally, these people will also need to realize that they are not at the top of the "*food chain*,"[17] but that they are part of a network and that they participate, in their own way, to the co-production of knowledge.

Changing perspectives by changing types of contacts

In the Chair's experience, people's perspectives can change drastically when they view inmates from another angle. This can be done, for example, by making calls for collaboration on concrete projects, such as: (1) the annual dictation of Individual Learning Aids (ILA), a contest open to employees of the Correctional Service of Canada, high school students and students at CEGEP Marie-Victorin; (2) participation in certain high-school activities; or (3) internship activities either in-house or on approved outings for inmate students to consolidate their learning. In addition to concretely showing the benefits of prison education, these activities and collaborations make teaching personnel aware of all the dimensions of working with inmates, while giving correctional staff the opportunity to see inmates as participants in meaningful educational projects and as responsible citizens in the making.

Conclusion: the future of Knowledge Mobilization

We have seen that mobilizing knowledge about the impact of prison education on inmates and society in general comes with challenges. In light of these reflections and the insights gained from our interviews, we conclude by noting some observations that are useful in guiding programs and policy development in this field.

First, in a context where prison education is already consensual, as in Canada and Europe, it is necessary to build and *maintain* networks in which actors from all sectors can reach a common understanding of objectives and priorities, and, ultimately, contribute to the co-production of knowledge about prison education. However, in countries where the right to education for all is not guaranteed, strategies must be developed to convince decision-makers to set up prison education programs. It is through research that decision-makers have been convinced of the benefits of prison education, even if only in terms of a better prison environment or a decrease in

[16] Individuals specifically charged with working on knowledge mobilization.
[17] Expression used in the interviews.

recidivism, and it is by mobilizing this knowledge internationally that we will help to ensure more widespread adoption of the Nelson Mandela Rules in every country.

Second, the context of prison education shows how important it is to think about knowledge mobilization beyond the researcher – decision-maker – practitioner nexus. Some knowledge mobilization efforts must therefore be directed towards the general population, for example, by promoting the dissemination of research in the mainstream media. It is also crucial to involve inmates and ex-offenders in the process of co-creation and knowledge mobilization. This can be achieved by providing forums for prisoners and ex-offenders to share their experiences and perspectives on prison education, but also by promoting qualitative research.

Finally, the importance of intermediary and international institutions such as the UNESCO Chair in Applied Research for Education in Prison should be recognized. By virtue of its strategic position between researchers and practitioners in both the prison education network and the knowledge mobilization process, the Chair can play a transmission and translation role between the various stakeholders. Furthermore, as a Chair of *applied* research, it can also contribute to theorizing practice and popularizing theory. The international aspect of the Chair is also important since it ensures a greater outreach for the research carried out here as well as the promotion of the right to education for all.

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Appendix – Questionnaire

Background

In your opinion, briefly explain how you think the following groups view prison education:

- Knowledge-producers (researchers)
- Inmates
- Education system decision-makers
- Public safety decision-makers
- Prison system decision-makers
- Prison system employees

In your opinion, does research have a (significant, insignificant, major or minor) influence on the practices and opinions of prison system decision-makers?

- If you feel that it does not have much of an impact, what are the reasons for this low impact?
- Comments?

In your opinion, are current prison education practices sufficiently informed by research on best educational practices?

Obstacles to knowledge mobilization

In your opinion, what is the biggest obstacle to the delivery of quality education for everyone, including inmates in federal and provincial prisons?

- A lack of knowledge?
- A lack of resources?
- Political/ideological obstacles?

In your opinion, what are the main obstacles to mobilizing knowledge about the benefits and importance of prison education?

Do you feel that there is a conflict, or even a contradiction, between promoting prison education on the strength of scientific knowledge and evidence and promoting it simply on the basis of a "right to education"?

- Is it necessary to provide evidence that prison education is effective in order to continue to promote it?
- Given that political or ideological considerations will always play a role in decision-making, how, in your opinion, can the role of knowledge (from both the research and practitioner sectors) be promoted?
- Do these difficulties vary depending on the governance level concerned (local, provincial, global)?

Producer/user connections

- Does your organization have someone or some unit that would act as a liaison between knowledge-producers and decision-makers?
- In your opinion, do certain types of studies or research have a greater impact on decision-making and practices? (These types of studies may include quantitative and statistically significant research, qualitative research or applied research-action).
- In your opinion, what types of events, meetings or exchanges are the most likely to have an impact on policy decision-making and on practices? (symposia, participation in follow-up committee meetings, personal meetings, etc.)
- How can such occasions be promoted?

In the Chair's experience, first-person testimonials from inmate students have a significant impact on both decision-makers and administrators, particularly at academic achievement ceremonies. In your opinion, should prison education practitioners promote this type of contact between administrators and the main beneficiaries of prison education? If so, what approach should prison education practitioners take?

Links between researchers and practitioners

How can effective and productive interactions be facilitated throughout the knowledge production – policy development and adoption – policy implementation process?

Assuming that education practitioners have a solid knowledge of their practice (even if it is sometimes 'implicit' and non-formal), how, in your opinion, can this knowledge be transmitted to both researchers and administrations?

Potential solutions?

In your opinion, how could a network for sharing quality knowledge address these obstacles?

- Who would be in the best position to play a leadership role in this network?
- Would this person or institution need to appear 'politically neutral' to do this work?
- What would be the role of intermediary organizations like the Chair in this network?
- General comments?

Appendix – Methodology

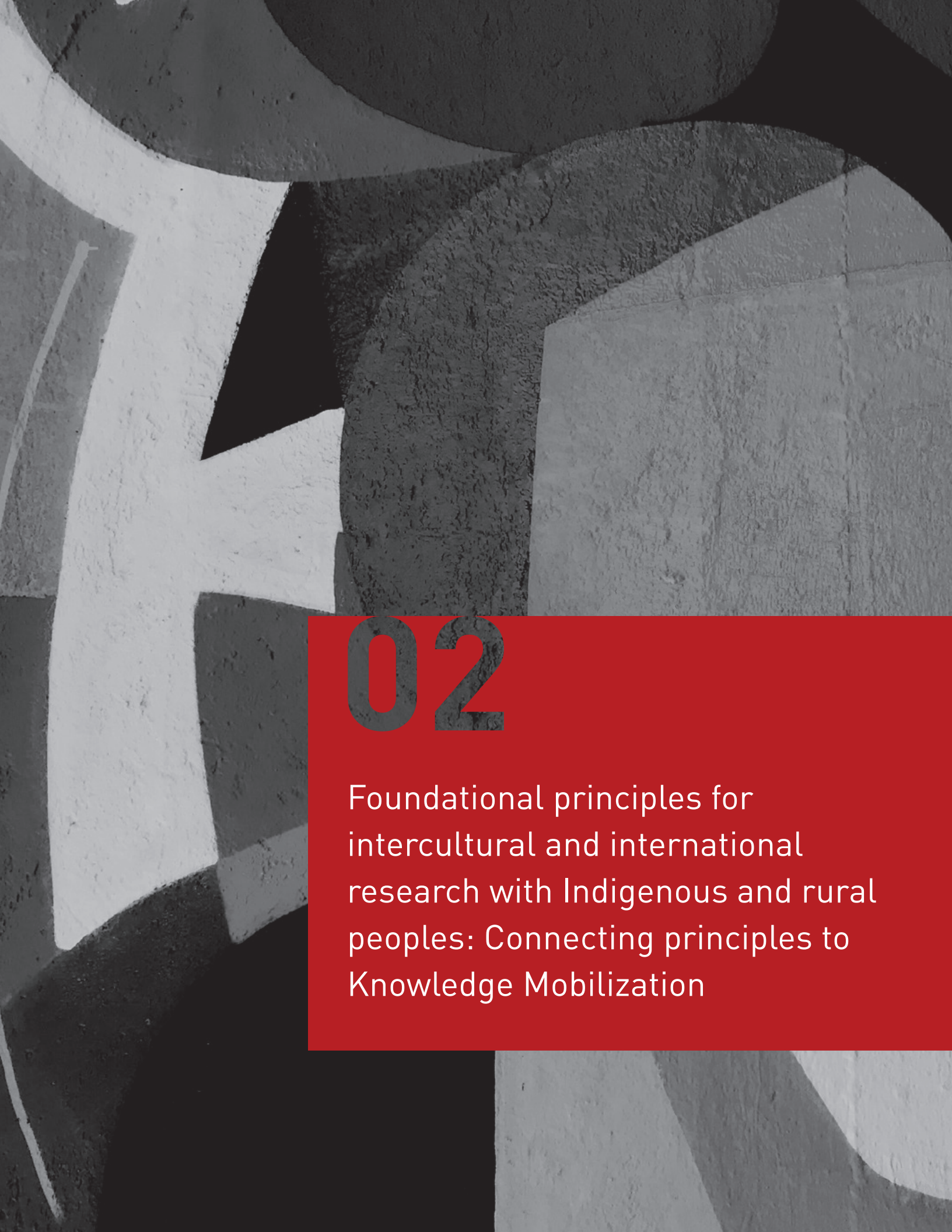
To prepare this document, the research co-holder of the UNESCO Chair in Applied Research for Education in Prison contacted several people involved in research or practice in either prison education or education in general. These individuals were selected on the basis of their expertise, experience and particular role in their respective fields. Most of them were already part of the Chair's contact network, but a few were directly approached to participate in the project.

We also conducted semi-structured interviews with seven individuals. Two of these work for an organization that offers representational and lobbying services for Canadian colleges; one is a university researcher in criminology; one is a researcher in a British research institute; one occupies a senior management position in a public security-related institution; one teaches in prison; and one is a college administrator who has taught in prison and conducted research on prison education.

These individuals were interviewed between February 5 and March 4, 2020. They received the attached questionnaire several days in advance. The interviews were conducted in person, either on the phone or via Zoom, and were recorded as audio files. Each interview was then transcribed.[18] These transcriptions were then used for reference in drafting this think-piece.

Note: All the people we contacted could be described as "advocates" of prison education. Some even have close connections with the Chair. Our purpose in meeting with them was not to obtain an objective portrait of how knowledge about prison education is mobilized, but rather to obtain grounded and informed views as input for our own reflections. In fact, this purpose was clearly stated to all the participants.

[18] The transcriptions were not verbatim and the last 20 minutes of one interview was not recorded due to a technical problem.



02

Foundational principles for intercultural and international research with Indigenous and rural peoples: Connecting principles to Knowledge Mobilization

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Preamble

Academic researchers are now expected to share their knowledge widely and to make it useful to knowledge users – individuals, organizations or communities – who can apply it to improve relevant policies, programs, and practices.

Our own research into biocultural diversity and sustainability has revealed that mobilization of knowledge relies on its co-production by academic, Indigenous, community, governmental and private actors working in partnership with one another.

Academic researchers are now expected to share their knowledge widely and to make it useful to knowledge users – individuals, organizations or communities – who can apply it to improve relevant policies, programs, and practices. For some time, researchers have asked questions about how to create knowledge that is both rigorous and useful, how to create processes that make such information accessible, and how to facilitate feedback for continuous improvement (Levin 2008). Unidirectional knowledge transfer from academic researchers to societal actors, however, has largely failed to inspire change among users, despite the best possible science (Pielke Jr. 2003); continuous contact between knowledge users and researchers is now considered key to effective knowledge mobilization (Klenk and Wyatt 2005). Our own research into biocultural diversity and sustainability has revealed that mobilization of knowledge relies on its co-production by academic, Indigenous, community, governmental and private actors working in partnership with one another (e.g., Robson et al. 2009; Reed et al. 2014).

Although knowledge mobilization encompasses activities associated with the production and dissemination of knowledge, emphasis has historically been placed on the uptake of research results, including activities such as synthesis, dissemination, and knowledge transfer. Researchers have been encouraged to determine the most appropriate users of research outputs throughout the life of a project, and produce results that can be used to inform decisions, policies, and practices (SSHRC n.d.). Today, however, researchers and granting agencies such as SSHRC recognize that establishing relationships and responsibilities at the outset of a project, and

continuous communication and sharing of knowledge and research findings, can generate deeper and more lasting benefits (Tri-Council Policy Statement 2018).

Emphasis is now placed on designing practices "upstream" of the research itself to address the expectations, needs and capacities of research partners, and to help build long-term knowledge-sharing organizational cultures (Klenk and Wyatt 2005). Continuous communication, sharing and learning between community groups and researchers, as seen in South Africa, can make for creative and more accessible knowledge mobilization (Hamer and Sutherland 2014; Cundill et al. 2014). From their work in Canada, Klenk and Wyatt (2005) suggest that research networks can help build knowledge users' capacity for knowledge co-production by establishing communication channels to facilitate exchange of ideas, learning, and institutional memory, and to build networking skills among partners. They recommend both short-term "technical" and long-term "strategic" actions that can make knowledge more useful and its uptake more likely.

These experiences and recommendations are important. Yet what remains to be developed are long-term, normative guidelines that can set the foundations for knowledge sharing and mobilization across international and intercultural contexts. This document, making use of cases from Canada, Mexico, and South Africa, provides examples of what such guidelines might look like.

Introduction to the Chair

The UNESCO Chair in Biocultural Diversity, Sustainability, Reconciliation, and Renewal was established in 2018 at the University of Saskatchewan. The purpose of the Chair is to promote biocultural diversity and sustainability through community-based, participatory action research and knowledge exchange. To date, we have focused on research and knowledge exchange in and across Canada, Mexico, Argentina, Bolivia, and South Africa. Through our collaborations, we seek to support the livelihoods, economies, and governance arrangements of Indigenous, traditional, local and rural peoples, with a strong focus on enhancing equity, diversity and inclusion, particularly of youth and women in their communities. We aim to demonstrate how different knowledge systems, traditions and institutions can work together to promote productive and biodiverse landscapes and territories.

We aim to undertake research with Indigenous, traditional, local[1] and rural communities that is respectful, relevant and built on reciprocal relationships. We recognize that past research practices have colonized, marginalized, and disadvantaged Indigenous peoples and undermined Indigenous self-determination. To address past harms and engage in decolonizing research, Indigenous researchers and communities today advocate for six "Rs" to be applied to research with Indigenous peoples: respect, responsibility, relevance, reciprocity, relational accountability, and refusal (Johnston et al. 2018: 13). In Canada, a seventh "R" has also been advanced: reconciliation (Truth and Reconciliation Commission 2015). These seven "Rs" offer a framework for research that nurtures respectful relationships, shares benefits, uses "Indigenized methods; recogniz[es] reciprocal capacity building, and credit[s] Indigenous knowledge" (McGregor 2018: 132). Established by Indigenous peoples, we believe these attributes are

[1] We follow the 'statement of coverage' contained in the Indigenous and Tribal Peoples Convention (C169) to consider *traditional and local peoples* as groups not necessarily called Indigenous or tribal but who share similar social, cultural, and economic conditions that distinguish them from other sections of the broader community or society in the country where they reside, whose status is regulated wholly or partially by their own customs or traditions, and/or whose livelihoods are closely connected to local lands, ecosystems and their goods and services.

important for all of our Chair's research partners, which span from Indigenous to other traditional, local, and rural peoples.

Multiple guidelines for ethical research with Indigenous peoples now exist in Canada, generated by funding agencies (e.g., Tri-Council Policy Statement 2018), universities (e.g., Royal Roads University 2019), and Indigenous organizations (e.g., Mi'kmaw Ethics Watch 1999; Nuu-cha-nuulth Tribal Council Ethics Committee 2008). Frameworks and guidelines have also been established for conducting research that enable decolonization (e.g., Bartlett et al. 2007; McGregor 2018) and publication of results (e.g. Younging 2018). However, for many of the communities where we work, locally-developed protocols do not exist, while assumptions embedded in Canadian-made protocols may not hold. Research contexts have specific characteristics, so that protocols developed for one context may not readily transfer to another. Similarly, many protocols do not make explicit their connection with knowledge mobilization.

Students and researchers working in such places, and with such communities, require more foundational guidance from which appropriate working relationships and arrangements can be negotiated. We support the need for a set of normative principles that can undergird and inform specific practices and strategic knowledge mobilization activities when research is being conducted (with Indigenous and local peoples in rural settings) across international and intercultural contexts.

Research Principles

The guiding principles offered here act as a starting point for how researchers and partners associated with the Chair will build meaningful relationships with the communities with whom they work. The foundation of such work lies in building relationships, partnerships, and friendships with these communities and their members: working with local community actors to co-design research projects and develop appropriate ways to share the co-generated knowledge. These meaningful relationships and appropriate ways of knowledge sharing necessitate that any such work provides accessible and useful benefits to all involved. Importantly, it provides control to those involved in its generation. When working in First Nations communities in Canada, for example, researchers should be aware of the level of Ownership, Control, Access, and Possession[2] of data that has been determined appropriate by the community (First Nations Information Governance Centre 2019). Whatever form collaboration takes at each stage of the research process, it is important that researchers follow the community's guidance in terms of the level and type of communication they would like to receive (Brock 2019). Researchers will need to ensure they are continuously sharing results with communities and seek ongoing permission to continue with each stage of research. Informed by our partners at the outset, we seek to move beyond the language of stakeholder and interest groups, instead viewing Indigenous and other traditional and local peoples as rights holders and responsibility holders with respect to a shared and sustainable future. We also work with the understanding that every community is unique, so it is paramount that one remains mindful of local context, values, interests, needs, and customs.

[2] The three main groups of Indigenous peoples in Canada are First Nations, Métis, and Inuit. According to the FNIGC, "OCAP® is an expression of First Nations jurisdiction over information about their communities and its community members. As such OCAP® operates as a set of specifically First Nations—not Indigenous—principles." Therefore, it is important to be cautious about the applicability of these principles to other Indigenous, traditional, and local peoples.

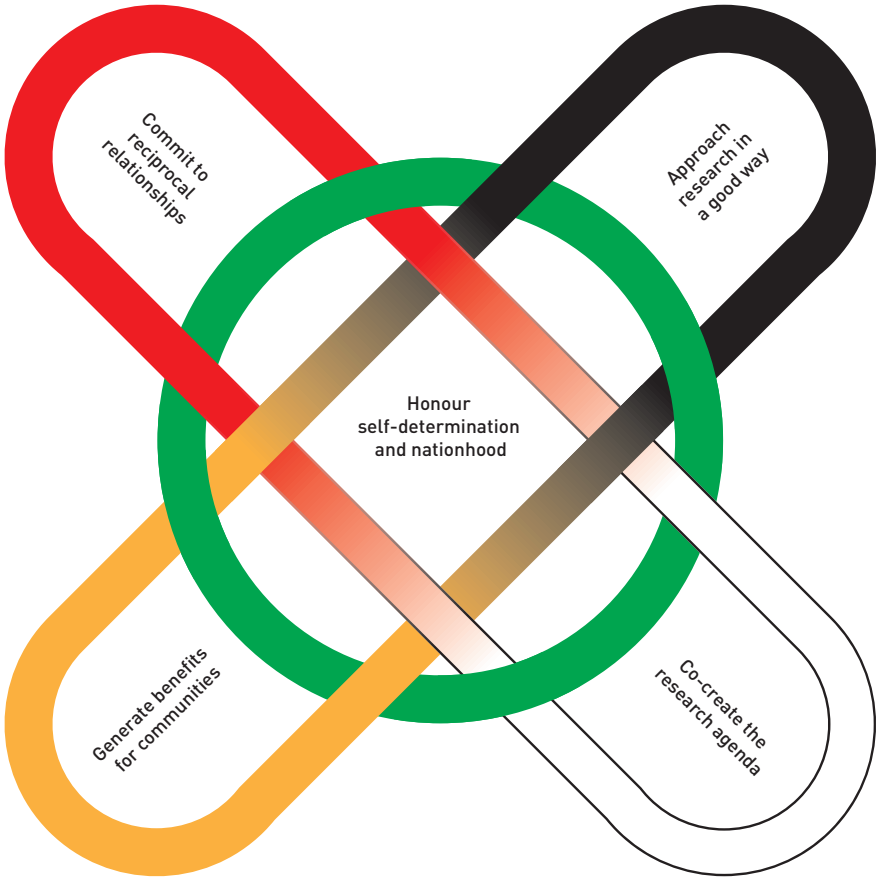

Figure 1 : Five Research Principles as Interwoven Knot (design by P. Friedrichsen)

Research Principles as an Interwoven Knot

The Research Principles diagram (Fig 1) shows our five principles, and their relationship to one another. The diagram begins with the foundational principle of "Honour self-determination and nationhood", around which four additional principles – "Commit to reciprocal relationships", "Co-create the research agenda", "Approach research in a good way", and "Generate benefits for communities" – are bound and interlinked. Together, our five principles form an interwoven, non-hierarchical knot. The red, black, white and yellow colours and circular relationship refer to the Medicine Wheel used by Anishinaabeg, Niitsitaapi, Nehiyawak, and other Indigenous peoples in North America. The knot itself is a traditional Celtic symbol. The use of Indigenous and western symbols is deliberate; signifying the weaving together of diverse cultures and worldviews through respectful, reciprocal and ongoing collaboration. The diagram has been designed in such a way as to inspire a sense of unity and learning for those working together in partnership, both in knowledge creation and sharing.

We now explain in detail each of these five principles and the nature of their interconnections. We write based on our own research experiences over time, conversations that we have had with our partner network since 2018, and a review of literature relevant to communities where members of the Chair's network conduct their work.

Principle #1: Honour self-determination and nationhood

At the foundation of the Chair's work is a commitment to honouring the self-determination and nationhood of Indigenous, traditional, and other local and

rural peoples. Indigenous and traditional peoples have an inherent right to self-determination that does not require the endorsement of outside parties (UNDRIP 2007). We acknowledge that past research has often undermined this right.[3] Hence, we believe that our work should serve to affirm the sovereignty and autonomy of such peoples. Authors such as von der Porten and de Loë (2013) and Brock (2019) explain that respect for Indigenous self-determination is a necessary first step for meaningful research relationships because it serves to counteract dominant colonial ideals about what constitutes engagement. This principle thus holds Indigenous and traditional peoples, as well as many other local and rural peoples, as rights holders rather than one of many "minorities, interest groups, or stakeholders" – which can lead to failed attempts to successfully collaborate with such communities and their affiliated organizations (von der Porten and de Loë 2013).

Practices associated with this principle start with the realization that Indigenous and other rural and local peoples are deeply connected to place and for many, there is no separation between "us" and "our environment" (Adams et al. 2014). Place is viewed not just as a specific material location, but also encompasses past and present relationships among animals, nature, spirits, and humans (Tuck & McKenzie 2015). Reconciliation in this sense involves conducting research that seeks not only to reconcile human communities with each other but also with the land itself, and the complex socioecological systems of which they are part (Viaene 2010). A deep connection to place, although sometimes expressed differently, often holds true for local and rural peoples who are not formally recognized as Indigenous.

The Chair acknowledges that Indigenous peoples are also responsibility holders, with their own governance protocols and traditional territories. We respect that there is significant diversity and difference between and among Indigenous nations. For example, communal authorities, governance systems and local protocols will differ between and within nations in Mexico and Canada (Diaz 2007; McGregor 2018) – two of the countries where we and our partners work. Indigenous mentor and partner to the Chair, Anthony Johnston (2019), also points out that by using the language of responsibility holders, we can provide a bridge for Indigenous and traditional peoples, and non-Indigenous and non-traditional peoples, to work together and develop shared governance arrangements.

The Chair also aims to conduct work that deconstructs legacies of social, political, and economic exclusion and inequality for Indigenous and traditional peoples. Specific practices for achieving this goal are detailed in the principles that follow, but recognition of the harm inflicted by past research is paramount to shifting the nature of future relationships. Seeking applied research opportunities that uphold Indigenous and traditional language, art, and ways of being is one of the ways that researchers can support revitalization and resurgence of Indigenous/traditional cultures, governance systems and self-determination (Salomon et al. 2018).

Principle #2: Commit to reciprocal relationships

The basis for conducting research that is meaningful and relevant for communities is committing to reciprocal

[3] We recognize that Indigenous peoples (as well as many other traditional and local peoples) have a distinct set of rights linked to their social, political and economic situation as a result of their ancestry and stewardship of lands and resources vital to their well-being.

relationships. Relationships must be established with recognized individuals from the organizations and communities with whom researchers will work, and be legitimized by people from the same community. Our goal is to ensure that such relationships are based on respect, reciprocity and accountability, and remain grounded in collaboration and power sharing as partners (Zurba 2014).

Building trust in communities takes time and might involve significant efforts to build both formal and informal relationships that exist entirely outside of the research process (Castleden et al. 2012). One aspect of this principle, then, is simply to be present in the community and attend community events when possible (Brock 2019). Researchers should spend time learning about the history of the community and peoples in the particular territories they will be working in (Younging 2018). This allows for researchers to establish informal community connections and for personal relationships that can enhance trust and allow friendship to grow.

Offering appropriate forms of remuneration to the community and providing opportunities for community members to come into researchers' spaces can be done following consultation with local champions. Finding local support for the research is key (McGregor 2018), and such champions[4] are often particularly knowledgeable about intra-community politics, demographics, and relationships (Friedrichsen 2020), and are well placed to support the research process, connect researchers with community members, and provide advice on how to approach different aspects of doing research. They can help researchers to participate in local meetings, ceremonies, workshops and events, and learn local protocols related to youth, gender, Elders, remuneration and gift-giving, language, communication with community members, and appropriate sharing of knowledge (Berkes et al. 2001; Noojmowin Teg Health Centre 2003; Prince 2010; McGregor 2018). Gaining the support of local people is only possible with ongoing communication and through a commitment to reciprocal relationships with the community.

In addition to building relationships by spending time in partner communities, the Chair will seek formal relationships with community leadership. This might include creating research agreements where the community sets out its expectations for how research should be conducted, data accessed and managed, and knowledge shared and credited. It may also include presenting to the local council or authority to receive formal approval for research to proceed (McGregor 2018). Beyond these agreements, though, the Chair will continue to seek informal community feedback as part of an ongoing process throughout its research projects.

Engaging in reciprocal relationships means that researchers should consider innovative ways to collect and share knowledge that can push research into new arenas – such as photos, theatre, poetry and storytelling – and in ways that are culturally and locally appropriate: appealing to different groups such as youth or Elders (e.g., Hamer and Sutherland 2014; Fernandez-Llamazares and Cabeza 2017). This nuanced engagement extends to finding ways for groups within communities without voice in these processes (e.g. youth) to share and communicate knowledge and ideas with their peers and elders. In one project – the Future of Forest Work and Communities – we engaged youth in 14 forest communities in Africa, Asia, and the Americas. One of the most impactful aspects of the work, as reported by youth participants, was having the

[4] Variations on the idea of champions includes change agents, residential researchers, facilitators, community scientists, and even barefoot ecologists.

opportunity to present their forest work ideas to local leaderships (Robson et al. 2019; Robson, Sosa Perez and Sanchez Luja 2019; Zetina et al. 2019). Another example of youth-led knowledge creation and sharing (Friedrichsen 2020) is shown in Case Box 1 below.

Principle #3: Co-create the research agenda

This principle pertains to the responsibility of researchers to collaborate with their partner communities throughout the research process at the level and frequency desired by the community itself. Researchers and community partners should co-determine when and how participants would like to be involved in each stage of the research, including setting the research agenda, data collection, methods and analysis. The principle also pertains to when the research process is complete, and requires the researcher to ask the community about knowledge mobilization: who needs to know about the research findings, and how can the research team help support communication of findings out to these actors? Posing and confronting such questions as part of research co-design enables knowledge creation to move to knowledge mobilization in ways that are more appropriate and effective for communities.

Co-creating the main research agenda and co-identifying the types of problems the research will address means prioritizing the voices, ideas, and realities of Indigenous and other local communities (Asselin and Basile 2018; Vasquez-Fernandez 2018). Where appropriate, communities and researchers can determine ways to weave Indigenous and local methodologies and knowledge into the research process (Davidson-Hunt and O'Flaherty 2007; Davidson-Hunt et al. 2012; Johnston et al. 2016). An example from Lake of the Woods Anishinaabeg, Canada, is illustrated in Case Box 2.

Continuous collaboration extends to maintaining strong and meaningful connections with the community when a project nears its end. Maintaining these connections with the community is integral to this principle — rather than parachuting in for the field season and never being heard from again (Adams et al. 2014). In particular, researchers and

Case Box 1: Youth-led Knowledge Sharing in Muskeg Lake Cree Nation, Canada

Youth at Muskeg Lake Cree Nation created posters to showcase ideas for their community's food forest initiative. These posters were later presented to Elders and the local Food Security Committee that had the authority to implement these ideas into food forest design and development.

These posters were examples of community-generated and -owned data, and new forms of knowledge exchange between youth and Elders. When the research was complete, youth and Elders participated in a scavenger hunt activity at the community's annual Family Literacy Camp in August 2019, providing a further opportunity for youth and Elders to learn from each other and share their ideas and perspectives.

Contributed by: Peter Friedrichsen

community members must clarify expectations for how and when the outcomes of research (knowledge) will be shared and how the wind-down phase may be managed. Following through with promised outputs at the end of the research process is particularly important to ensure that researchers meet their responsibilities to the community and do not leave participants feeling neglected or short-changed. For example, some communities may wish to participate in collecting samples, environmental monitoring, or co-generating themes for analysis (Adams et al. 2014; Castleden et al. 2012).

Others may feel strongly about setting priorities for the questions that research in the community should address, but do not wish to be involved in the detailed work of data collection and analysis (Reed and Peters 2004). Yet, in general terms, community members can be more willing to share co-generated knowledge (outside of their communities) when involved in negotiating the research agenda. Case Box 3 provides one such example from South Africa.

For academic researchers, new research projects may emerge and new students may be brought into the research process. In these cases, the means for transition to new members of the research team should be carefully considered. This is particularly important as students who complete their degree requirements may be moving to new educational or

Case Box 2: Co-creating the research agenda in Lake of the Woods Anishinaabeg

Miijim: Traditional Foods of the Lake of the Woods Anishinaabeg (Miijim: Anishinaabe Gaabi Inanjiged Zaaga'iganiing) was an exhibit and public engagement programme co-curated by Phyllis Pinesse of Iskatewizaagegan Independent First Nation, Lori Nelson of the Lake of the Woods Museum, and Iain Davidson-Hunt of the University of Manitoba and partner to the UNESCO Chair.

The development of the exhibit and programme was undertaken by a design team that included community research partners and Elders, curatorial and public education staff of the museum and university researchers. The audience identified was both Indigenous and settler residents of northwestern Ontario to create a space for dialogue and exchange through public engagement.

Panels were developed in both English and Anishinaabemowin drawing from textual sources gathered through research projects (Elders statements, illustrations, photos and archival materials) and based on a design developed by the team. A youth from the community with video production skills developed two short videos about contemporary harvest practice from the water and the land guided by the team.

During the period of the exhibit (six weeks), weekly programmes were held during which community members and Elders, for example, demonstrated cooking with Anishinaabe foods; discussed the importance of water and land for their foods and medicines; and provided opportunities for people to learn skills related to food processing and preparation. In its first run the exhibit attracted 2,306 visitors and since then has continued to be requested by regional museums, schools and Indigenous organizations. Due to the requests by Indigenous organizations the panels were later produced as a digital booklet utilized in the context of language, food security and nutrition programmes. Exhibit link: https://themusekenora.ca/exhibit/miijim-traditional-foods-of-the-anishinaabeg/

Contributed by: Iain Davidson-Hunt, UNESCO Chair partner

work settings. In all cases, researchers should be considerate and sensitive; they must recognize that research relationships, like friendships, do not end because a specific project has come to a close. Rather, the researcher's responsibility is to continue the relationship and communicate final results and outcomes back to the community in a format that they find useful. If such knowledge mobilization is not feasible nor appropriate, plain (local) language summary reports or the like are important. Researchers must be held accountable for knowledge sharing to the community, even if the funding has ended for a project or after students have completed their programs (Adams et al. 2014). Attention to maintaining these relationships even when individual projects are not underway will deepen trust and benefits among partners.

Case Box 3: Continuous communications, sharing and social learning in South Africa

Regular and continuous communication, knowledge sharing, and learning is critical for achieving engaged, transdisciplinary research. An IDRC-funded vulnerability, health and climate change project in the rural Eastern Cape, South Africa, designed an integrated process to ensure on-going engagement and conversation between researchers and local communities.

We built on traditionally practiced meeting formats. This resulted in three levels of interaction within communities: individual (with the chiefs and other community leaders); through a community selected 'social learning group'; and via a large community imbizo (coordinated by the chief). Social learning group meetings were held once a month, while the imbizos were hosted twice per year, and included a start-up meeting where the communities were invited to name the project. It became '*Jongphambili Sinethemba*' (looking forward we have hope), which combined ideas from the two participating communities. The imbizos provided culturally-based entertainment centred around the project themes as well as a platform for information sharing, and included a pre-meeting soccer match, drama, poetry, song, dance and more formal feedback using posters. The final imbizo involved a theatre production (Vukani!) that included two youth from each community, led by professional actors and a producer. Lastly, we held a provincial workshop where the key speakers were members of the social learning group.

This engagement process was designed to support individual and community level adaptation to the myriad stressors affecting rural people's lives. It unfolded in an emergent and flexible way as the project progressed, requiring open-minded and reflexive facilitation by the research team. For a copy of the handbook see https://weadapt.org/knowledge-base/transforming-governance/social-learning-for-adaptation and for documentaries on the drama development process and one of the community imbizos see https://vimeo.com/user22953453/videos

Contributed by: Sheona Shackleton, UNESCO Chair partner

Principle #4: Approach research in a good way

Researchers should approach the research process itself with a significant amount of self-awareness, critical reflection and self-evaluation about how knowledge is generated and the research methodologies they wish to undertake (Barrett 2013; Castleden et al. 2012; Smith 1999). From our work with Indigenous peoples in Canada, we consider this mutually-beneficial partnership as an example of research being done in "a good way". An important foundation for carrying out responsible research is being mindful of the impact of one's actions and understandings (ISE 2006). Working with a sense of humility, bravery, wisdom, *and humour* will enhance research relationships (NTHC 2003). Practicing adaptive and reflexive research (Nelson 1991; Reed and Peters 2004) that recognizes that researchers are bound to make mistakes and must be sufficiently flexible to make changes (to the research process while research is underway) will also be important.

One means for demonstrating respect is to choose venues and processes that are appropriate for the community. For example, holding a communal meal or talking circle may be more comfortable for an Indigenous or other traditional community than a typically Western setting for a meeting or open house (von der Porten and de Loë 2013). Indeed, such events may also be appropriate for non-Indigenous communities where formal meetings might only attract local elites. Being conscious of the local social culture is equally important. At times, researchers may need to be comfortable sitting in silence (Zurba et al. 2019), allowing participants time to gather their thoughts, and expressing thanks when someone shares from the heart and helps in their work (NTHC 2003; Vasquez-Fernandez et al. 2018).

Good community-engaged research takes time and requires regular interaction (Castleden et al. 2012). Researchers must recognize that people who are members of the communities where projects take place often contribute to research voluntarily; their lives are already full with work, home, family, and community obligations. Additionally, if researchers require formal decisions to be made by community members, they must allow sufficient time for people to consider the implications of the research before making those decisions (Zurba et al. 2019). Furthermore, in many communities – Indigenous and non-Indigenous alike – research activities will come to a halt during times of major celebration, crisis, or grief (Martin 2003). Being aware of and sensitive to the ebbs and flows of community life and community capacity is an important step for conducting research in a good way.

Protecting participants and their data from any harm in the research process, from beginning to end, especially their local or Indigenous knowledge, is paramount (Nuu-chah-nulth 2008; Vasseur and McDermott 2019). Vasseur and McDermott (2019: 270) point out that researchers who bring Indigenous and western scientific knowledge systems together must also ensure that resulting research papers "(i) have received appropriate Indigenous Research Ethics approval, [that] (ii) true and open consent was *a priori* sought before the start of the research, and [that] (iii) data were returned to the People where they belong for the protection and preservation of Indigenous knowledge". These requirements extend to academic forms of knowledge mobilization demanding that local people be consulted to determine how they wish to be acknowledged, including as co-authors, if desirable.

Finally, the right of individuals to refuse to participate is embedded in standard research ethics protocols,

and also applies to communities as a whole. In addition to actively working to address research in ways that are conducive to Indigenous and local customs and culture, researchers must also be conscious of respecting their role as outsiders and respecting the rights of individuals and communities to not participate in research activities (Zurba et al. 2019; NTHC 2003). Even if they choose not to participate, the knowledge generated by the research should still reach and be accessible to such individuals. This ties in to our next principle, concerned with how the benefits of community-based research reach a broad-based membership rather than a select few.

Principle #5: Generate benefits for communities

The last central principle of the Chair's work is to conduct research that provides relevant and real benefits to the communities with whom it partners (RRU 2018). This principle is closely connected to Principles #3 and #4 because when research is co-designed with community partners, and a strong collaboration between researchers and communities is formed, there is a higher likelihood that the research activities, knowledge sharing, and results will generate meaningful benefits to the community/communities.

Benefits can take multiple forms but can emerge from a frank discussion at the outset between communities and researchers. Such discussion will also mean explaining the limitations of what the research can and will be able to do in and for the community, and how plans for knowledge mobilization strategies should be built around that. Benefits should be tracked as they emerge and new opportunities to generate benefits should be sought throughout the duration of the project. Case Box 4 provides an example from Argentina that shows just how co-creation of research can lead to more significant benefits for local communities.

Some benefits fall within the ambit of good research practice. Research grants can provide small financial benefits in an effort to "level the capacity playing field" (von der Porten and de Loë 2015: 141). For example, local people may be paid as guides and research assistants in the course of a research project (Gearhead and Shirley 2007). Research results should be shared in ways that are culturally relevant and in formats that are useful to the community, whether they be short, plain language reports, products in Indigenous and/or local languages, creative visual or video materials, an online social media page or other forms as desired (McGregor 2018). Community ownership of research results can be encouraged by creating opportunities for community members to contribute to findings and the outputs, including naming the products or projects resulting from research (Zurba et al. 2019). If amenable to the community, results can be published in open access outlets, and community contributors can be included in academic outputs such as publications and conference presentations (Zurba et al. 2019; Castleden et al. 2012; Younging 2018). Data might also be shared with key stakeholders identified by the community. In some cases, communities might want academic researchers to present to local governments or partner NGOs, as they may be more effective at addressing and actioning research results. However, as Case Box 5 makes clear, improvements to how research data are made available and managed – in terms of infrastructure, maintenance and access – remain critical issues to be addressed.

Benefits can also take other forms. Often researchers develop a personal relationship with the community with whom they are working and wish to give back in some way beyond simply disseminating research results (Vasquez-Fernandez 2018). Benefits to communities may be personalized to the researcher(s) involved and potentially tied to particular talents or skills that they have to offer. For example, communities may have limited internal research capacity, so providing training in specific skillsets such as GIS or environmental monitoring, or by mentoring youth and connecting them with post-secondary institutions can be valuable ways to generate added benefits to the community (Adams et al. 2014). Training exchanges are another example, where young people, in particular, have the opportunity to visit and learn from other communities (Gearhead and Shirley 2007; Cundill et al. 2014; Robson et al. 2019). Sharing skills in sports, the arts or technology, preparing and sharing food, or simply spending time with youth and Elders are ways for individual researchers to give back in tangible ways to

Case Box 4: Co-creating research and generating local benefits in Argentina

La Payunia Provincial Reserve is located in Mendoza province in Argentina. As is the case for other protected areas created in the 1980s, the participation of local people in design and establishment of the Reserve was very limited. In 2005, some inhabitants of La Payunia asked the Provincial Department of Renewable Natural Resources for technical advice in order to develop an alternative source of income, while reducing conflicts between domestic livestock and wild guanaco (Lama guanicoe) populations.

The Payun Matru Cooperative was set up to implement live shearing of guanacos and link conservation with improving the economic situation for local people. The cooperative also aimed to preserve local culture and encourage young people in particular to remain in the area. Technical and scientific advice was sought with camelid experts from the National Research Council (CONICET). This initiative resulted in a long lasting cooperation with researchers and students.

Since 2006, many guanaco captures have taken place. Guanaco roundups are planned and carried out by Cooperative members and researchers. The experience merged community development with scientific research and, over time, the guanaco captures became 'open air labs', where IUCN´s Animal Welfare Protocol for guanaco captures was developed and many young scientists were trained. Cooperative members improved their management and shearing methods and have become experts on guanaco management with high animal welfare standards. Several members were hired by producers from Patagonia to share their expertise on guanaco management. In 2012, a public-private consortia was established between the CONICET, the National Institute for Industrial Engineering (INTI) and the local Municipality of Malargüe. They were awarded funding to develop the technology needed to support the establishment of a guanaco fibre value chain, which included the installation of a fibre processing plant for the Cooperative to use and benefit from.

Contributed by: Gabriela Lichtenstein, UNESCO Chair partner

Case Box 5: Data management strategies for community research

An ongoing challenge to knowledge co-generation and sharing in communities is secure and reliable data management. Despite the technical challenges and financial costs involved, a lack of appropriate measures can mean failure in meeting a community's ethical and collaboratory standards, such that genuine partnerships between researchers and communities are not "sustainable nor ethical" (Carlson, Harkema and Reed 2017). The creation of Indigenous Digital Asset Management Systems (IDAMS) in Canada has been proposed to make data storage and use more secure and accessible to both academic researchers and communities alike. In the proposed IDAMS, intellectual and cultural property rights must align with both Indigenous peoples and the universities involved, and multiple access protocols can be developed to regulate who can and cannot access sensitive Indigenous knowledge (IK) and under what conditions (Carlson, Harkema and Reed 2017). Furthermore, responsibility to maintain the database is shared equally among librarians, researchers and communities. This form of ongoing, collaborative data management is intended to preserve the relationship between communities and researchers and help ensure that research outcomes are easily accessed and continue to benefit communities.

the communities where they are working. As researchers become more familiar with local interests and needs, they can identify opportunities for giving back to the communities who have supported their academic research endeavours and aspirations.

Conclusion

Good practices for knowledge mobilization are undertaken when research is first conceived. Hence the research principles laid out in this paper help provide a foundation for knowledge mobilization actions that are pursued throughout the research cycle. Such practices require researchers to engage with partners in relationship building and knowledge co-production from the outset. Co-production of research planning and knowldege will enhance the relevance and employment of research results for the communities who participate. The Chair encourages funders to support research that applies these and similar types of principles. For example, funders may seek to visit and engage with researchers and communities, provide specific funding for community engagement, support longitudinal work by providing follow-up funding, and recognize multiple outputs and outcomes. In these ways, funders can also become part of the research process, such that they directly support positive change from research and knowledge mobilization with communities.

These research principles are distinct yet interwoven: each is co-dependent in facilitating more accessible, appropriate and useful research and knowledge mobilization.

At the outset of research, *Honouring Self-determination and Nationhood* means recognizing and adhering to existing traditions and protocols of the community. Doing so sets the precedent to:

- **Commit to reciprocal relationships** of respect, responsibility and reciprocity between the researcher with the community, and creates avenues for forms of knowledge creation and sharing that can reach an array of groups within the community. As part of a reciprocal relationship, researchers and communities can:

- **Co-create the research agenda;** addressing how and why research is conducted, and for whom. The examples from the Lake of the Woods Museum exhibit and plays at Imbizos in South Africa help illustrate this process.
- **Approach reseach in a good way;** by co-creating the research agenda, the research process becomes a partnership of knowledge co-generation and sharing throughout the project.

Each of the previous principles then link to the final principle and intent to:

- **Generate benefits for communities** from research. The ongoing partnership allows community members – even if they do not participate in the research – to have greater agency over data management and what they want research outcomes to do for their community, during and beyond the duration of the research project. Good practices for research and knowledge mobilization are embedded within and throughout the five principles and offer a flexible template for better research with communities.

We recognize that the principles we have described here are aspirational and incomplete. We will not always achieve our best intentions and we will make mistakes. We will revise this set of principles as we continue to learn from our partners about how best to work together. We also emphasize the value these principles can have to funding agencies in building trust with communities and how they can cooperate on project design with multiple outputs and outcomes. Critically, we remember that our research partners – Indigenous, traditional, local and rural peoples – are indeed, partners, friends and allies and not just "research participants" or "colleagues". We aim to foster long-term positive, reciprocal relationships that will transform research practice and generate relevant and lasting results in biocultural diversity and sustainability.

Acknowledgements

This reflection paper would not have been possible without the insight and encouragement of the partners to the Chair including Anthony Johnston, John Kindrachuk, Alfred Gamble, Fernando Ruiz, Larry McDermott, Lenor Acuña, Rebecca Hurwitz, the Clayoquot Biosphere Trust, Mistawasis Nêhiyawak, and San Juan Evangelista Analco. We appreciate the artistic abilities of Peter Friedrichsen who translated our ideas into Figure 1. We are also grateful for financial support from the University of Saskatchewan and the Social Sciences and Humanities Research Council of Canada in collaboration with the Canadian Commission for UNESCO for the opportunities afforded through the UNESCO Chair program.

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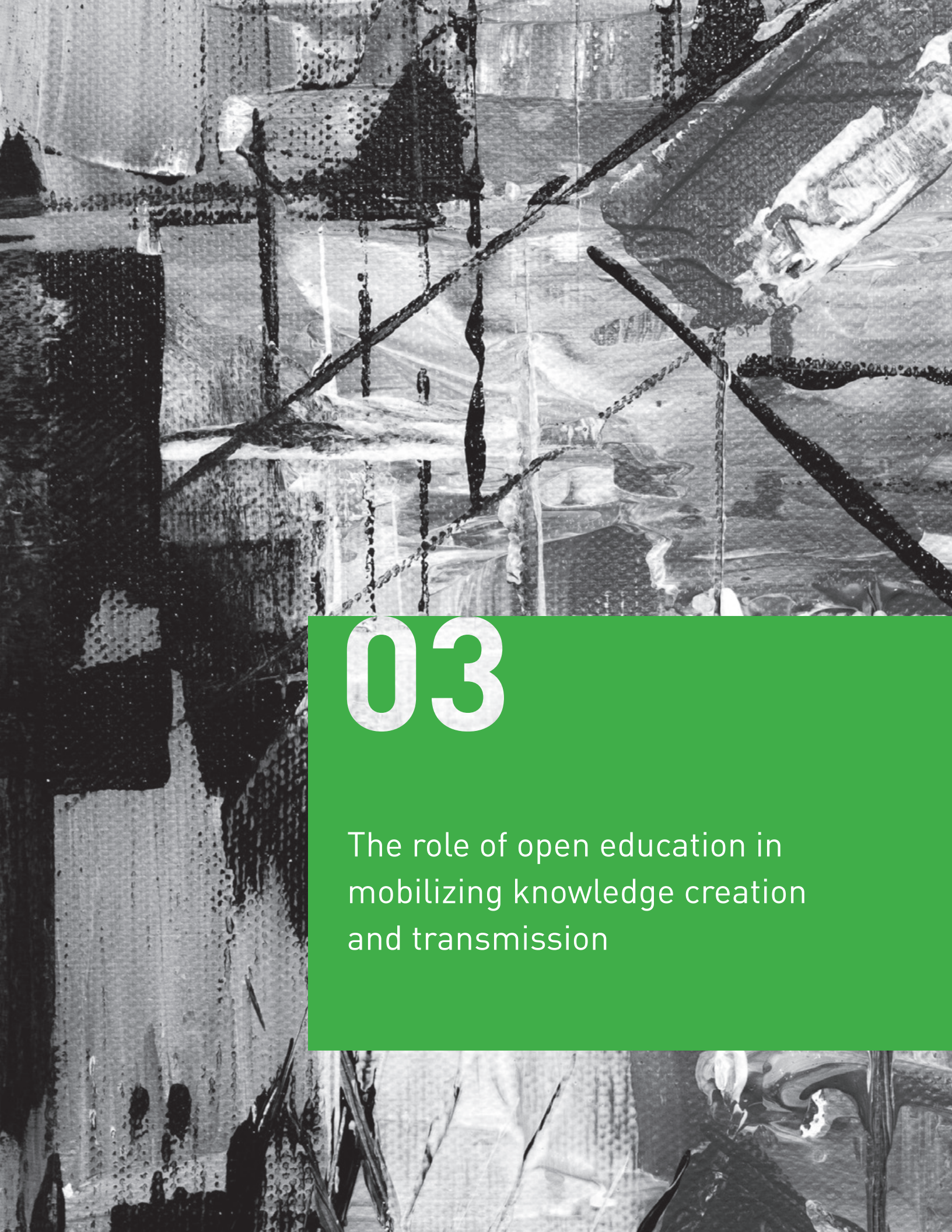

03

The role of open education in mobilizing knowledge creation and transmission

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Introduction

This leadership paper investigates open education initiatives in Canada and internationally to gain insights into ways that open resources can contribute to knowledge mobilization in Canada.

The views of these experts were surveyed in an attempt to understand the relationship between open education implementations by institutions and the actions necessary for effective implementations promoting knowledge mobilization through open educational practices.

This thought leadership paper investigates open education initiatives in Canada and internationally to gain insights into ways that open resources can contribute to knowledge mobilization in Canada. The intention is to identify issues in implementing and using open resources, and recommend possible means of addressing them, making knowledge more freely available in academia and in the general population. Recommendations focus on addressing those problems and solutions that might best improve knowledge mobilization using open practices. The issues identified are based on a survey of known open education experts in Canada and internationally (See list Appendix A). It also includes a description of open education and research initiatives across Canada. Open education experts consulted are familiar with open implementations that have already been put into practice. The views of these experts were surveyed in an attempt to understand the relationship between open education implementations by institutions and the actions necessary for effective implementations promoting knowledge mobilization through open educational practices.

Open Access and Open Educational Resources

The digital publishing of content using an open license is a powerful tool for supporting knowledge mobilization using cross-disciplinary exchanges of knowledge for research using Open Access (OA) or for teaching/learning using Open Educational Resources (OER). OA mobilizes knowledge through widening access to scholarly papers by making them freely available and accessible. OER for education and training are modifiable, customizable, and adaptable resources, and can be updated in real time, translated, and openly shared. Openness, using OA and OER, is essential for education

and research. Openness ensures there is neither lock-in nor restrictions on information, and allows anyone anywhere to legally access knowledge. It gives educators, students and the general public control. Openness ensures transparency, accessibility, and inclusiveness. Openness makes full participation possible and through an expanded capacity for research, facilitates the generation and mobilization of new knowledge. Open education can be seen not just as a license applied to content but as a way of being, a form of practice, that effectively creates an environment supporting knowledge mobilization.

OA was first proposed and articulated in the Berlin Declaration of 2003. More recently OER have been defined by the UNESCO Paris OER Declaration in 2012 and revised at the 40th UNESCO General Conference in November, 2019. UNESCO considers OER to be a key component of programmes for implementing Sustainable Development Goals, particularly SDG4: Education for All.

OA refers to the free distribution of content or other resources online at no cost and with no other barriers to access. This most pointedly focuses on peer-reviewed scholarly articles although it can be used more widely for any content that is published online or in paper. Examples of OA content (other than scholarly articles) include, monographs, theses, conference papers, books or book chapters.

OER refers to no-cost digital resources (that can sometimes be printed out), primarily content, used for teaching and learning that is made freely available online. OER are available not only in the form of content or textbooks, but also as simulations, games, videos, podcasts, applications, AI, or any other format as long as the resource is openly licensed or in the public domain. OER can also be described as resources that allow for the 5Rs: Retain, Reuse, Revise, Remix, and Redistribute.

Background

Both OA and OER rely on either the Public Domain or on open licensing of the resources. Open licensing is supported by Creative Commons Licenses, which allow for some restrictions. These include the need for *Attribution* and the requirement to not add further restrictions on the resource when changes are made (*Share-Alike*). These are the most common open licenses. Other restrictions may also be applied such as *No-Derivatives*, which allows for free use but restricts the ability to make changes. Another restriction is *Non-Commercial*, which disallows any for-profit use of the resources without the explicit permission of the copyright owners.

OER/OA facilitate knowledge mobilization when they replace costly copyright restricted commercial content that is being used by most educational institutions. OER/OA can be exchanged among academics and students without needing special permission or to pay any fees. OER/OA can be accessed by anyone anywhere on the internet without having to bypass paywalls. This enables all to remain informed and build on the knowledge available. Frequent updating and the creation of new knowledge is facilitated and supported when access to content and the legal ability to adapt it dos not require any further permissions.

Knowledge mobilization is optimised when one can freely circulate content. This also facilitates collaborations among researchers and students in Canada and countries with different copyright jurisdictions. Because of the widespread readership of open content, quality can be ensured and the value of the content can be validated not only by its use by experienced faculty, but also by the large number of users (or invalidated by low numbers when content may not be useful). Pathways to learning can be created using OER that allow learners to gain

credentials in new ways, for example with badges and micro-credentials. The OER universitas (OERu) is one example of an initiative that is building these free pathways to accreditation with the participation of five Canadian institutions/organizations among more than 30 international partners.

Presently, there are leading open initiatives in several provinces. From the beginning, the openness leader in Canada has been BCcampus, which was the first to create a programme and a repository for open content. Athabasca University in Alberta was the first to adopt an open access policy and create an open repository for scholarly research. The three western Canadian provinces (British Columbia, Alberta, and Saskatchewan) signed a Memorandum of Understanding on OER and Manitoba has recently agreed to participate. More recently, eCampus Ontario has taken a lead position in Canadian open activities. In Quebec, there is activity in supporting OER in response to the call of the Francophone summit, held in Moncton, New Brunswick in 2013. In the Maritime provinces, the University of Prince Edward Island has now implemented an OER Development Program in cooperation with their student union.

With OER, Indigenous communities can adapt the resources to serve their specific needs. This includes the right to translate and redistribute in traditional languages. The example of a successful OER introduction at the Maskwacis Cultural College in Alberta, demonstrates that OER can provide greater flexibility for both teachers and students, along with significantly reduced costs for students and the institution. The interconnected relationships between Indigenous pedagogy, educational technologies and OER have been studied and found promising (Mikkelsen, Gillis, Ormiston, & Gerrity, 2016). A notable OER initiative is encapsulated in *Pulling Together: Foundations Guide*, a University of British Columbia (UBC) and BC Ministry of Advanced Education, Skills and Training creation. This Guide was created in collaboration with Indigenous groups to support systemic change across post-secondary institutions through Indigenization, decolonization, and reconciliation.

To be sure, researchers should honour Indigenous belief systems and respect their protocols. Mainstream views may be seen as prejudicial and value laden and lead to misrepresenting Indigenous knowledge (IK). Integrating IK with OA concepts can expose very complex issues and so should only be attempted in close cooperation with the Indigenous communities concerned (Flor, 2013). So, in collaboration with Indigenous communities, several OER university level textbooks on Indigenous issues have been produced with the support of eCampus Ontario. Also, as an example at the school level, UBC, in collaboration with Indigenous communities and Global Storybooks, is creating or adapting Indigenous Storybooks in Indigenous languages as OER. They are available in written and audio formats, as well as in English, French and Indigenous languages. The most notable example is Little Cree Books.

There is also a growing trend in K-12 schools in the United States for implementing OER. To date more than 20 states have successfully introduced OER as part of the #GoOpen programme. In contrast, there have been only limited open activities in the K-12 school systems in Canada and these have been ad hoc supported by individual enthusiasts.

Methodology

The investigator sent out survey forms to known open education experts in Canada and open education Chairs internationally (UNESCO, Commonwealth of Learning, and International Council for Open and Distance Education). The opinion of experts on open education was used in conjunction with an examination of documents related to open education

implementations in Canada and internationally. This search included not only web searches, but also contact emails with known advocates in Canada and abroad in order to discover any information related to the objectives of this investigation. Documents included reports, scholarly papers, articles and policies. These papers were examined by the investigator who used them to compose a list of relevant questions. These questions were validated by two experts and revised according to their suggestions. The questionnaire was then emailed to the open education experts (nine Canadian; twelve international). They were informed that this was not an anonymous survey, but rather was a survey of known leaders in the field of open education. They were advised that if they responded, their names would appear in an appendix. Responses were received from five Canadian and six international respondents, a 53% response rate.

Issues

Issues to be addressed in openness initiatives supporting knowledge mobilization in Canada can be grouped under the following headings:

- costs,
- effective learning/teaching,
- research, and
- awareness.

OER/OA can be seen in the context of Open Science, meaning openness for a number of things, not just resources: access, technology, licensing, accreditation, certification, policy, research results, research data, and content. In this context, all of these can support knowledge mobilization in both formal and informal learning environments.

Costs

As in Canada, in many countries students pay for teaching and learning materials. The cost of these materials has reached a point where students increasingly cannot afford to purchase assigned textbooks and other supplemental materials. Cost has become a barrier to accessing education, as many students avoid purchasing the textbook because they haven't the funds. Students who don't have the necessary course materials do not perform as well as those who do, and tend to drop out or have a lower completion rate. Low performance by students as well as dropouts have proven to be costly for education overall (Griffiths, Mislevy, Wang, Ball & Shear, 2020). OER offer a free or low-cost alternative to commercial textbooks, ensuring everyone has access to educational materials and therefore a lesser chance of withdrawal and a greater chance of success in their courses (Hilton, Fischer,Wiley, & William, 2016). Eliminating student materials costs is a necessary (though not sufficient in itself) step to providing access to knowledge for all qualified (or potentially qualified) applicants.

This is the untapped potential of OER. The adoption of open textbooks saves students direct costs, but this only represents a small portion of the cost of study at a conventional university. Much more significant student savings can be generated using open disaggregated service provision models like OERu where learners do not need to pay for tuition when studying OER-based online courses. They only pay for assessment services like Prior Learning Assessment and Recognition or Challenge for Credit. Quite possibly, OER can eventually enable students to learn outside the institution, without paying tuition, which would be a significant cost savings for them.

Cost savings to students have been easily validated in countries where costly commercial textbooks assigned to students are replaced by free OER. But not all institutions have textbooks for courses. OER can involve using existing education budgets in different ways. For example, rather than paying for commercial textbooks, OER can be created in-house

by faculty to replace externally published commercial content. Thus money is spent internally on supporting the educators directly involved. These are potential savings, however, the financial implications of OER must be carefully evaluated.

Cost savings can also be realized when institutions adopt existing OER with little local adaptation. This can significantly reduce the time needed for course development. As an example, one Canadian computing science professor managed to save considerable time by searching for OER for his Green Computing course. With only a cursory search, he found an OER course from an Australian university that contained all the modules that he was planning on creating. The course was even posted using the same learning management system as he was using. He managed to contact the Australian instructor and was able to seamlessly download the course and install it at his university. He needed to make only a few minor changes, which was mainly to provide Canadian examples along with the Australian ones.

Another case involves, a Faculty of Business instructor, who decided to stop purchasing a very expensive first year accounting textbook, and introduce a freely available OER, in partnership with a local business that offered an online practice and testing environment. Course costs were reduced dramatically from c. $200 to c. $60, while at the same time a small local business was supported.

However, introducing OER even with cost savings is not always popular, because faculty can be resistant as they are often comfortable using their commercial textbooks. Moreover, the ease of adaptation is not always the rule. In more complex cases, major adaptation and formatting changes are needed. Much depends on how committed the instructor is to the content and how much time he/she is willing to spend in the adaptation.

More effective learning/teaching with OER

Studies of cost effectiveness rarely account for the institutional culture change that openness entails. OER can become mainstream in tertiary institutions in Canada when there are sufficient OER available that align with existing curricula in a wide variety of subject areas. This alignment can be used as a measure of the organizational maturity of mainstream adoption of OER. If there is not a strong integration between OER and the curriculum then instructors will continue to rely on commercial course packages.

In more flexible scenarios, including non-formal opportunities, extension courses in formal education, and the like, there is (as the nature of the opportunity suggests) far less interest in curricular alignment, and greater flexibility in the use and reuse of content. On the other hand, many faculty are weighed down by a discourse and a practice centred around ready-made or minimally adaptable material, prioritizing ease of use rather than the appropriateness of the content. Opening up time for instructors to actively engage with the content, however, can be expensive for the institution. So, there is still a strong propensity for instructors to make use of full course packages rather than assembling their courses from a growing variety of OER that are becoming available.

Assembling courses is not the common practice. Instructors are simply not taught the design mentality of the "bricoleur" that is needed for this to happen. Many existing faculty have little if any teacher training and no instructional design expertise, and so they have difficulty grasping the possibilities of course assembly, which could be one of the best and most innovative aspects of OER.

In addition, the flexibility that OER provide for instructors in adapting content is useful for motivating early adopters who are exploring OER initially while building critical mass. The ease and

flexibility whereby instructors can adapt OER is a key point of difference when compared to "closed content" — although in practice few instructors invest time in adaptation.

As a further consideration, students who have free access to all learning materials from the start of their courses (or even earlier) are less likely to drop out. Thus, the availability and accessibility of OER can contribute to improved student course completion rates (Griffiths, Mislevy, Wang, Ball & Shear, 2020).

OER quality

The quality of any learning resources is not dependent on the type of license — open or not — nor the technology. However, if one considers accessibility, or the ability to collaboratively develop new content to improve resources over time, then OER can be seen as having a qualitative advantage over commercial content. Open and transparent course development models can improve quality when compared to closed development models.

Developing courses openly and transparently improves quality particularly when instructors with little experience in asynchronous technology work collaboratively with those who are more experienced. Access should be considered not only within the framework of improving the content already available, but in the sense of equity – making content available to those who simply cannot otherwise access it. This is of great importance for learners in developing countries and in remote regions of Canada. Accessibility advances SDG 4: Learning quality for all.

The ability to create redundancy (in formats, languages, types of courses, modes of interaction, etc.) is another aspect of quality that OER share. The mere possibility of having, without needing to secure permission, an open course translated to other languages and formats creates the possibility of multiple channels or modes of learning that promotes equity and access. This has been addressed by countries in different ways. National free textbook programs are one way in which quality content has been made to equitably reach students. The ability to continuously update content is also an important feature of OER that is almost impossible to do with commercial content. This should be a benefit of digital content in general, but commercial content is only updated at intervals by the publisher and cannot be altered by the instructor or the students.

Student created OER

One form of open pedagogy requires much more student agency. This approach consists of engaging students in creating OER. This could include, for example, students writing a text as well as reading one. This becomes possible if some of the hard constraints imposed by traditional approaches to curriculum, quality and achievement are removed. Some instructors consider student creation of content to be most important, since it is the locus of a major pedagogical improvement that OER can bring to bear on institutional learning. It would be innovative if the views of students were encapsulated into OER and made part of the curriculum. This new OER could then be used as a baseline for future students to work with in creating their own OER.

This teaching and learning innovation turns students from passive recipients of knowledge to knowledge creators. It can be highly motivational for students to know that others will see and benefit from their work. Active learning through creating their own content can be, pedagogically, one of the most effective ways of ensuring learning. This also gives learning real meaning and purpose beyond getting a mark. If one values diversity, student satisfaction and student voice (which are recurring themes) then this must be a strong point.

OER collaborations

Knowledge mobilization through collaborations and sharing among instructors both inside and outside their institutions is greatly enhanced using OER over commercial content. Support for collaboration is posited as one of the major reasons given by instructors and administrators for considering OER implementations. OER work best when networks of faculty in a common domain work together with others (instructional designers, education technologists, project managers, librarians, etc.) to create, review, enhance, curate, and use the best academic curriculum possible. Openness unites educators around a common purpose, working together to enhance each others' work. Openness can be seen as a social practice rather than a technological or legal one. At present, institutions collaborate internally using OER, but there are a growing number of examples of external collaborations led by consortia such as BCcampus and eCampus Ontario.

The BCcampus Shareable Online Learning Resources repository (SOL*R) enables the licensing, contribution, and access to free online teaching and learning resources. Specifically, in support of OER, the Open Textbook website collaborates with organizations and institutions across Canada and internationally to host an open textbook repository. Contact North / Contact Nord (CN/CN) published "Open Educational Resources (OER) Opportunities for Ontario," a major position paper on OER that set out the case for the implementation of an Ontario OER initiative. CN/CN has also published an OER primer as a video series.

Open Access and Research

In Canada, the Tri-Agency Open Access Policy on Publications has been a key catalyst supporting the rapid growth of OA publishing in Canada. The three Canadian research funding agencies – the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC) and the Social Sciences and Humanities Research Council of Canada (SSHRC) – have agreed on a policy supporting open access in scholarly publications. These agencies strongly support knowledge sharing and mobilization, as well as research collaborations domestically and internationally. They understand that open access provides important support for knowledge mobilization.

Athabasca University in Alberta led in open access by creating the first OA scholarly journal in Canada in 2000: the *International Review of Research in Open and Distributed Learning (IRRODL)*. This was followed by the university's adoption of an open access policy, and the formation of AUPress, which became the first open access university press in Canada in 2010; the formation of a UNESCO/Commonwealth of Learning Chair in OER in 2011; and the OER Knowledge Cloud in 2014.

OA is of growing importance for academic publishing not only in Canada but abroad, with many nations now implementing open access policies for government funded research. With this growing support for OA, the major academic publishers are reluctantly "supporting" it. Now, researchers do not simply sign over their articles to publishers, but now also pay article processing charges (APC) of thousands of dollars, while other faculty review the articles at no charge to the publishers. The publishers then charge increasingly higher licensing fees to university libraries in order to access the articles on their commercial databases. This is known as a form of green open access in which openly licensed articles are published in commercial copyright-restricted journals.

APC payments are common in the commercial journals. Gold open access is when researchers publish in OA journals, where they also sometimes

pay an APC. OA journals are growing rapidly. *The Directory of Open Access Journals (DOAJ)* now links to more than 14,000 journals (169 in Canada). Because OA journals are readily accessible on the internet, the citation rate for articles published in them is higher than for commercial journals that are hidden behind paywalls (Lewis, 2018; Piwowar, Priem, Larivière, Alperin, Matthias, Haustein, 2018; and Saberi & Ekhtiyari, 2019). SHERPA RoMEO is another online resource aggregating and analysing OA policies from many institutions in different countries.

Unfortunately, there are also a growing number of predatory journals disguised as OA that take advantage of researchers, often copying the names of respected journals or using similar titles to entice authors to publish with them. They charge APCs and authors can be fooled into thinking they are respected journals. Academic journal publishing is the most profitable sector of the entire publishing industry, so these predators can make significant profits with their scams.

In order to combat the scammers and better support OA journals, Johnson and Fosci (2016) recommend the formation of sound governance structures including funders and policy makers who can promote better standards and identifiers and invest strategically to support a coherent OA infrastructure. For this, they recommend that ensuring the financial sustainability of OA services such as DOAJ and SHERPA RoMEO is critical.

The "respectable" academic journal publishing industry has become consolidated in the last 20 years so that today only four companies control the market, with profit margins approaching 40% (Schmitt, 2015). Many scholars have concluded that this publishing model is based on preventing people from reading scholarship rather than helping them. They aim to squeeze as much profit as they can out of the universities they serve by creating walled gardens where only those who pay significant fees can access knowledge (Khoo, 2019).

In 2019, the University of California decided to stop paying for subscriptions to journals published by Elsevier (which is the largest academic publisher, controlling two-thirds of the market) because of the pricing of their journal databases (Resnick, 2019). Germany, Sweden, Norway, Taiwan and Peru have now also refused to keep paying for subscriptions (Bastien, 2018; Qureshi, 2019). These countries are diverting their funding to support open access. In Canada, Université Laval, the University of Calgary, the Memorial University of Newfoundland, and Université de Montreál have all cancelled Elsevier subscriptions in the past (Sparc, n. d.).

Coalition Publica is a leading Canadian organization supporting OA in the social sciences and humanities. It brings together *Érudit* and PKP (Public Knowledge Project), which were founded to provide digital tools and services to support scholarly journals. (Disclaimer: the author is on the *Publica* advisory board).

Awareness

Awareness of, and knowledge about, open education are seriously lacking among many if not most faculty, administrators and students. There are few in the academy with reasonable knowledge of OER/OA, public domain, fair dealing, copyright and other such legal issues related to open learning. This is an obstacle for OER/OA implementations and for ensuring accessibility to education and research. Even in institutional legal offices, knowledge and experience with open licensing is very limited. Lawyers tend to lean towards the most restrictive interpretations when advising on copyright.

Unsurprisingly, experience shows that faculty are generally supportive of OER/OA once they become familiar with the concepts and the affordances of

openness in an educational setting (McGreal, 2019). This does not, however, always lead to actions, and moving from awareness to positive implementations and changes in work habits in favour of openness do not always follow from this new awareness. Administrators who are in a position to foster openness are often risk-resistant and unwilling to take the lead in implementing changes supporting openness. There has been some success in fostering open education awareness led by students, particularly in Alberta, where students have begun campaigns to ensure that faculty are aware of OER textbooks that could possibly replace the expensive commercial editions.

Awareness should lead to cultural changes within the academy. Although OER/OA implementations in Canada have been successful without formal policies, policies on openness can help in overcoming resistance while spreading awareness, thereby leading to actions in support of openness. The *Access Copyright* legal offensive against post secondary institutions has been responsible for enlightening some administrators and faculty on the need for OER/OA in order to avoid using commercial content and paying the excessive tariffs that this Agency has requested. The April, 2020 Federal Court of Appeal decision on York University vs Canadian Copyright Licensing Agency (Access Copyright) ruled in favour of York (and by extension all Canadian post-secondary institutions) that the interim tariffs are not mandatory.

TPM (Technological Protection Measures), often referred to as DRM (Digital Rights Management), are digital locks that commercial producers use to restrict how, where and when users can access their application or content. TPM are input into the operating system of the users' devices to allow the companies to control how the application is used. With commercial ebooks, the TPM typically disables important features such as copying, using text to speech devices, changing computers, using an ebook in another country, and finally removing the application automatically when a course is finished.

TPM is backed up with law in Canada and other countries that restricts users from breaking these digital locks. Moreover, when users install the commercial application or ebook, they must click on the "I AGREE" button, which grants legal permission for the publisher to enter the users' computer at any time, for any reason and make use of the users' personal data. Users also agree that they have no rights even if the application doesn't work. Users are also prohibited from showing their ebook to anyone else, which seriously affects collaborative learning and sharing in courses.

Because of these technical and legal restrictions, it becomes very problematic for educators to effectively mobilize knowledge either for education or research while using commercial restricted content. TPM and restrictive licenses hinder innovation and progress. By using OER/OA, instructors can avoid all of these restrictions and make full use of the content without dealing with burdensome digital locks and legal restrictions. David Wiley (2013) reminds us "Openness is the skeleton key that unlocks every attempt at vendor control and lock-in".

Discussion

Knowledge mobilization. It is a potential catalyst supporting innovation in higher education. Integrating OER/OA within existing technology platforms is not necessarily a driver for the creative use of technology. However, the affordances of OER/OA when combined with open source applications can facilitate access to knowledge and creative collaboration. OER/OA means that users are not subject to the legal restrictions and technological protection measures associated with the use of commercial content. Because permissions

are not required from the copyright owners, OER/OA users are much freer to innovate without these obstacles and so are able to more effectively access knowledge for research and education.

All authoring of OER/OA, or maintenance and updating of such content, should be done in ways that ensure that the resulting resources are open to peer review and freely allow students and researchers to reuse, contribute to, and improve on them. OER are inherently modifiable making it possible to customize and update them in real time and reducing reliance on publisher scheduling for new editions. OA, while not always readily modifiable, are freely available, enabling other researchers to build on the original research that is made openly accessible.

There are a diverse and growing number of OER/OA repositories. More innovation is needed to ensure repositories use common metadata standards and are packaged in ways that are viewable and easily transportable between systems. Tracking around provenance, modification, reference and usage is also needed. There is growing interest in having a means to federate search across repositories and to locate high quality resources quickly. The concept and architecture of the existing repositories needs a rethink. To do this requires engagement with the European Commission's *OpenAIRE* project and the work of the *Confederation of Open Access Repositories* (COAR) (Johnson & Fosci, 2016). Ultimately OER/OA repositories need to be much more user-friendly. For example, the *OER Knowledge Cloud*, which is used to host scholarly papers and reports related to OER is an example of one that is becoming well used by OER researchers.

Conclusion

So, OER/OA are not just about cost reductions. OER can save course development time when they are used with few modifications. New modes of knowledge mobilization such as peer production and network building can be harnessed to support sharing both in research and course creation. Though we continue to create repositories in institutions and in the cloud, open content discoverability, coordination, and federation continue to be major problems affecting accessibility. Nevertheless, openness can be a powerful catalyst for promoting change in how faculty teach and conduct research, altering perspectives on collaboration and collegiality both within and external to institutions.

There are real benefits for students, faculty, institutions and society that are associated with the increasing use of OER/OA. The cost savings with OER are the most obvious, however there are many further benefits. Institutions can use OER/OA for marketing, increasing their exposure to new target groups, especially those in the workforce. In education, OER support both blended and online learning by creating efficiencies in course production while improving quality.

OA is about research, and already, the national granting agencies are playing a major role in supporting the transition to OA for scholarly journals and submitted articles by researchers who receive federal funding. OA can also provide faculty with more recognition for publications and higher citation rates.

Considerations

Following from the survey of experts in open education, the following suggestions are put forward for consideration.

1. Should all publicly funded research be made freely available to the public using an open license?
2. Should institutions take the lead in open education capacity building by educating their faculty and staff on open licensing OER and OA?

3. Should institutions train faculty in assembling/adapting reusing and repurposing OER?
4. Should extrinsic motivation of faculty be considered, using career incentives and compensation for meeting open education performance goals?
5. Should faculty be advised to search for OER first, before choosing commercial resources? This could be considered as an essential step in the development of new courses.
6. Should institutions work with Canadian publishers of educational content and provincial governments to ensure quality digital content is produced using open licenses?
7. Should the Creative Commons – Attribution or the Creative Commons – Attribution – Share Alike licenses be preferred or even made mandatory?
8. If international publishers do not make their existing content available to institutions and the public at reasonable prices, should Canada join other countries in the movement to cancel Elsevier subscriptions?
9. Should institutions accept that more research is needed on OER/OA to determine not only the cost effectiveness, but also its effect on learning achievement, retention, students and faculty?
10. Should institutions consider that the best approach to increasing awareness is to visibly use open content? Awareness will then become less of a problem as OER/OA become more widely accepted by faculty and their institutions.
11. Should institutions consider placing more emphasis in promoting local influencers, particularly students, to campaign for OER/OA within institutions rather than provincial or national campaigns?
12. Can inter-provincial agreements supporting OER provide a stimulus in favour of OER? The federal government can play little role in supporting OER as education is a provincial responsibility.
13. Can the federal granting agencies aggressively support OA and oppose excessive APCs charged by the big publishers?
14. Can institutions, while consulting faculty and students, devise action plans to use and integrate OER/OA and support open policies? Collaborative agreements can be more effective than confrontational approaches. A negotiation amongst the various stakeholders can achieve this.
15. Can sound governance structures be formed including funders and policy makers who can promote better standards and identifiers and invest strategically to support a coherent OA infrastructure (Johnson & Fosci, 2019)?
16. Can institutions or government organizations help ensure the financial sustainability of OA services such as *Publica*, *DOAJ* and *SHERPA RoMEO*?

Limitations

This thought leadership paper was limited to the responses of the experts to a survey. The experts who chose to respond were self-selected. The email survey format is a limitation, as the verbal and visual clues available in oral and video interviews were not available to the researcher. This circumscribes the ability of the researcher in understanding the context and situational phenomena. The documents consulted were also limited to those available and accessible online. All the respondents, including the author, as experts in open education, can be expected to have a strong bias in favour or openness. There are cases in which OA may not be appropriate, for example for national security, personal privacy or when there are specific commercialisation prospects

based on the IP. The deadline for the report was also a factor in limiting the research. Respondents were given only a short time to respond to the survey.

See the list of interviewees who collaborated in the creation of this paper, Appendix A below.

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Appendix A: List of OER/OA experts consulted

Canadian

Dr. Constance Blomgren, Assistant Professor, Athabasca University, Alberta

Amanda Coolidge, Director, Open Education BCcampus, Victoria

Stephen Downes, Researcher, National Research Council

Dr. Kirk Perris, Adviser: Education, Commonwealth of Learning

Paul Stacey, Executive Director, Open Education Global, Vancouver

International

Dr. Tel Amiel, UNESCO Chair in Open Education, Universidad de Brasilia

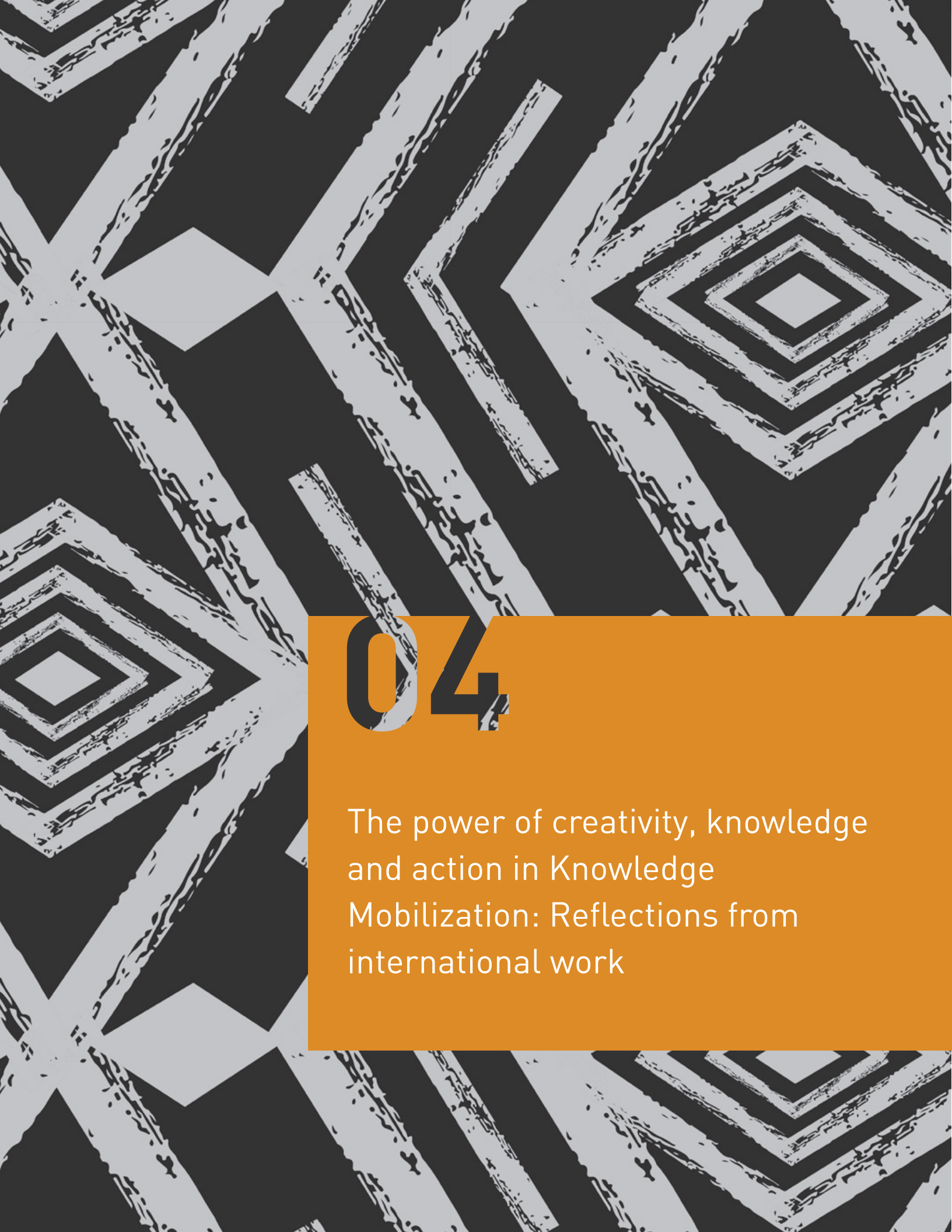
Professor Daniel Burgos, UNESCO Chair in Elearning, Universidad de Rioja, Spain

Professor Mpine Makoe, Commonwealth of Learning Chair in Open Education, University of South Africa

Dr. Wayne Mackintosh, UNESCO/ICDE Chair in OER, Director, OER Foundation

Dr. Jako Olivier UNESCO Chair in Multimodal Learning and Open Educational Resources, NorthWest University, South Africa

Dr. Robert Schuwer, UNESCO Chair in Open Education and their Adoption by Teachers, University of Fontys, Netherlands



04

The power of creativity, knowledge and action in Knowledge Mobilization: Reflections from international work

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[1] Special thanks to Karen Villenueva, Isabelle Kim and Michael Matlapeng, mentors of the K4C Global Consortium, Suriani Dzulkifi (University of Victoria), Prarthana Mitra (PRIA) & Jigme D. Garwang (PRIA), Nandita Bhatt (Martha Farrell Foundation) and Darlene Clover (University of Victoria) for their contributions.

Introduction

We are only a decade away from realising the ambitious United Nations Agenda 2030, a target that some commentators believe will not be achieved. However, this agenda remains unique and valuable as it covers Canada and the entire world.

Generating, mobilising and utilising appropriate knowledge to address these challenges has never been more urgent.

We are only a decade away from realising the ambitious United Nations Agenda 2030, a target that some commentators believe will not be achieved. However, this agenda remains unique and valuable as it covers Canada and the entire world. The climate crisis is affecting lives around the world. And dramatically adding to our challenges is the arrival of COVID -19, a pandemic affecting health and well-being of millions everywhere. Generating, mobilising and utilising appropriate knowledge to address these challenges has never been more urgent. Knowledge mobilization in support of achieving Sustainable Development Goals (SDGs) requires concerted and innovative effort in many places (Hall et al, 2019). The focus of our UNESCO Chair is on building research capacity in the global South and with those working with marginalized populations in the Global North including many Indigenous peoples, the homeless, the poor and differently abled in the combined fields of community-based participatory research and social responsibility in higher education. To this end we carry out international research, create policy documents, and engage with dozens of national and international networks in the field. We work within a framework of knowledge democracy, a research framework that works with four knowledge principles: 1) recognition of a multiplicities of epistemologies; 2) representation and mobilization of knowledge by making use of a vast array of creative methods as well as more conventional academic approaches; 3) understanding that locally generated knowledge is an essential component for action in communities and movements for change; and 4) establishing an appropriate balance between recognizing the rights of Indigenous peoples and others to own and

control their own knowledge and the responsibility of researchers to share their work freely, openly and without cost to the potential users (Hall and Tandon, 2017). What we in Canada understand as knowledge mobilization or KMb therefore is integrated into all the work that we support and promote. From our perspective, the purpose of research is to work with questions and themes that originate with the intended beneficiaries and through engagement with these people to build capacity for changes towards a better life for all.

A place-based approach to research and KMb

If we are to attain the targets of the UN Sustainable Development Goals (SDGs), it will require that attention be given to the creation of locally contextualised knowledge with priorities for action that affect the everyday lives of people where they live and work. While national and provincial plans for SDGs have been prepared, it is local prioritisation and contextualisation of SDGs by local actors that is required to broaden the impacts. Local knowledge solutions need to be created for triggering local actions. Local knowledge solutions can be harvested if research on SDGs is carried out in partnership with local stakeholders. "Contextual relevance and local priorities alone will enable local governments, businesses and civil society to contribute their resources and efforts towards the realization of these SDGs" (Tandon, 2018). The active participation of local stakeholders — community, local governments, local business, women and youth—in co-producing and sharing the knowledge of such local solutions can be facilitated through their involvement in the research process.

Community-based Participatory Research (CBPR) methodology facilitates co-construction of knowledge through mutually respectful partnerships between formally trained researchers and local stakeholders. "CBPR is a collaborative enterprise between academics and community members. CBPR seeks to democratize knowledge creation by validating multiple sources of knowledge and promoting the use of multiple methods of discovery and dissemination" (Tandon et , 2016 a). Effective use of CBPR in generating local knowledge solutions for achieving SDGs can contribute to local learning and actions in this regard. Stages of the research cycle in CBPR methodology are undertaken jointly in such partnerships; thus knowledge production and mobilization is an integrated and collaborative undertaking in a partnership approach. CBPR therefore encapsulates the theories of knowledge democracy that we have mentioned earlier.

Approaches to Knowledge Mobilization

Attention to Knowledge Mobilization (KMb) as a responsibility of researchers has grown in the past decade. While some form of KMb has always been associated with academic research, it has historically been largely limited to sharing results amongst academics within disciplinary fields and their professional peers through publications in specialist journals and books and conferences. The language of such knowledge sharing has been situated within the academic discourse, in formats mostly used by academic peers familiar with the same (Hall and Tandon, 2017).

Contemporary KMb increasingly entails sharing results of research with other publics such as policymakers, civil society, business, community actors and social movements. Guidelines published by the Social Sciences and Humanities Research Council (SSHRC) offer the following definition: "Knowledge mobilization is an umbrella term encompassing a wide range of activities relating to the production and use of research results, including

knowledge synthesis, dissemination, transfer, exchange, and co-creation or co-production by researchers and knowledge users" (SSHRC, 2017).

Learning from European approaches we find the concept of Responsible Research & Innovations (RRI) which been extensively promoted in European Union's Horizon 2020 research funding program. "RRI implies that societal actors (researchers, citizens, policy makers, business, third sector organisations, etc.) work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society" (European Commission, 2020). The European Commission has created the Science with and for Society (SWAFS) research funding mechanisms which have supported Science Shops, among other strategies as vehicles for partnership research between academic and community partners (European Commission, 2016).

Common elements with most KMb approaches include: 1) sharing knowledge and results of research with both academic and non-academic communities 2) raising awareness of issues on which research was conducted, 3) bringing stakeholders together, 4) strengthening the confidence and organizing abilities of marginalized groups to take action, 5) supporting new practices and action in families, communities and workplaces, and influencing policy and design of programmes.

In the past it was a common understanding that in KMb, *outreach* to others, including to academic communities of students and researchers, was a step taken after research has been completed and results had been obtained. In conventional meaning, it is a set of actions that researchers undertake to disseminate their research findings, after the research process is over. Academics have been challenged to think about sharing knowledge beyond formal journal/book articles/publications or academic conference presentations. The primary purpose of KMb in such circumstances is to share research results with various stakeholders so that research findings and results can be used by them to improve research, policy and practice (Hall, 2015).

From a knowledge democracy perspective, a CBPR methodology treats KMb as an integral part of research cycle, not something that is designed as an after-thought or separate from the very act of undertaking research. With a CBPR approach, the rationale for undertaking research is articulated clearly in terms of changes it proposes to facilitate or contribute to. CBPR understands that, "Social transformation as a goal of research that occurs as a collective learning phenomenon is a common theme across different conceptualisations of the term" (Israel et al,1998). CBPR is defined, "as research that will benefit the participants either through direct intervention or by using the results to inform action for change" (Tandon et al, 2016 a.). Local actors—community, civil society, local governments, businesses—and policymakers and program implementers need to tap into the experiential knowledge of community members if the SDGs are to have a significant chance to improve people's lives (Tandon et al, 2016b). Community-based research calls on the active participation of community members and local stakeholders in all phases of the research processes. This is referred to as the co-construction of knowledge which results in locally contextualized knowledge that is necessary for the attainment of the SDGs.

Therefore, understanding community and workplace members, other stakeholders, their context, language, and idiom becomes imperative at the stage of planning research if effective KMb is to occur, and fulfil its broader, above-mentioned purposes. SSHRC has understood at least part of this mandate in noting that, "The reciprocal and complementary flow and uptake of research knowledge between researchers,

knowledge brokers and knowledge users—both within and beyond academia—in such a way that may benefit users and create positive impacts within Canada and/or internationally" (SSHRC, 2018).

Creativity and KMb as partners: some illustrations

In this section, we provide several illustrations of how creative approaches to KMb have been used in some of the research we have been engaged with as a UNESCO Chair and by others undertaken within the Global Consortium of Knowledge-for-Change (K4C) based in twelve countries. The K4C Global Consortium is an initiative of the UNESCO Chair in Community Based Research and Social Responsibility in Higher Education to build the capacities for engaged research excellence around the world. With the critical challenges of present times and the goal of achieving the SDGs, this programme, with its established local training hubs, aims at catalysing solutions through co-construction of knowledge in partnership with the local communities (www.unescochair-cbrsr.org).

Our work has been influenced significantly by the Canadian feminist scholar Darlene Clover and her work on arts-based research and feminist pedagogies (Clover, 2011). According to Clover, arts-based research allows and demands deeper reflection and multiple constructions of meaning through a labour-intensive process. However wide ranging the information conventional methods like interviews or focus groups capture, they are only a part of how we can represent the complexities and ambiguities involved in experience and ways of knowing. Symbol, metaphor, irony and imagery play an important role in reasoning, explaining, and understanding the world, enabling new connections between things concrete, such the gender wage gap, and things abstract, such as the theory of patriarchy. "Equal time should be allotted to the creation of the artwork and reflection, sharing and questioning," Clover claims (Clover, 2011). Therefore, dissemination of research, and arts-based research in particular, has to have strategic value because communication with the public around complex social issues must address and involve more than just transferring information. The arts provide means for study participants, researchers and students, especially in feminist adult education, to voice what often cannot be articulated through mere words.

Art exhibitions, for example, are an effective way to disseminate research findings in non-traditional ways to a much broader public. While working with a group of homeless/street-involved women over two years, Clover and her team developed artworks ranging from quilts to collage and masks around the issue of poverty. This is a critical and polarising issue for the community. At the end of the project, three exhibitions in three small art galleries were organised with the aim to expose the community to the issues in a "non-threatening" environment. The events registered a footfall of over 300, including politicians, artists, university students, professors, teachers, business owners, homeless men and women, social and community development workers, and media personnel. Clover notes the unlikeliness of achieving this reach if the same knowledge (on women and poverty) was disseminated through an academic presentation - or for people from some diverse walks of life to mingle and communicate about the issue so openly without the arts driving that discussion. "...the arts touch people, produce astonishing effects in people, in ways other forms do not" (Clover, 2011). Attendees at the gala responded to questions put forward by Clover and team, such as whether, when

they thought about homeless men, they thought of artists. The aim was to unsettle assumptions and presumptions, and allow people to reflect on how they stereotype and categorise.

Story 1: Women domestic workers in India create a saree to share their findings on sexual harassment at the workplace

"The guard said 'you love me and I will give you better job opportunities.'"
– Woman domestic worker in Gurugram, India

As the #MeTooIndia campaign gained momentum on social media in India, there were revelations of many previously untold and unknown stories of sexual harassment faced by women working in the informal sector. Among them are women domestic workers in urban India, who work behind the closed doors of private households. The invisible and privatised nature of domestic work makes these women very vulnerable to sexual harassment at their workplace. There is a need for policy makers to pay attention to securing safe workplaces for women workers in the informal sector.

In participatory research conducted with 1518 women domestic workers as part of a project in Gurugram, India, the women shared their stories of sexual harassment and how it affects them, both as women and as domestic workers. The project team used arts-based participatory research methods to help these women tell their stories. The idea was to make a patch work saree where the women could share their perceptions and stories through images which were sewn together to make a full saree length of cloth. The workers could thereby communicate their stories of sexual harassment without having to physically speak them aloud. Fourteen women contributed to this artwork. Their stories revealed that sexual harassment, sexual abuse and child abuse were synonymous in the minds of some of the women who contributed. Some took the opportunity to write out what they feel about sexual harassment, while others painted. One worker cross-stitched her experience, depicting the outfit she was wearing when the grandfather of the home she worked in told her she should wear short clothes and that she looks nice in them. There were two paintings of a girl crying into her hands with a man standing nearby. The majority of pieces had some form of writing on them.

A few months later, these stories were shared as part of the #DignityOfMyLabour campaign, at a panel discussion in a bookstore which saw an audience comprising middle class youth, civil society practitioners, labour rights activists and labour union members. The saree was unveiled at the event by a domestic worker gender champion, trained by the project. The saree continues to be used to raise awareness on the issue of sexual harassment among domestic workers.

Story 2: Participatory videos for storytelling and action in Brazil

Use of photos, posters, videos as methods of data-collection and knowledge mobilisation have also been very popular in research projects that involve issues of informal workers and semi-literate communities. Our second story describes use of participatory video that a joint team of researchers from University of Victoria, Canada, and local partners in Sao Paolo Brazil undertook on waste collection and recycling in informal settlements (Hall, 2015).

In the Participatory Sustainable Waste Management project, the University of Victoria and the University of Sao Paulo collaborated with recycling cooperatives, municipal governments, and NGOs in Brazil, to support the organization of the informal recyclers by strengthening cooperative enterprises, micro-credit, collective commercialization, inclusive public policy, and the practice of a solidarity economy.

The specific aim of the participatory video research was to make their livelihoods and capacity visible to their local governments, through improved access to and participation in public policy discussions. The process reveals critical aspects of visual arts-based research such as representation, power, and vulnerability, and strategies for creating an appropriate environment through a participatory approach. It also reflects on its possibilities and challenges for political collective action and social change.

Waste-pickers are one of the most disenfranchised and vulnerable populations in Brazil (and the world at large). The informal economy they work in is characterised by small-scale, labour-intensive, largely unregulated and unregistered, low-paid work, often completed by individuals or family groups. They often face severe social and economic exclusion, marginalization, disempowerment, and lack of citizenship and political voice in decision making.

In São Paulo, there are approximately 13,000 pickers and recyclers of which about 8,000 are organized in cooperatives providing employment, improved working conditions, and increased environmental education. The predominant issues faced by this sector are poverty, stigmatization, health risks, accidents, exploitation by middlemen and a general lack of self-esteem. Their work is often associated with risk, unhygienic environments, criminal activities, homelessness, unemployment, poverty, and backwardness.

Despite providing a valuable contribution to society and the environment, this sector is seldom recognized by the government and the larger community. In general, the attitude of the formal waste management sector to informal recycling is negative, regarding it as backyard, unhygienic, and generally incompatible with modern waste management systems. Such views tend to perpetuate discrimination against the informal recycler and, in turn, often lead to exclusionary policies regarding this sector in solid waste management.

Pre-production

A series of three workshops were implemented in 2008 with the goal of building the capacity of recyclers from cooperatives to employ multimedia technology as a strategy to improve community-networking opportunities, stimulate awareness and education of recycling programs, and in the process contribute to their personal and collective growth. Collective reflection and dialogue was facilitated in focus groups using art-based techniques such as drawing and mapping to brainstorm around the major themes that were most important to the participants; emergent themes broadly covered occupational health, validation and recognition of service, environmental sustainability and education, gender equality, cooperative and enterprise development etc. Following the theme development workshop, the groups prepared the sequence of their stories using storyboards, outlining each scene and role. Each video script was unique; however, three main themes were consistent throughout: (1) recognizing the capacity of *catadore/as* (Portuguese name for the women and men who collect recycled materials going through the streets) to provide door to door collective service, (2) the need for government support, and (3) remuneration for the work the *catadore/as* provide.

Production

The groups then split up and shared the cameras when needed and filmed over 100 hours of footage in total. They filled in the timesheet with details of the footage shot (to help them co-edit a scene later). They were encouraged to shoot generous amounts of footage and leave the trimming, sequencing, and continuity to the editing stage which was an important element of participatory video in the training. The groups decided who would be directing, acting, filming, and interviewing and, for the most part, each person had an opportunity to try each role. The production took place at various locations, primarily at each of the cooperatives and surrounding communities. The clips included interviewing other cooperatives members, residences, business owners and in many of the cases included accompanying the *catadore/as* in their daily work collecting materials, processing, and working with business.

Post-production

Viewing the footage is an important aspect of the participatory video process where participants can review what they and others have filmed, and in that process develop a new sense of issues that is taken into further filming. This viewing of the material as the project progresses lies at the heart of the participatory video process. It opens up local communication channels, promotes dialogue and discussion, and sets in motion a dynamic exchange of ideas on ways to solve problems. In addition to viewing selected clips from each group's work, complete copies of all the raw footage were distributed to each group. There were multiple opportunities during the post-production phase when the groups were able to view the footage and comment. Following the months of coediting, our community-based research team arranged to meet the groups and have feedback sessions. This time allowed the groups to see the sequence of clips, with music and titles, and provide any final changes to the video. The entire process for editing and publishing the final four videos took approximately 12 months to complete.

Knowledge mobilization and impact

Once the videos were produced and consensually approved, they were strategically presented to key stakeholders. Discussions took place on how to use the videos during the meetings, who would be present at the meetings, potential outcomes, and strategies to evaluate the effectiveness of the participatory videos for political change. A methodology was collectively developed, and open-ended interview questions were prepared for the focus groups. Three focus groups in three metropolitan regions of Brazil were organised and attended by leaders of cooperatives; municipal officers; government officials from different departments including social welfare, economic development, and environmental services and in one case, even the Mayor.

In all three case studies, the government representatives suggested the use of the videos as tools for communicating with other government departments, the business sector, and for public educational programs. Overall, the government responses to the videos were positive and sympathetic, despite some of the challenges associated with political agendas and bureaucratic ties (e.g., budget constraints in providing support for cooperatives).

Story 3: Immigrant women using spoken word in Toronto

Immigrant women face challenges in the City of Toronto to access basic services; previous research studies undertaken without their active participation did not identify key issues adequately. A local research team led by the Centre of Learning and Development, a community organization, then undertook a participatory research project which used arts-based methods.

In 2019 the Immigrant Women Integration Program (IWIP) trainees presented findings about their needs based on a study that they had planned and carried out themselves. They presented their findings on needs and sustainability at Toronto City Hall. The instructor of the arts-based methodology was Mahlikah Awe:ri, an award-winning spoken word artist.

The audience consisted of community members, environmental non-profit organizations, and city council members. Over 70 people attended the event. Reports from audience members back to the IWIP indicated that they were impressed at the level of presentation skills the participants had. The audience was engaged with the content of the presentation because the presenters were community women themselves. The IWIP trainees had an opportunity to

create a safe space for discussion with moderated conversations. They were able to create connections with change makers in the city. The trainees connected with city officials who recommended community grants which they were eligible to apply for.

The project coordinators indicated that it was very beneficial that the presentation training was conducted by a spoken word artist who would help the trainees write out their presentation as a story and would be able to support them in incorporating visuals and other forms of art into their presentation.

Story 4: Town halls and community engagement for health in South Africa

In the Free State of South Africa, a partnership study between a local university and the health department was undertaken to understand how communities can take greater responsibility for health. A participatory action research project was undertaken with local health workers, community members and university academics working together. The challenge was how to share the information gathered through the research process with a much wider community of neighbours. Participation was organized through a rural collaborative learning platform in the community of Trompsburg and Springfontein, Xhariep District, Free State, South Africa. The participatory research project involved community health workers, students from the Faculty of Health Sciences at the University of the Free State, and health support organizations working with HIV and AIDS prevention.

The intended audience included other community members of Trompsburg and Springfontein, regional and local government workers and officials, community health care workers from local clinics and other students and academics from the University.

The approach to KMb that they chose was to create a health fair in the local community centre. The results of the study were presented by those who had been involved in the study through a series of stalls, displays, posters and informal talks. Health issues that were covered included diabetes, tuberculosis, hypertension, eating disorders, and sanitation and clean water. The intention was to raise awareness about what community members themselves were able to do to improve their own health.

The strategy that arose from the rural collaborative learning platform with their action learning processes, the participatory research involving a large number of stakeholders, and the health fair as a KMb strategy had significant impact. It created increased awareness of the local health and well-being challenges and the lived experiences of all the partners in the community-university partnership. It enabled the co-creation of knowledge needed for the community to take ownership of aspects of health responsibility. It resulted in the creation of learning support groups within the various areas of health concerns. It was an effective way to mobilize an entire community to the challenges of health care. It generated data that was of use to the Department of Health and Social Development. Finally, all of the partners involved learned how and why to use community based participatory research.

Conclusions

Our engagement with action-oriented place and community-based researchers through our UNESCO Chair in Community-Based Research and Social Responsibility in Higher Education offers a rich menu of research and KMb activities from a variety of settings to draw on. There are several lessons to be drawn from our work to date.

First, it is critical to understand that KMb is but one element in a larger knowledge democracy framework. There are dangers in trying to understand KMb as something that somehow stands on its own or can be planned apart from the other dimensions of creating and using knowledge for action/change.

Second, community-based participatory research offers a unique approach to the construction, curation or harvesting of locally contextualized knowledge which incorporates thinking about KMb from the very beginning of work with people.

Third is the obvious, but surprisingly rare prescriptive that CBPR and the KMb integrated into it must involve researchers, community members with their experiential knowledge of struggle and survival, as well as policy makers and others if real change is to occur.

And finally, we are convinced through many years of transformative research and engagement of the power of the arts; arts to represent knowledge, arts to share knowledge, arts to link cognitive and affective knowledge, arts for the heart, arts for hope.

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05

Insular knowledge: Building a community of islands through Knowledge Mobilization

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Abstract

The premise of this paper is that islands are an integral part of Canadian geography, history and identity, and that Knowledge Mobilization (KMb) on islands is too often overlooked or misunderstood.

This informal, situational knowledge is often combined with formal, theoretical knowledge to build resilience in ways that may be applied more broadly across different contexts.

The paper provides an overview of the kinds, characteristics, flows and challenges associated with knowledge creation and dissemination on islands in and close to Canada. In so doing, it offers insights intended to spark a dialogue on how KMb on islands assists us in addressing the major challenges facing our islands and society in general. Findings suggest that much knowledge on and about islands is informal and undervalued, but critical to maintaining viable island communities. This informal, situational knowledge is often combined with formal, theoretical knowledge to build resilience in ways that may be applied more broadly across different contexts. The paper recommends that more effort must take place to expand and strengthen island networks to share resources and stories and improve training in the value of informal KMb, and that governments need to reduce islander transportation costs, strengthen local governance, and filter policies and programs through an island lens before they are adopted.

Background and objectives

Canada is a nation of islands. They are part of our economic, cultural and environmental past and present. Not only does Canada have more islands than any other nation, but it also has the longest coastline (Ronström, 2013; Suthren, 2009). This includes the thousands of islands along our Atlantic and Pacific coasts, the world's largest freshwater island (Manitoulin), tens of thousands of islands in the Great Lakes and St. Lawrence River system, one of the largest urban islands (Montreal), and over 36,000 islands in the Canadian Arctic (Sitwell, 2006). They are sites of vulnerability

and resilience, despair and creativity (Hay, 2013). Although filtered by their geography, islanders often share a feeling that they are geographically and psychologically apart from mainlands, and that this separation affects their livelihoods, their institutions, their identity, their ability to access and communicate knowledge, and their islandness (Lowenthal, 2007).

In much the same way that islands are physically separated from mainlands, island knowledge may also be difficult to disseminate to other island communities and public, private, not-for-profit, academic and community users of that knowledge. This paper provides an overview of the kinds, characteristics and flows of knowledge produced on islands in and adjacent to Canada. It also provides a first-hand perspective on the challenges facing island communities and organizations in mobilizing that knowledge. The goal of the paper is to provide insights that spark a dialogue on how knowledge mobilization on islands assists us in addressing the major challenges facing our islands and lessons for society in general.

Overview of Knowledge Mobilization in the literature

Knowledge Mobilization in general

There are numerous and nuanced definitions of Knowledge Mobilization (KMb). At the heart of each is that research must be turned into actions within the community, and in so doing benefit the users of that knowledge and society in general (Bennet et al., 2007; Hall, Walsh, Greenwood & Vodden, 2016; Heisler, Beckie & Markey, 2019; Research Impact Canada, 2019; Social Sciences and Humanities Research Council, 2019). Although KMb may be the term most often used in Canada, the terminology of converting research into action varies considerably, including knowledge transfer, dissemination, translation, adaptation and exchange. There is also a trend towards increasingly reciprocal approaches that are a part of KMb, including community engagement, engaged scholarship, co-production and community-based research (Bennet et al., 2007; Hall et al., 2016; Heisler, Beckie & Markey, 2019; Schuetze & Inman, 2010; Research Impact, 2019). Heisler et al. (2019) differentiate engagement from mobilization, stating that engagement is focused on knowledge exchange while mobilization includes public participation, accessible language and the use of an array of communications strategies and tools including social media, infographics, brochures, pictures, stories, podcasts and more.

Knowledge Mobilization in the context of small islands

Small, rural and remote regions around the world have always been transformed by forces outside of their control such as globalization, neoliberalism and climate change (Vodden, Douglas, Markey, Minnes & Reimer, 2015). While all communities and nations are facing threats that arise due to unsustainable development, a body of literature suggests that small islands are relatively more vulnerable to these threats (Briguglio, 1995; Foley, 2018). As such, they are the victims of circumstances and have often been judged by what they lack (Baldacchino, 2007; Gough, Bayliss-Smith, Connell & Mertz, 2010). More recently, and guided by the seminal work by Epeli Hau'ofa (1998, 1994) in Oceania, a countervailing body of thought has emerged among researchers and islanders suggesting that, although they may have vulnerable characteristics, island(er)s have considerable knowledge and skills that leave them more resilient than dominant (colonial) discourse

has led us to believe (Baldacchino, 2008; Malm, 2007; Ratter, 2018). These characteristics include an economic and political nimbleness; dense and cohesive social networks; a heightened sense of connection to place, the environment and the sea; and strong relationships with neighbouring places and peoples (Campbell, 2009; Kelman & Khan, 2013). This view sees islanders as knowledge producers and possessors rather than as research subjects. This paper argues that these characteristics are associated, both positively and negatively, with the types and characteristics of knowledge created and mobilized on islands.

Islands have sometimes been viewed as insular living laboratories, where natural and social phenomena can be analysed within a closed, scaled-down version of larger environments and where islanders are specimens rather than actors or agents (Gillespie, 2007). Although appealing in its simplicity, this trope is conceptually and empirically flawed. Regardless of their location, islands may be among the most connected places in the world, linked in multiple ways to the outside world and a defining feature of island societies (Baldacchino, 2007; Gaini & Neilson, 2020; Stratford, 2003). In addition, although there is an incredible and sometimes bewildering diversity of societies and ecosystems across the world's islands (Gillis & Lowenthal, 2007; Hay, 2013), those living on small islands often share a common set of experiences, values, and connections to their surrounding environments. The adjective 'small' is intentionally being defined subjectively; as Péron (2004) states, an island is "...small enough to render its inhabitants the permanent consciousness of being on an island" (p. 114). This 'islandness' may transcend local culture, time and space (Conkling, 2007). If places are the collections of stories within the broader power geometries of space (Massey, 2005), and all knowledge is spatial (Turnbull, 1997), then islanders' knowledge is affected by the presence and role of water in their lives and the perception of the boundary between water and land. Islands may indeed be the repositories of new things and sites of agency (Baldacchino, 2007), characteristics that have specific implications for KMb (Baldacchino & Veenendaal, 2018).

Traditional and Indigenous knowledge is often significant in defining island communities and maintaining resilience in response to external events. The ability of islanders to anticipate and reduce risk, withstand natural hazards and extreme events, and live sustainably by employing traditional knowledge in the face of globalization and modernization has been extensively documented, especially on islands in Oceania (Campbell, 2009; Clarke, 1990; Cohen & Foale, 2011; Malm 2001; Weir, Dovey & Orcherton 2016). The same mechanisms exist for islanders facing weather and climate change impacts (Lefale, 2010). Research has also shown that islanders in some regions integrate traditional and local knowledge and practices with Western science and technology to become more sustainable (Finucane & Keener, 2015; Hiwasaki, Luna & Shaw, 2014; Kelman & Khan, 2013; Lauer et al., 2013). There are many other examples where traditional knowledge, customary resource management, capable leadership and social institutions combine with scientific observation and modelling to create greater resilience to the impacts of climate change and the maintenance of biodiversity (McMillen et al., 2014). The implication that you can learn from local contexts, and that space, spatial relations and power structures are integrated in producing knowledge, may make islands especially important for all places facing ecological, social and economic challenges (Petzold & Ratter, 2019).

Methodology

Led by the Institute of Island Studies at the University of Prince Edward Island (UPEI), this thought leadership paper employed a mixed methods approach (Cresswell & Clark, 2017; Tashakkori & Teddlie, 2010). As noted above, we summarized the peer-reviewed literature on knowledge mobilization in general, as well as KMb on small islands. This latter research was contextualized by the characteristics often associated with small islands. Then, using the network of practitioners and scholars associated with the production and dissemination of Island Studies knowledge, including those affiliated with non-profit and government organizations and those at universities, we held a series of one-on-one interviews and three virtual focus groups. The focus groups roughly represented the Atlantic coast (including New England), fresh-water islands within the Great Lakes and St. Lawrence Seaway, and Pacific coast islands. Several participants from adjacent American jurisdictions joined the focus groups. Given the tight time constraints, we were unable to incorporate Arctic islanders in this project. This is a limitation that will need to be addressed in future engagement and research. Focus group participants were asked the following broad questions: 1) What kinds of knowledge about your island do you or your organization produce and how is it mobilized or disseminated?; 2) Who are the audiences for that knowledge?; and 3) What challenges do you face in communicating this knowledge to your intended audience(s)? Finally, the draft paper was circulated to a much larger international audience, and was revised based on the input from 52 participants.

Analysis

Kinds of knowledge

There is a broad range of knowledge produced, depending on who is doing it, and where. The first kind of knowledge is more theoretical or conceptual. For example, academic institutions produce studies based on research, or they might collect and interpret data that is accessible through an analytics lab (e.g., the Regional Analytics Lab at Memorial University, or Maine's Island Institute's collection of Annual Statistical Data interpreted at the scale of specific islands). The products of the knowledge are reports, books, audiovisual materials, podcasts or blog posts. Studies might take the form of formal values or asset-mapping exercises to identify and establish spatially specific priorities. Alternatively, knowledge may be summarized in the form of inventories: of species, ecosystems, hydrology or climate knowledge.

Then there is procedural knowledge, such as how communities function or the kinds of policies that might be needed. For example, the Bay of Islands Community Association on Manitoulin Island produces the online "Resilient Manitoulin" newsletter to inform people about progressive issues. The weekly digital and print "Manitoulin Expositor," with the banner "Published weekly on the largest freshwater island in the world," offers essential critical local news, including most recently public health announcements on the state of the COVID-19 pandemic on the island. The Pelee Islanders Facebook page is used to gather information from residents and visitors on their ferry service, music festivals, and tourism in general, which may then be used to seek funding or develop policy.

Finally, there is situational, informal or tacit knowledge that is generated within the community;

the type of knowledge we live with and use in our day-to-day lives. This knowledge is most often passed along verbally, based on shared experiences or just taken for granted. One participant noted that it is "the kind of knowledge that is often hidden, like how to fix a net or do lobster cages, which passes from generation to generation," or finding ways to "repurpose things" driven by practicality, but demonstrating islander creativity and artistry. This includes cultural and artistic knowledge shared at the community or family level; for instance, passing down fiddling traditions or quilting patterns from generation to generation. Although often marginalized by academics and central government decision-makers, this may be the most common and important form of knowledge shaping island life.

How is knowledge transmitted?

For researchers and academics, knowledge is communicated in the classrooms through teaching face-to-face, online or through other learning platforms. Researchers generally rely on publishing to disseminate their findings, either through scholarly journals or books, or through trade publishers or magazines. For example, Island Studies Press at UPEI's Institute of Island Studies publishes scholarly books for a popular audience. Academics may present their work at conferences, traditionally to other academics but more frequently to mixed audiences of policy-makers, practitioners, NGOs, community groups and the general public. One participant stated that, rather than a 'Call for Papers', conference organizers will circulate a 'Call for Stories', so that policy-makers, practitioners, NGOs and community groups, as well as the general public, will know that their knowledge is just as valid as the knowledge produced by academics. As a result, these meetings become a two-way (or more) exchange of knowledge. Peer learning is also important. As one participant put it, "People are far more receptive to peer-to-peer learning, not necessarily academics telling them how to do things." Even using the phrase 'knowledge mobilization' creates a divide that intentionally or unintentionally marginalizes those living in the communities. One of the Pacific coast participants noted that students at their institution are exposed to both traditional Indigenous knowledge and scientific knowledge to give voice to all communities and perspectives. The Islands Revival Blog (see islandsrevival.org) in Scotland is a good example of where stories of population turnaround on small islands proved to be more accurate and influential than national demographic data.

Island institutions also disseminate their findings in a number of ways, including:

- policy sessions with government;
- public forums for policy-makers and the general public;
- lecture series;
- traditional media (print and broadcast) or publishing their own newspapers or newsletters; websites, podcasts and blogs;
- social media (e.g., Facebook, Twitter, Instagram);
- teleconferences, annual face-to-face meetings, e-mail, through Zoom or Slack;
- webinars;
- training sessions; and
- through collaborative networks where they serve as a 'connector and a voice'.

Informal channels for the transmission of knowledge on small islands are exceptionally important. Several participants spoke to the importance of the ferry as a space and time to exchange day-to-day 'need-to-know' tacit knowledge among residents while also serving as a gatekeeping function to convey information to tourists in the form of brochures and advertisements. Others mentioned the significance of interactions at the arena or the local diner, posts

on bulletin boards in the local grocery store or farmers' markets, print and digital newsletters, social media and websites, as well as oral histories captured at home, by chance or in regular encounters within the community, or at storytelling festivals. Still others spoke to the importance of informal community leaders (not necessarily the elected leaders) who always seemed to know what was going on in the community and were the conduits for the transmission of this knowledge: ranging from when a funeral might be held to who needs a ride for a medical appointment.

Town hall meetings were also important ways of imparting knowledge, as were concerts and ceilidhs, art exhibits of local artists and artisans and book launches of locally published books, music and culinary festivals, and experiential activities such as clam-digging, deep sea fishing or turkey and pheasant hunts. Wakes, fundraising events and community dinners were important cultural and geographical sites of knowledge transmission. Although many of these traditional modes of transmitting knowledge remain critical on small islands, internet search engines such as Google and social media platforms such as Facebook have become increasingly important as means to access and share knowledge. Said one participant, "The quality of islandness has been transformed by ease of access – islanders have become more mainstream."

Audiences for knowledge

Audiences for the knowledge again depend on who is producing the knowledge and where it is being produced. Audiences include government policy-makers and decision-makers, elected officials, town managers, industry partners, NGOs, students and the general public both on – islanders themselves – and off the islands – "those who have that dream of being an islander." Audiences also include visitors to the islands, as so many of these islands are dependent on tourism.

We must also remember that there is a mutual exchange between university and community, and that co-creation of knowledge is often a goal when carrying out research or knowledge generation. The goal of one island institution is "to bring university knowledge out and community knowledge in" by serving as a conduit rather than as a generator (i.e., two-way versus one-way). The mandate of another institution is "to serve as a bridge between the university and the community." Then there are the consumers of the products created, such as book-buyers both on and off the islands, recipients of newsletters, readers, watchers, listeners and social media participants, where it is often two-way communication.

Knowledge Mobilization challenges

Lack of resources was often cited as a challenge to KMb in island communities. These resources can be monetary; e.g., some islands do not collect their own taxes and it can be difficult to convince mainland agencies or seasonal residents to provide money or infrastructure for a smaller island population base. Even those islands that were formerly rich in social and cultural capital are finding the supply of this human resource is not infinite. This is especially the case as younger islanders seek education or employment opportunities elsewhere and the island population ages. Therefore, there are fewer individuals left to do the paid work, and even fewer who will volunteer, resulting in those who are left wearing many hats and eventually burning out from overwork.

On many islands, a small group of people may take on multiple roles, while many others may contribute little to the social well-being of the community (e.g.,

visitors and seasonal cottage-owners who leave houses vacant for much of the year). Indeed, the seasonality of audiences (summer tourists, second-home owners, year-round residents) leads to different expectations and tensions between groups, i.e., the islander/outsider tension. Noted one participant, "In a small community where everybody knows everybody, there are always a couple who don't agree and are hard to work with. This is the way it is in most small communities, but when you put them on an island, it's more contained." Tight-knit communities can be places of gossip; and sometimes misinformation gets circulated locally. This islander-outsider tension has been magnified during the current COVID-19 pandemic.

The idea of whose knowledge it is, who participates in the knowledge process, and who has access to it, can also be a challenge. This might be especially relevant with Indigenous knowledge, or with the knowledge and expectations of permanent versus seasonal residents. As one participant stated, "Long-term islanders have different knowledge than newcomers, who might want to change the island to what they want it to be." Another noted that knowledge is so often experiential, being grounded in local community and environment, that conveying this knowledge online and using social media may not provide a complete, place-based understanding, especially given lack of access to high-speed internet. The challenge then becomes mobilizing knowledge effectively and efficiently to support islander's priorities, many of which are overlooked in favour of the competing priorities of visitors.

In some instances, language and culture can be an issue, with minorities and Indigenous communities perceiving that they are being marginalized on their own island. Lack of communication between the groups can be challenging, particularly when it comes to building and maintaining social cohesion or competing over limited resources.

Challenges to KMb on islands include trying to convince mainland decision-makers of the value and legitimacy of informal knowledge, especially when there is an island-mainland or rural-urban power dynamic. Informal, situational knowledge is often perceived by policy-makers as lacking credibility in comparison to quantifiable data. Within the island community, there can be skepticism of outsiders or outside experts. Said one participant, "I'm very sensitive that the minute you start becoming the 'mainland expert from government' you are no longer going to be invited back. Our informal motto is 'for islanders, by islanders.'" At the same time, adapting outside knowledge to address island issues (such as climate change or affordable housing) may not work; scale is different on an island. One islander noted, "We are on the cutting edge, so much of it is exhausting. Ready examples aren't there for us to pull from for an island audience." With respect to tourism planning, Stoddart et al. (2020) refer to some of these challenges as "collaboration gaps."

Mobilizing people to act on the knowledge produced can be a challenge – particularly if apathy has set in. A representative of one island organization said, "Presenting the data and findings in the right way, so that it resonates with people, so they see some benefit for themselves, can be a challenge." This is especially important when the knowledge is informal. Said one participant, "We tend to marginalize the transient nature of knowledge. It is just as important to have those conversations over coffee at Tim Hortons – they are sometimes more powerful than academic ways of communicating."

Discussion

Knowledge produced on islands by islanders is often marginalized because so much of it is informal and verbal, or not intended to be disseminated to external audiences. This does not make that knowledge any more or less valuable than formal 'mainstream' knowledge published by academics or converted into policy by government departments. In fact, because it is grounded in local context while still using modern technology where appropriate, over the centuries island knowledge has enabled these island communities to become even more resilient to external pressures. Examples on various islands have demonstrated that local knowledge has historically been critical to better understand how to maintain healthy ecosystems and social networks, adapt to climate change, create economic opportunities and foster well-being. Losing, overlooking or denigrating this knowledge not only makes these communities more vulnerable but also ignores critical lessons and strategies that hold value for other communities.

From the perspective of the outsider, KMb on islands may be seen as more time-consuming, and difficult to decipher (Young & Waterhouse, 2015). However, from the perspective of an islander, it is not difficult at all to gather local knowledge – it exists all around us. Conversely, mainland knowledge is not always applicable to small island contexts. Generic or prescriptive approaches are generally found to be ineffective in small island contexts (Lowe, 2015). Governments, policy-makers and newcomers who think that they are able to transfer their strategies, policies and expectations to an island environment and achieve the same outcomes are usually uninformed or misguided. Even if they have access to locally based information, it may be discounted as irrelevant.

As noted above, KMb on islands is also hampered because of a lack of resources. This is more than just an absence of money. Information and communications technology (ICT) is often inadequate to meet the economic and social needs of communities on sparsely populated, remote islands with small economies of scale. This is often compounded by the nature of transportation links to the mainland, including ferry service, where non-local decision-making leads to sporadic and costly service that does not reflect local needs. All of these features of island life make it difficult to attract and retain businesses and a skilled labour force, and disseminate information that allows for the provision of efficient and effective services for locals and visitors. There are often too few paid staff and volunteers available to pitch in and provide the public and social services that most communities need to sustain themselves. It is a source of pride that island residents have among the highest levels of volunteerism and civic participation. However, if the same people are called upon constantly to volunteer, it leads to burnout and tension. This situation is worsened in communities with a small year-round population, where summer residents and tourists may have expectations that exceed the capacity of the volunteer and paid sector to provide.

The nature of island economies and mobilities shapes the dissemination of knowledge. While some knowledge finds its way to external stakeholders in the form of conferences, published research and social media platforms, the vector of much of the transmission of knowledge occurs in the following forms: 1) the tourists and summer residents who visit the islands; 2) newcomers or 'come from aways' who settle on the islands; and 3) the islanders who move away and then return with new ideas, skills and money. All of these groups may be viewed with ambivalence if not suspicion by those who have

always lived on the island. Although some islanders may value the economic benefits that outsiders bring, they are still concerned about how these new ideas and values may change their own and their children's way of life. Therefore, the central goals of island institutions should be to educate visitors on the local island culture and geography, and on newcomers to an island way of life, but also to inform islanders regarding the value of exogenous knowledge, especially the knowledge from other islands. Not to be forgotten in this discussion are those residents who move to islands later in life, embracing and appreciating elements of island life in ways not expressed by island-born residents.

Recommendations and next steps

Knowledge mobilization takes different forms on different islands. Therefore, not all of the following recommendations will be equally applicable to all islands and to all stakeholders. However, this represents a starting point for further engagement and discussion.

For funding agencies and island organizations:

1. Develop island networks to share knowledge: An 'islands approach' to sustainable development needs to be embraced by decision-makers. Therefore, rather than foisting mainland strategies on islands without regard for the local cultural context, the governance structures, ICT and research networking mechanisms need to be created and promoted that link island decision-makers together to share 'made on the islands' solutions to similar challenges. Although there is no guarantee that a strategy developed on one island will automatically succeed on other islands, island-sharing networks must be more robust and comprehensive. Two examples in Europe may serve as useful templates: the Conference of Peripheral Maritime Regions (CPMR) Islands Commission, and the European Small Islands Federation (ESIN). In Hawai'i, the University of Hawai'i-affiliated Marine Climate Corps (MCC) have developed local knowledge networks that build trust between communities and research institutions.

2. Support informal mechanisms for knowledge mobilization: Recognize, embrace and operationalize the role and value of informal, traditional and Indigenous knowledge that have always been critical to the well-being of islanders, pairing it where appropriate with modern technology to amplify this dissemination. The importance of informal KMb and place-based learning in sustaining island communities needs to be taught in schools, universities and government departments, and be reflected in the criteria for assessment of research grants and government contracts. For the research agenda, more work needs to be undertaken on the access that policy-makers and funders have to island situational knowledge. If informal, traditional and Indigenous situational knowledge improves the lives of islanders, then how do we overcome the barriers to value and operationalize this knowledge in the form of programs and services to best serve the communities?

For governments

1. Reduce islander travel and communications costs: Islanders often face higher costs to travel, placing them at a disadvantage compared to similar mainland communities and creating a barrier to knowledge dissemination. For example, Prince Edward Island is the only Canadian province where all people must pay to leave. As a result, a growing number of governments have offered reduced rates for islanders travelling by ferry, bridge or air between islands or to and from the mainlands (e.g., Orkney and Shetland archipelagos in Scotland, Croatian islands, Canary Islands of Spain, Swedish islands, Road Equivalent

Tariffs to the Danish Islands). In Canada, federal and provincial governments seem to be reluctant to adopt similar policies. More research needs to be undertaken on the impacts of high transportation and communications costs on small island communities, and local governments should examine the models used elsewhere and lobby more senior levels of government to adopt similar policies.

2. Strengthen local governance: Communities are wary of external experts coming in and telling them what to do. However, they often do need technical and human capital support so that their priorities can be heard and acted upon, and to build capacity at the local level. They also appreciate experts who are sensitive to island needs and contexts. One of the tenets of community-based KMb is that the community leads the research agenda. This means that more senior levels of government should provide these supports but then step back and allow the will of the local community to be expressed. Small amounts of seed funding, combined with access to training and the paid and unpaid efforts by islanders, can go a long way to solving local issues and providing models for other communities to follow. The Leslie Harris Centre at Memorial University of Newfoundland serves as an excellent example of an island organization that follows this approach. The Fragile Communities program in Iceland also gives local communities more decision-making power (Kokorsch & Benediktsson, 2018).

3. Adopt an islands policy lens: Many of the lessons for small-island empowerment come from the European Union. For example, Scotland and Croatia have formally adopted an 'island lens' approach to all policy and legislation. Their 'Islands Acts' mean that before any piece of new legislation is enacted, it must be reviewed in terms of the impact it will have on the islands in their respective jurisdictions. On the Greek Aegean Islands, the national government recognized the special situation of islands and developed the ASTERIAS program to improve island public services (Karkatsoulis & Moustakatou, 2002). They established Citizens Bureaux on every island, staffed by local islanders, to be one-stop points of service for all islander public service needs. They also provided free internet service to islanders. Although we have to be cautious about over-bureaucratizing this process, jurisdictions in North America may wish to adopt the spirit, if not the wording and structure, of these Acts and policies. It is important that this island-centric approach be linked to the previous recommendation to strengthen local governance. An island lens approach implemented by policy analysts from the centre/mainland perpetuates the problem of policy being done *to* island(er)s, rather than *with* or *by* them.

Last thoughts

Islands may only be important to most people when it comes time to retire or decide on a possible destination for the next annual vacation. Even then, perceptions of idealized islands and islanders are filtered by the images portrayed by the tourism industry. In the same way, because a lot of island knowledge is informal, it can be marginalized in policy and training. By giving an equal voice to island knowledge as we do to other forms of knowledge, we may come to a better understanding of island people and places.

This paper benefited from the input of 52 participants and reviewers from Canada and around the globe, exhibiting the spirit so often associated with islanders: a willingness to contribute and share their own knowledge despite the challenges associated with the current COVID-19 pandemic within their homes, their places of employment and their communities. We thank them for their contributions.

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06

The futures of Knowledge Mobilization: Breaking down barriers to ensure productive exchanges across diverse audiences

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Abstract

Knowledge Mobilization (KMb) is an important component that should be included in all research endeavours to ensure results and information get into the hands of non-academic audiences.

This research also explored avenues of solutions to get the work of researchers into the hands of non-academic stakeholders, the public, and the media in a timely and effective manner.

Knowledge Mobilization (KMb) is an important component that should be included in all research endeavours to ensure results and information get into the hands of non-academic audiences. The aim of this thought leadership paper was to examine the current state of KMb in universities and to identify strengths, weaknesses, and future trajectories of KMb. Perspectives of research academics and communication staff in universities, and the public media were examined to define possibilities to enhance KMb efficacy. This research also explored avenues of solutions to get the work of researchers into the hands of non-academic stakeholders, the public, and the media in a timely and effective manner. Our findings suggest that many opportunities exist to improve KMb within and beyond Canadian universities. Avenues of solutions include 1) increased human and financial KMb resource capacity at universities; 2) improved training and networking opportunities among researchers, communication staff, and the media to promote collaborations and reduce tensions; and 3) better support for media to provide timely and direct access to research expertise, efficient research dissemination and effective research translation.

Introduction

Human, social, and natural science research and innovation are the key underpinnings of the United Nations 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) (United Nations, 2015). Achieving the SDG targets requires excellence in research and science. But what does excellence really look like? This is a question posed by Moore et al. (2016) and further explored by Vasseur et al. (2018). Both acknowledge that many variations of the term exist, and caution that subscribing to a strict definition of excellence in terms of published journals and citations can undermine the foundations of quality research. The pursuit of research excellence can create a climate of unsustainable competition and distract from the core purpose of research, which is to create and mobilize knowledge to bring a better-informed society and ensure access to all to achieve a just and inclusive future (UNESCO, 2017).

Globally, the number of active researchers has increased by 25% in the last decade and a half, leading to an increase in journal publications (United Nations, 2015). With this growth of academic outputs comes the increased challenge of mobilizing new knowledge and translating key research concepts and findings into plain language messaging for the various research audiences. The Social Sciences and Humanities Research Council (SSHRC) advocates for the importance of mobilizing knowledge as part of its research project funding. This comes from the desire to have research better communicated, not only to the public in general, but also in such a way that it can be used by non-academic stakeholders for a wide variety of initiatives, including research-informed policy development (Cooper et al., 2018). In recent years, the Tri-Council funding agencies (including SSHRC, the Natural Sciences and Engineering Research Council, and the Canadian Institutes for Health Research) have begun to take KMb seriously, as evidenced by the ratification, in November 2019, of the San Francisco Declaration on Research Assessment (DORA), which underlines the importance of knowledge transfer for the common good and its accessibility to all, through open access.

Despite growing global recognition, knowledge mobilization (KMb) is often considered a buzzword and its meaning and application can cause confusion (Ratkovic et al., 2016). KMb, as an emerging field, is often criticized as a pervasive narrative of academia, having multiple and often conflicting interpretations (Ratkovic et al., 2016). Originating in the field of health sciences in the 1970s, KMb gained wider interest in the 1990s (Graham et al., 2006). KMb is the practice of turning knowledge into action and includes "all the created activities, products and services that help your research be useful and used" (CFICE, 2014, para. 1). Effective KMb is built on "relationships between researchers and non-academic research partners so that research and evidence can inform decisions and understanding about public policy, professional practice and other applications" (Research Impact Canada, 2020, para. 2). Often confounded with communication, defined as the practice of information exchange (Nisbet & Scheufele, 2009), KMb goes beyond the distribution of information and includes all the scope of work, activities, and products of research that facilitates the translation, absorption, and use of research within and beyond academia (CFICE, 2014).

SSHRC defines KMb in a broad sense, with a focus on cross-sectoral engagement (public, private, not-for-profit, and community sectors), calling for researchers to enhance the contribution and impact of social science, humanities, and interdisciplinary research on the advancement of society for the benefit of Canada and the world (Government of Canada, 2019). As KMb is increasingly becoming a requirement of grant applications and funded project

deliverables, SSHRC is working with the Canadian Commission for UNESCO and the UNESCO Chairs network to develop a series of thought leadership papers to help show what the future of KMb in Canada looks like.

The aim of this thought leadership paper is to explore the obstacles and opportunities of KMb in a select few Canadian universities. The paper also examines the relationships among university faculty researchers, university communications professionals (including public relations, communication staff, marketing departments, and KMb staff), and local and national media outlets (newsprint, on-line print, radio, and television). Finally, it outlines avenues of solutions that universities can explore to better engage with media.

The current landscape

Traditional KMb practices tend to focus almost exclusively on the dissemination of knowledge without much thought given to uptake and use (Vancouver Strategic and Integrated Research, 2020). However, the current research suggests a need to think beyond the distribution of information and look at approaches that use a diversity of techniques and tools to engage all community partners to facilitate the transfer of knowledge into action (Vancouver Strategic and Integrated Research, 2020; Cooper, 2015; Cooper et al., 2018). The ultimate goal of KMb should be to strengthen connections between research and evidence-based decision-making at international, national, regional, local or even individual levels. KMb can increase the role of research evidence (i.e., results of the research) thus facilitating capacity building for a better educated public, and shaping policy and practice. Through effective KMb, especially through direct contact with specific audiences, public awareness and understanding of issues can be improved and important research findings made more readily available. Society can become empowered to actively engage in planning, decision-making, and implementation of actions.

Research evidence by itself, without social, cultural, economic or environmental context, is not enough to change attitudes and behaviour (McCluskey & Lovarini, 2005). Research evidence presented along with context and personal experiences contributes to more effective knowledge building (Cooper, 2015). Communicating research outputs through personal stories, one-on-one interaction and community engagement are high-impact strategies for the efficient transfer of evidence into practice (Cooper et al., 2018). Yet, given the high pressure of the "publish or perish" climate of academia, researchers tend to rely on less time-consuming approaches to KMb, such as publishing in academic journals, writing reports, and attending professional conferences. As a result, important research findings are rarely accessible to civil society, private and public sectors, or policy makers. Currently in universities, few researchers are trained in KMb, and universities have weak internal structures and capacity to share and disseminate research evidence (Cooper, 2015). This is despite the fact that the 2017 UNESCO Recommendation on Science and Scientific Researchers, which was endorsed by Canada, underlines the requirement for research to be open and accessible to all people (UNESCO, 2017).

Very few institutions have dedicated KMb departments, and where they exist, they tend not to be multidisciplinary, lacking collaboration and networking with other departments including communications, marketing, and public relations (Cooper, 2015). Instead, media are bombarded with press releases and researchers sending their scientific articles with the expectation that this information will be translated by media experts for the public. However, KMb is complex; the scientific jargon is difficult to understand by knowledge brokers

(i.e., those bridging the gap between academic and non-academic audiences, such as journalists or university communications staff) and can therefore be misinterpreted (Graham et al., 2006). To avoid these pitfalls, many researchers rely only on social media to disseminate their research results with the belief that they have done their job (Edelstein et al., 2012). But have they? Lack of translation for the appropriate audience may lead to misinterpretation, confusion, or frustration (Graham et al., 2006) and, depending on the researcher's level of social media savvy, target audiences are likely to be missed altogether. Without a good analysis of each phase of KMb (i.e., what knowledge needs to be mobilized, to whom, by whom, how, and desired impact), barriers and obstacles will exist for researchers, communication experts, and media professionals to cultivate productive exchanges: the very foundation of successful KMb strategies (Graham et al., 2006).

Strengthened KMb collaborations among researchers, communications, and media could provide tangible benefits to the public, government, and governance systems (Graham et al., 2006; Cooper et al., 2018). The future of KMb should therefore be investigating what types of systems, resources, relationships, and safe spaces can be constructed to support research accessibility, with the goal of eliminating barriers to research mobilization into the day-to-day work of practitioners, decisionmakers, and members of society. First, there is a need to examine existing KMb practices, obstacles, and barriers within academic institutions from the perspective of academics and communications professionals. Second, obstacles and barriers that prevent the media from effectively mobilizing research evidence must be identified. Third, avenues of solutions to build strong internal academic structures that increase capacity and resources for partnerships and collaboration need to be looked at to close the gap between knowledge-producers and knowledge-users while maximizing impact.

Analysis

Faculty participants with broad perspectives mainly from social sciences and humanities were selected for interview and focus groups. This exercise included tenured and tenure-track faculty at the ranks of assistant, associate, and full professorship, contract/adjunct faculty and staff who worked directly with faculty researchers. Participants represented a diversity of genders and cultural heritage backgrounds (to adhere to equity, diversity, inclusiveness (EDI) perspectives). Communication experts included communication expertise working at various level and departments within each institution. Media participants ranged from community independents, television, radio, and print media (local and national), with the level of expertise ranging from field journalist and managing editor to program director. Contributions to the KMb thought paper process were voluntary and are reflected in the contributions section. The following questions were asked in a non-structured manner to the participants.

Questions asked

Researchers, communications professionals, and media were asked a set of questions customized to their area of discipline and expertise. Questions included: What does KMb mean to you? What has been working and not working? What are obstacles and barriers? See Appendix A for the full set of questions.

Perspectives from the focus groups and interviews

Researchers

From a researcher's perspective, KMb was a common working term within institutions that could be defined quite narrowly as "what do we do with our findings?" Most researchers primarily targeted peer review publications to ensure that they were meeting the professional expectations of their university or peer groups. They recognized the need to be able to pull out the elements of research that will be of interest to society, and to the audience with which they are engaging. They agreed that even historical perspectives can be interesting if framed in ways that are relevant today, such as how 18th-century gender studies can inform modern feminism.

Researchers had many different motivations for mobilizing knowledge, including the ethical imperative to share research beyond the university, professional service, measuring impact, publishing, attending conferences to broaden networks, and to advance research. Expanding readership and reputation were also important factors; as one contributor argued, someone with a built reputation and access to media for interviews will be more likely to be invited for discussion with policy makers. Most researchers who were mobilizing knowledge thought of who their audiences were in advance, which helped determine what and how to mobilize.

Researchers mentioned that they used a range of resources to mobilize knowledge: social media, websites, podcasts, conferences, workshops, academic journals, reports and book chapters. Many admitted, however, that books, papers and even policy briefs are written in a conventional manner as this is what they learned to do and are comfortable with. Non-conventional resources reported included independent journals and media outlets such as *The Conversation*, podcasts, and opinion editorials.

When asked about KMb success, the responses from researchers varied. While it is possible to obtain numbers of citations for an article or number of views on Facebook, it is not clear if these really had any impact on society. In terms of what had been working well regarding KMb, most agreed that their university communications departments did an adequate job of getting information out into the community but felt standard academic processes were no longer working well. Some academic conferences, often considered by researchers as a type of KMb, for example, saw attendance dropping and networking opportunities declining.

It was recognized that engagement and personal interaction is required for successful KMb strategies. The context of the research was also acknowledged as important, it is not as simple as sending a tweet or a post on social media. Information needs to be translated into a form that people understand. One participant mentioned how no one at the community level had read their published materials, but when interviewed by radio, people heard about the research and then talked about it. Community-oriented media can be an effective way to reach the local community.

The obstacles and barriers to KMb reported by researchers included lack of time and especially financial resources. The idea of research being put into public places garnered varying responses. Some felt it was not their job to do so, with the sentiment that the people who were knowledge mobilizers were supposed to be trained staff not faculty, as research findings need to be translated in such a way that they reach the right audiences. Participants noted that funding could not fully cover such costs. In other cases, some faculty had reservations about working with communications, where it was felt that complex research could be oversimplified and lose its value. Not all faculty saw the value of KMb. Some perceived that it was not aligned with university assessment of faculty performance. In most universities, research represents 40% of faculty's time, and it was

mentioned that time spent on KMb might take time away from research. The fear of being misquoted or missing the correct research context could compromise academic reputations and was perceived as a barrier by some researchers. The importance of tenure and promotion was omnipresent, especially for newly hired faculty.

University communications

The communication professionals highlighted that KMb is an academic term that does not translate well beyond the university. As such, they understood the importance of their role as knowledge brokers/translators who bridge the gap between academic institutions and the broader community. Communications experts focused on mobilizing knowledge that has community appeal and relevance. They viewed their job as telling a story of why a particular piece of research mattered. There was also a strong interest in promoting the university and its researchers.

Communications experts acknowledged that researchers are trained to do research but not to translate research into why the research matters. Researchers were formally trained to ask questions, then dive deep into the literature and data to answer the questions. This often created barriers in terms of researchers not understanding why their research mattered beyond academia. Fear of peer review and critique were also noted as potential barriers to research findings being mobilized through communications. From the communications staff perspective, trying to know what all the university researchers are doing is very difficult, pointing out that faculty researchers should be more willing to engage with communications.

Media

Media, on the other hand, viewed the term KMb as alienating academic jargon, not conducive to two-way fact sharing and collaboration. Some mentioned the importance of building trust. There was a perception that universities were intimidating and put up an institutional barricade, especially with socio-economic and educational divides in certain neighbourhoods. They felt that if universities wished to promote themselves as inclusive, diverse and accessible spaces, their researchers should learn how to speak in a way that did not intimidate (reference to the ivory tower).

Media agreed with communications for the need to engage in storytelling; they were interested in stories that were relevant to the community, current events that could impact everyday life. One media expert stated the need to bring something new or challenge the usual assumptions. It could be something unusual and quirky. There was a need to be linked to community interests, that could be from local to national or international. However, it was noted that communications and media often went with their usual contacts, so, diversity in researchers and types of research could become limited.

Media agreed with university communications that the fear of being misquoted by researchers posed a significant barrier. Media also shared this fear but from the opposite perspective, being the one responsible for a misquote or poor representation. They might spend hours trying to understand the research, but they were worried about getting it wrong or misrepresenting it. They knew that this could jeopardize future opportunities and/or it could damage their reputation or the one of their employers.

The lack of direct or timely access to research experts was identified as a significant barrier by media and expressed frustration by the levels of bureaucracy involved when trying to secure an expert contact. Concern as to why these experts were not made more accessible and thereby eroding trust was highlighted. With the lack of resources and changing

landscape of media, journalists were often producing multiple stories in any given day. When news was worth reporting, the turnaround time could be hours. Access to expertise needed to be quick, and unencumbered, otherwise deadlines could be missed. They needed reliable contact lists as they could not always use the same person all the time, as this could also reduce media's credibility. Media preferred to have a diversity of opinions and experts.

Discussion

The results of this study suggest disconnects among the researcher, communication experts, and media in terms of understanding roles within the KMb spectrum. Our findings align with Nonaka and Toyama (2015): KMb should be an organic configuration of many layers and moving parts, a dynamic process requiring integration and utilization by many actors. From academia, there is a resounding "this is not my job," which is consistent with the findings of Cooper, Rodway and Read (2018). Most academics felt that it was not part of their workload and this sentiment increased with tenure and promotion, although there were some exceptions for those who do community research. Where researchers are positioned with respect to tenure may influence KMb motivations, as mentioned in some of our groups and by Cooper, Rodway and Read (2018).

Communications experts often interact with a small core group of researchers who are engaged in KMb. Therefore, the majority of researchers can fall within two other groups: those who would like to do KMb but don't know how, and those who focus on research and teaching but do not see the value or feel it is not their job to mobilize their research. This leaves university communications feeling frustrated and not respected, and therefore less willing to engage with researchers who make them feel like they are just an annoying step within a grant application that has to be completed. Cooper, Rodway and Read (2018) underline the role and importance of intermediaries such as communications in the KMb process. It is important to note that few researchers are good at KMb and those who are, are generally more often targeted by university communications and media for interviews and other media activities.

In terms of mobilizing knowledge for media, there is evidence to suggest that researchers feel the job of media is that of research translation, taking their research and turning it into publicly accessible narratives. Media, on the other hand, are very clear to indicate that they neither have the expertise nor the time required for knowledge translation. Knowledge translation, defined simply as how research moves into practice (Graham et al., 2006), is a major factor that many researchers do not completely appreciate. University communications acknowledge that this is part of their work, but researchers must be willing to also help remove the jargon.

Budget cuts to media have resulted in fewer specialized journalists; anything overly technical with heavy jargon may get lost in translation because media specialists are not trained to translate complex research. There is a misperception from researchers that open access journals are effective ways to mobilize knowledge and that media can access these articles directly. Media argue, however, that open access journals are still complicated and full of academic jargon, so they are not accessible. It is also noted that press release launches, panel discussions with experts, and expert-lead workshops do not tend to be a good use of media's time, as they do not contribute to effective storytelling.

Storytelling is the capture and holding of the audience's attention and is seen as a critical step in the KMb process (Bradford & Bharadwaj, 2015). But media are quick to point out you have only about one minute to do so. From the media's perspective, university press releases tend to focus on "researcher

does research" or "researcher makes breakthrough" and are not the basis for a compelling story. If press releases could turn the narrative around to something more compelling and framed through a different lens, such as "researcher helps family," it makes for a different kind of story. Being able to relate to the story in a relevant way is an important component of KMb. In many cases, it is a question of not just stating the facts but rather finding a way that it can lead readers to act on something. Bringing the positive or actionable aspect to news has also been noted by Bradford and Bharadwaj (2015). Not everyone has the capability to tell a story, and our data points to the importance of relying on university communications who can relay the story in a way that is digestible and relatable.

Research funding criteria can also influence KMb strategies. If research is tied to criteria for KMb then it must be done, but what that looks like can vary greatly. Research funding seems to be a big motivator and driver of KMb efforts, but the funder expectations are often unclear or vague, leading to inconsistent interpretations. When there is no requirement through grants, KMb efforts geared to a more general audience tend to fall down the priority scale. In addition, the timelines for research outputs needed by the public or media do not often align with grant funding cycles or output deadlines and schedules. For example, a three-year wetland restoration study may not have results in time for when the municipality has funding for conservation efforts. Current events can rapidly change, and policy cycles are short; neither align well with complex research. It can be a challenge to get policy makers to integrate research in a meaningful way, especially if the language used is too difficult to understand. Accordingly, grant applications often call for KMb strategies, but such calls often take the form of a check box or a question that requires no more than a vague description to fulfill the obligation.

Path forward

For universities

KMb remains something often vague for researchers, in part due to the fact that this has not been part of their training. A first piece of the solution may be that science communication, including KMb, is introduced to graduate students so they are more equipped in the future to deal with it. In some way, the 3MT (3-Minute Thesis) may be a first step towards increasing interest in trying to know how to describe complex research into something simpler. Universities should be encouraged to increase workshops and training in such activities, including KMb strategies. This may help graduates integrate this into future career endeavours, whether it is faculty, private, government, or public sector — all require KMb principles in some capacity. It is important to underline that KMb is not restricted to researchers in universities; rather the terminology changes depending on the discourse.

Considering the challenges of the researchers to explain their research and the frustration of university communications, it appears that universities may want to explore how resources for training, networking and collaboration building between faculty and the university can support staff capacity to enhance KMb. Universities may want to consider looking outside of the traditional academic "box" and look to Indigenous and other cultures for storytelling and knowledge sharing insight and innovation. "At its heart, research is storytelling. As a researcher, I listen to stories through interviews and focus groups, I reflect upon those stories and interpret them, and then I too become a storyteller as I share these stories, along with my own experiences and ideas, with different audiences" (Christensen, 2012, p. 232). This also means that universities have to carefully consider how KMb is managed within their institution. As seen in some cases, when each faculty, department or centre has its own staff, there may be

misunderstanding and confusion on how media can approach universities. While this may be a significant advantage in some circumstances, there is a need for greater coordination, ensuring all parties are well aware of the activities of the other groups. The idea of a collaboration liaison to work between all divisions could be a viable solution. As Christensen (2012) points out, the goal ought to be for "these stories to mean something to other people, to show people the connections between the bigger issues and people's lives" (p. 232). Another vehicle for KMb, and an approach used by some researchers in environmental psychology, is anecdotes. They are often labeled as stories with a specific point and tend to be very short while being extremely effective.

There is an immediate need, however, to better communicate the roles and responsibilities of all involved in the KMb process, including the role of the academic institution, faculty researchers, university communications, media and research granting agencies. Where adequate institutional support exists, researchers should be urged to use media offices, communications and KMb experts. They have the skills necessary and think about audiences and know how to organize and construct research content to help localize knowledge. There is a need for promotion of this expertise, and this can be done through formal or informal training workshops. While there are some KMb and communication resources already existing in some universities, this is quite inconsistent among Canadian universities and in some cases, they operate in siloes. For media, there is a need to better connect not only to university communications, but also to other agents within universities, including direct connection to some researchers; this will also help build and strengthen trust. For faculty researchers and universities there is a need to re-evaluate the way tenure and promotion are assessed, as KMb is not part of their mandates and therefore, not recognized when preparing their dossiers.

Mutual respect, inclusiveness, diversity, and accessibility are essential requirements in all academic institutions in Canada. Shared safe spaces where collaborations can flourish should be made a priority. Researchers and communications experts can benefit from a better understanding of each other's role in the KMb process. If researchers were made aware of the need to mobilize knowledge and could better assist communications with breaking down complex issues into a few key concepts, it might strengthen collaborations. This in turn can create professional development opportunities for researchers who become good at telling their stories in accessible ways, while amplifying their own voices as experts in their field. All researchers should be able to develop an explanation of their research in simple words and delivering it within one minute. An informed and respectful academic community will breed a higher calibre of researchers and support staff. Performance on KMb delivery should be included in academic performance reviews, regardless of where a researcher is in the tenure track.

For media and university communications

There should be provision for an updated list of faculty researchers and experts, with names and contact information whereby they can be accessed directly by media, to ensure a more diverse set of experts to better match stories to researchers. Although some universities prepare these lists on a regular basis, they often miss a diversity of researchers. Alternative contacts should be provided to ensure the timely response to enquiries in the event of absences. Where possible, contact lists should be web-based to provide quick and efficient retrieval by users. Care should be given to maintain an updated database, removing names when they are no longer relevant (i.e., account for sabbatical and retirement).

Facilitated face-to-face relationship-building networking forums between policy makers, researchers and media to provide opportunities to engage from a different perspective may increase KMb collaborations, synergies and efficiencies. Non-conventional KMb strategies should be pursued with the support of KMb officers and communication experts or seek out faculty with demonstrated track records for thinking outside the KMb conventional box. For example, *The Conversation* is a great resource to utilize; it does not require the same writing skill required for large media outlets. Similarly, podcasts take a level of skill and resources that many faculty do not have direct access to. However, communications and KMb offices represent great institutional supports.

For funding agencies

Better clarity from SSHRC and any other funding agencies would be an asset as they set up a need for KMb in the applications. Most researchers believe that explaining the number of publications cited or how many presentations made at conferences would be sufficient.

Currently, no or few monitoring systems exist to evaluate the KMb strategy other than the end-of-project report (when required). A few other funding agencies, mainly at the provincial level such as the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), require a KMb strategy and a significant portion of the research budget can be allocated to this. The funding agencies should reflect on the proportion of a grant that should be allocated to KMb and require a KMb strategy be approved.

There are still some challenges regarding the timeline for KMb, and what research can be mobilized in the short versus the long term. Most research takes time to be completed (especially when PhD research is part of it); therefore, results may not be published within the funding cycle. Funding, however, may still be needed after the completion of the grant and should be considered as a separate part of the budget that can be saved for up to two years after the termination of the grant itself is used for the research. The other challenge with funding agencies, as well as universities and researchers, is how to assess the effectiveness of KMb. While this paper has not directly looked at this aspect, it may be an important consideration in the reflection on research excellence.

Final thoughts

The current reflection from this study suggests that many steps can be accomplished by universities, media and even funding agencies to improve the KMb process. What is clear from these discussions is that KMb is still in its infancy for most researchers, due to limited training, expected criteria for tenure and promotion, and the lack of requirements on current funding applications. Universities have a role to play to enhance KMb skills while at the same time finding a way to better develop communications that strategically support researchers and help media connect with researchers. There are multiple avenues of solutions that can be explored. Specific tools and strategies will need to be developed to help increase and diversify KMb capacities and partnerships within each individual university community.

Acknowledgements

The authors would like to thank the Social Sciences and Humanities Research Council of Canada and the Canadian Commission for UNESCO for their financial support as well as the reviewers who took the time to review the thought leadership paper.

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Appendix A: focus group and interview questions

Faculty questions

1. Are you familiar with the term, knowledge mobilization? What does it mean to you?
2. In your field, what knowledge do you want to mobilize? Why?
3. Do you think in advance about your target audiences and how it may impact your KMb strategy?
4. What resources do you currently utilize for your KMb efforts?
5. Have you been successful in the past mobilizing your research? How did you measure that success?
6. What has been working well?
7. What has not been working well?
8. Are there any obstacles and barriers related to how you engage in knowledge mobilization and if yes, what are they?
9. Is there institutional support for KMb at your university? If yes, is that support adequate?
10. To be effective, what would you like as support and from whom/where?
11. What are other opportunities or internal structures needed to close the gap between knowledge-producers and knowledge-users in order to maximize research impact?
12. How could you be better supported in your knowledge mobilization efforts?

Communications experts questions

1. Are you familiar with the term knowledge mobilization? What does it mean to you?
2. What areas of research are you interested in from researchers? Why?
3. What research outputs usually grab your attention, and why?

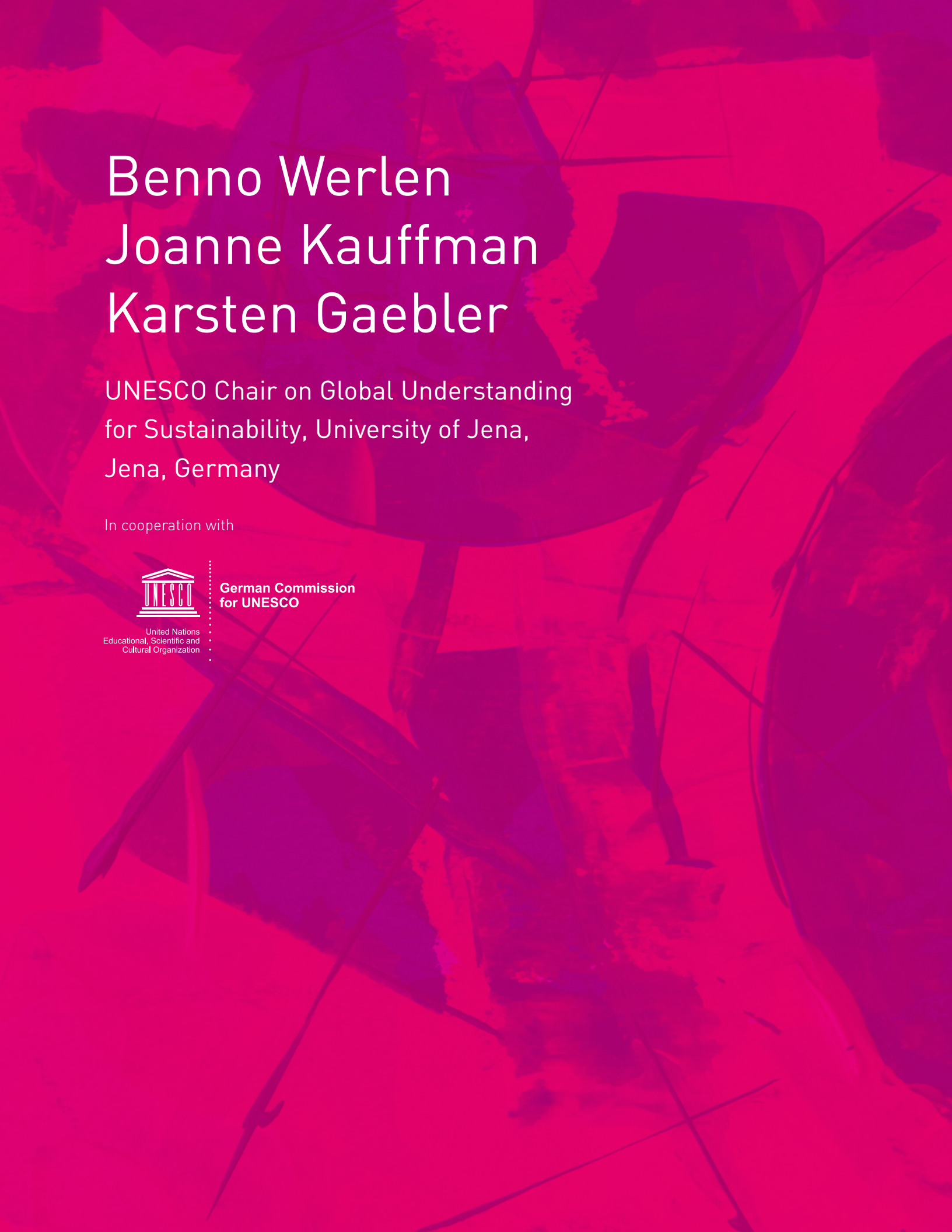
4. As a communication professional, what information do you need from researchers to effectively share information with the public?
5. What are the main barriers/obstacles working with researchers and universities?
6. How can universities and researchers better engage with the media to communicate their research to the public?
7. Do you have other ideas that could help to increase better KMb and exchange with universities?

Media questions

1. Are you familiar with the term knowledge mobilization? What does it mean to you?
2. What areas of research are you interested in from universities? Why?
3. What research outputs usually grab your attention, and why?
4. As a media professional, what information do you need from researchers to effectively share information with the public?
5. What are the main barriers/obstacles working with universities?
6. How can universities and researchers better engage with the media to communicate their research to the public?
7. Do you have other ideas that could help to increase better KMb and exchange with universities?

07

Future Knowledge Mobilization for deep societal transformations



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Abstract

This thought leadership paper seeks to shed light on key issues and new strategies to produce and mobilize knowledge for sustainable development in a global perspective.

Overall, the paper proposes a series of bottom-up strategic considerations that take into account specific and diverse regional and cultural qualities.

This thought leadership paper seeks to shed light on key issues and new strategies to produce and mobilize knowledge for sustainable development in a global perspective. In particular, the paper recognizes that deep societal transformations are both the object of and the environment for future knowledge mobilization. The paper is divided into two parts. Part I presents the 21st-century environment for knowledge mobilization with particular emphasis on the need for and obstacles to knowledge mobilization. It asks why this is needed so urgently now, and what is preventing it? Part II presents new strategies to overcome constraints on knowledge mobilization. Drawing on our experiences in practice-centered sustainability research, the paper suggests three core areas for the development of strategies for the future of knowledge mobilization: work with communities, institutional and organizational reform, and education and learning. Our suggestions are based upon expert interviews conducted with a total of 15 researchers, science administrators, and thought leaders in the natural and social sciences and humanities from around the world. Overall, the paper proposes a series of bottom-up strategic considerations that take into account specific and diverse regional and cultural qualities.

Introduction

Science, understood as the systematic pursuit of knowledge, like all societal institutions, is embedded in broader socio-cultural, temporal, and spatial contexts. Hence, contemporary trends that affect societies today – from the digital revolution to the alarming rise of "post-truth politics" – are also changing the conditions for research, teaching, and problem solving for the common good. Taking the shifting conditions into account is especially relevant for the social sciences and the humanities, which study and reflect on how to understand, shape, adapt and respond to these changes. The natural sciences are essential to identify problems societies may face at the bio-physical level. But it is through inclusion of the social sciences and humanities in research and decision-making processes that pathways to effective solutions and implementation may be found. Responses to the current COVID-19 pandemic help to shed light on why this is the case.

Containing the pandemic is essentially about changing well-established routines and practices that characterize our social, economic, and cultural realities. Consider, for example, the diverse responses to "lockdown" and "shelter-in-place" requirements, and to instructions regarding personal hygiene and safety, such as wearing facemasks, all directly practice- and culturally-related. To reach people successfully, the relevant knowledge first needs to be understandable and applicable. It needs to be connected to what people actually believe and do in their everyday lives, instead of reproducing the academic world's disciplinary logic or its abstract jargon.

However, as the pandemic has also shown, such calls to change behavior require an understanding of these everyday actions and routines, of their socio-cultural, temporal, and spatial contexts – not least to shed light on the limitations and unintended consequences of "one-size-fits-all" solutions. The social sciences and the humanities can provide such understanding. Working with what we sometimes call the "hard sciences" researchers from these fields are well-equipped to play key roles in transdisciplinary projects that aim to address the complex issues and "wicked problems" that confront humankind today.

Integrated and participatory approaches in academic research that are aimed at promoting societal transformation towards global sustainability are commonly referred to as sustainability science. Further developing such work across the boundaries of traditional academic sectors requires a practice-centered perspective as well as better ways to convey knowledge, but also, and even more importantly, to produce specific knowledge. Helping to address global challenges such as climate change or biodiversity loss calls for new alliances and approaches to research which include innovative partnerships with social actors outside the formal research arena. Addressing problems rooted in everyday practices requires a shift away from disciplinary logic to more holistic and integrated understanding of those actions and their relationship to the larger issues. It is not hard to imagine that this approach to understanding directly affects the internal organization of academic research: disciplines rest on well-founded (and defended) theories and methods, specific teaching cultures, and long-established benchmarks for assessment. Moreover, working with non-academic actors requires researchers to accommodate their new role as a partner and learner in knowledge production, and to build platforms that enable true dialogue. At the same time, such dialogue requires a "complexity literate" public and an arena that encourages diversity of thought. For this to be the case, knowledge mobilization needs to come into play. In the following paper we consider both the

need for, and obstacles to, the innovative production and deployment of knowledge for meeting complex contemporary challenges. We focus in particular on the essential contribution that social science and humanities research must play in the creation of such knowledge as well as in its successful application for a better – and more sustainable – future.

Part I: The dynamic environment of Knowledge Mobilization

Current megatrends like (de-)globalization, (un-) sustainable development, or the digital revolution continue to transform nearly all aspects of everyday life and lead to a deep transformation of societies. To meet the challenges that these trends present to communities and individuals around the world, new ways of producing and mobilizing knowledge need to be developed. The current modes of knowledge production and mobilization often adhere to traditional understandings of the organization of academic research and relationships between academia and society. However, researchers and university teachers often find themselves in new environments today – both figuratively and literally. Therefore, it is essential to first understand the new realities that confront research and knowledge mobilization in the 21st century. The most salient are: the impacts and unexpected consequences of the digital revolution; a decline of deference in the relationship between academic experts and society; and the changing nature of civic engagement.

The digital revolution as a game changer

The proliferation of digital technologies has brought remarkable opportunities to some as well as fundamental changes in the ways we communicate, perceive our environments, and comprehend social worlds and natural conditions. In today's globalized world, more information is at hand for more people than at any other time in history. Unfortunately, not all of its content is based on truth and anchored in reality. Thus, the power of the internet, while recognized, is not fully comprehended. At the same time, global access to information and global connectivity cannot hide the fact that natural, cultural, social and economic conditions still differ from region to region, or even from place to place, and that these differences reflect significant disparities in wealth and well-being. The digital revolution thus exposes economic and social differences, and at the same time produces its very own disparities. It raises new questions of justice and technology-driven inequalities that need to be taken into account when using digital technology for knowledge production and mobilization.

Concerning the exploitation of data, technologies like big data analytics, artificial intelligence or machine learning help understand complex phenomena and promise more accurate models and predictive tools for decision-makers. Research in all domains of inquiry can benefit from greatly increased computational capacity and the availability of large sets of data. This also enables better understanding of the flows and spread of information. As a powerful tool, digital technology facilitates discovery of large-scale patterns that were previously inaccessible. Furthermore, digital communication and mass storage of data simplify the distribution and sharing of information, allow access to (raw) data, and make it easier to verify information or research findings. Overall, knowledge production has become more efficient through digital technology.

However, with regard to the impact of digital technology on wider society visions of a "data-driven society" or utopian dreams of an "information democracy" turn out to be dubious. As digital technologies further penetrate daily lives, it becomes obvious that algorithms are neither neutral nor objective. They can serve the interests of big, well-

capitalized – and hard to control – companies or autocratic regimes, as well as of other opaque anti-democratic forces. These traits of digital technology in particular call upon the social sciences and the humanities to critically reflect upon how data is generated by users, which biases are encoded in algorithms, or how these technologies affect political decision-making and public opinion.

While the excess supply of information and the creation of "echo chambers" have often made knowledge about the world more fragmented and biased, the promises of social media for future knowledge mobilization are ambivalent. Whereas it has become easy for researchers to reach large audiences and policymakers directly, it also becomes obvious that the logic of reach or "likes" can have unintended side-effects. The viral spread of information that fits political agendas or personal interests can, in the short-term, increase the influence of some researchers and contribute to knowledge dissemination. But it makes it immensely difficult to execute good scientific practice and to revise findings and explanations at a later point

Changing relationships between science and society

The relationships between academia and society are undergoing significant changes today – with considerable consequences for the mobilization of knowledge. While bodies of knowledge about the major challenges to contemporary civilization have grown in the past decades and public funding of research has reached new heights in some areas, the hypercompetitive environment researchers find themselves in often involves conflicting objectives and incentives for unethical behavior, and has the potential to weaken solidarity within the academic community. Together with the destructive effects of "post-truth politics," corporatization in the academic realm can erode and damage public trust in credible expertise.

At the same time, researchers are increasingly expected to address "real-world problems" and produce actionable knowledge. To solve societal challenges, the interaction between academia and other socio-cultural spheres like the economy, politics, and the arts, as well as with the general public has become essential. Enhanced communication and the translation of research insights into other fields' languages is of the utmost importance. However, the quest for public attention and the provision of expertise to broader audiences is not without contradictions. For instance, engaging the public and promoting outreach activities conflicts with bibliometrics-based reward systems within academia and research funding institutions, and respective career trajectories. Furthermore, making research more accessible to the general public sets incentives for concealing complexity, ambiguity, or the tentative nature of insights gleaned from academic research. The sending out of short, memorable messages can thus impede a profound discussion in the public sphere and stand in the way of the development of complexity literacy. The ability to present complex issues clearly and appealingly is still a rather rare skill in academia. To many researchers it becomes obvious only slowly that reaching out to the public requires professionalism in the same way actual research does. Individual as well as collective strategies of knowledge mobilization should take these trends into account and build environments that facilitate communication with the general public and with policy-makers without raising undue expectations about the capabilities of researchers nor devaluing their expertise.

The changing nature of civic engagement

In today's age of rapidly emerging global challenges, civic engagement in communities and in social movements is more critical than ever. However, not all civic engagement is aimed at dialogue and democratic negotiation about the common good.

Current tendencies of increasing political and social polarization and the rise of mutually exclusive worldviews in many regions of the world make broad mobilization for collectively addressing today's problems more difficult. Although many people share concerns about pressing issues on both global and local levels – and in particular younger generations are increasingly willing to express their views and take collective action – voices that fuel mistrust in political institutions and discredit credible expertise receive increasing public attention and sometimes come from the highest leadership. Anger at "academic elites" telling people what to do and an "always-swim-against-the-current" mentality seem to be gaining popularity among some groups. The "one-size-fits-all" policies promoted by programs with top down strategies that are culturally insensitive increasingly prove to be unsuccessful and undermine confidence in proposed solution options at regional and local levels.

To strengthen trust and harvest people's interest in coping with global and local challenges, it is imperative for researchers to acknowledge and deal with the various new forms of political engagement. Parallel to somewhat rigid, inert political institutions, an alternative participatory culture has become popular in recent years. In part propelled by digital technologies – which expand opportunities to share information, express concerns, and organize social movements – innovative forms of protest and civic activism have become significant forces for social change. These fluid, at times ephemeral movements often gather around brief, conspicuous messages and aim at immediate action – thus contrasting with the dominant academic research culture of extensive deliberation and professional reticence. As local communities and social movements have become agents of change worldwide, work at the science-policy interface thus expands across the scope of formal politics. It must therefore include collaboration with organized civil society and with citizens and communities.

Part II: Knowledge Mobilization for the 21st century

Meeting the challenges of the 21st century inevitably entails a revision of current modes of knowledge production and dissemination. Trends towards further democratization and diversification must be supported – not only to reduce knowledge-based inequalities, but to strengthen epistemic diversity and make solutions to global and local problems more robust. This paper argues that three topics deserve particular attention to enhance the mobilization of knowledge today: Collaborating with local communities, the development – or reform – of institutional and organizational frameworks, and rethinking education and learning.

Knowledge Mobilization 'on the ground' – working with communities

Collaborating with local communities has become a well-established strategy for meeting society's demands for formal methods of inquiry into societal problems. A common argument for forms of community-based research is that through raising awareness, getting people engaged, or empowering communities to act, academics can exert a more direct influence on society for the benefit of all. Local collaboration is also often associated with strengthening the local ties of a research institution and securing political endorsement. Such engagement across the borders of academia, however, raises questions not only concerning the means and strategies of getting non-academics involved, but also about the very understanding of the researcher's role and the role of expert knowledge. If collaboration with communities is to succeed,

knowledge mobilization must not be conceived of as conveying knowledge to local groups but as finding better ways to produce and challenge solutions to problems together.

To change from "voice of authority" to authentic participant

Typically, researchers become researchers by advancing in a system that rewards expert knowledge, specialization, and originality. Credit is attributed in academia for becoming an authority in a particular field, however specialized it may be. Thus, being someone who pushes the boundaries of knowledge in one way or another is a necessary part of the self-understanding of researchers and a promising strategy for advancing careers in academia. While the perceived lack of knowledge on a specific issue is an essential driver of research, not all problems outside the academic realm are rooted in a lack of relevant knowledge. When it comes to working with communities, the role model of the "distinguished expert" who provides information to (insufficiently informed) laypeople is likely to fail. First, because communities are inclined to consider themselves as experts on their own culture and ways of living and want to be recognized as such. Asserting intellectual hierarchies (even if only indirectly) stands in the way of successfully working with communities, and most likely also impedes a true understanding of "real-world" problems. Second, developing new habits and routines, which are, in most cases, necessary to deal with a problem, is often not a question of factual knowledge, just as political decisions do not arise directly from (knowing about) facts. "Real-world" problem solving thus requires understanding communities' inherent social, cultural, political, or economic logics. Researchers – whatever their role in a project is – should be open to engaging in authentic dialogue and to learn something from non-experts in a process of mutual exchange. Authenticity is essential to successfully build trust for collaboration at the grassroots level. Such a change of attitude does not come out of nowhere. It has to be encouraged and rewarded within the academic career-building system. Building environments for research and careers that embrace a culture of appreciating others' knowledge (and other forms of knowledge) is essential. Also, experience outside academia should be recognized in academic careers.

To connect with communities

Working at the grassroots-level first and foremost is about building relationships of trust with communities. To get heard at all, the abstract institution of "science" needs to be represented by real people – human faces. Being on site and taking time for instigating dialogue is critical for transdisciplinary research. Community members will much more likely be willing to engage if they are dealing with a researcher they know and who has a credible interest in their concerns. The phrase "No one cares how much you know, until they know how much you care" reflects this need for relationships based on integrity and true interest. At the same time, researchers contribute to building trust if the values they assert and the facts they communicate consistently match their behavior. Such authenticity eventually paves the way to reach communities and learn about their life-worlds. In particular, researchers engaged in transdisciplinary research must learn to understand the community's perception of the problem that is to be addressed, the members' values and self-perceptions, and the motivations, interests, and emotions that drive their actions. Such deeper understanding of a community not only helps to better comprehend the problem at hand but is also necessary to translate expert knowledge relevant for the case to a language that is understood. To connect with communities and find common ground for collaboration, it is crucial to incorporate time-consuming, hard-to-predict phases of mutual encounter into research plans in the best possible

way, and not treat them as a mere by-product of the "actual" research work. Researchers in the social sciences and humanities are well-placed and experienced to lead such efforts.

To tell stories and evoke emotions

When collaborating with actors outside the academic realm, researchers are often inclined to communicate in the same way they communicate with other researchers – they try to provide information or evidence for their claims as completely and precisely as possible. Lay audiences, however, are seldom convinced by sound figures and facts alone. In order to mobilize knowledge, it is necessary to structure information in a way that helps audiences connect it to their own lives. Storytelling can serve that purpose. Stories evoke emotions and support their listeners' understanding of issues in making sense of information that would otherwise remain abstract. Stories thus help people to resonate with an issue and identify their potential roles in addressing it. Positive stories that avoid making listeners fearful or guilty have the power to increase engagement and strengthen people's desire for change. The use of figurative language and narrative structures breaks down complex issues and builds bridges between specialist disciplinary views and blurry everyday life experiences.

Storytelling should clearly not be confused with deceiving people or hiding inconvenient facts. Professional research insights should not be altered by storytelling. Also, the need to tell stories must not set incentives for producing research results that are likely to fit a desired narrative. Rather, researchers can use storytelling to stimulate imagination and develop solutions to problems together with communities. Similarly, knowledge of the structures and functions of stories in everyday life helps researchers understand the stories a community tells itself and draw valuable information from them. Moreover, by telling stories to explain problematic phenomena, researchers also help laypeople to understand better how their work is essential to understanding our world and how what we do in our everyday lives affects it.

To build networks and stimulate mutual learning

While the problems on which researchers work together with communities vary and solutions are not easily transferable there is a tremendous untapped potential for processes of mutual learning between different projects. Often, experiences and results of collaborative transdisciplinary work are only shared in project reports or (other) internal documents. This deprives communities and researchers of the opportunity to learn from each other and to further develop approaches and methods of collaborative problem solving. In order to accelerate development of transdisciplinary research, it is necessary to promote a culture of knowledge sharing and to invest in organizational structures that connect communities and serve as hubs for knowledge exchange. Establishing regional action centers as a "neutral ground" between the worlds of academia and everyday life is a good strategy to provide platforms for such networking. Embedded in regional social, cultural, and economic conditions, these centers serve as a low-threshold contact-point for non-academics by making information accessible, connecting interested laypeople and local decision-makers with experts, and sharing experiences from successful regional collaboration projects. Furthermore, such centers can initiate and coordinate bottom-up projects and help to produce teaching and education material used in the local context.

Building institutional and organizational frameworks – the *conditio sine qua non* for effective Knowledge Mobilization

Promoting knowledge mobilization for deep societal transformations requires rethinking academic research's institutional and organizational

frameworks. Institutions and organizations that support formal inquiry such as universities, academies, councils, research and funding programs, to name but a few, play a decisive role as parts of the ecosystem in which knowledge is produced. This ecosystem breeds researchers, defines thematic priorities by channeling resources and thus makes research for the benefit of society more, or less, likely. Despite academia's unique character as an autonomous and particularly protected realm (the "ivory tower"), research institutions and organizations are not outside of society. Rather, they reflect social values and broader trends such as financialization and increasing inequality. Promoting deep societal change will challenge well-established structures and will inevitably produce winners and losers in the academic system. New incentive systems, the establishment of new, cross-cutting networks, or a more participatory and self-reflexive culture are necessary.

To build new reward systems

Efforts to mobilize knowledge for the benefit of society and engage with non-academic actors are only seldom rewarded with what counts as "proper currency" in academia. Recognition by professional peers, research funding, or career opportunities are still primarily awarded for work within the boundaries of traditional disciplines regardless of occasional efforts to the contrary. The rise of metrics-based evaluation of research performance (mainly through bibliometric indicators) has reinforced incentives to avoid risks, to stay within disciplinary territories, and to prefer short-term deliverables over long-term ones. This holds in particular for early career researchers. Furthermore, the mechanics of obtaining positions or offices in academic organizations (and thus gaining institutional influence) often adhere to the traditional credit system. Structural innovations are therefore difficult, as those who derive their power and self-worth from fulfilling traditional reward criteria are likely to resist change.

Addressing deficiencies in the current reward pattern that impede knowledge mobilization requires a significant transformation of the research ecosystem. For instance, funding schemes focusing exclusively on inter- and transdisciplinary research should be developed or substantially expanded. The probability of funding success must not depend on whether a project is inter-/transdisciplinary or disciplinary but be based on specific evaluation criteria for cross-cutting research. Also, evaluation processes should be redesigned to avoid disciplinary biases on the part of the reviewers. Strengthening transdisciplinary research by these means does not mean putting basic and disciplinary research at a disadvantage. It means making competition cleaner and more just – proposals geared to knowledge mobilization must compete with similar proposals, but not with disciplinary, purely scientific ones. Concerning career tracks and the distribution of faculty positions, professional experience outside academia or public outreach activities should become a competitive advantage rather than "wasted time" in the race for a professorship. This, however, requires moving away from the (often barely concealed) bias towards research careers and promoting a culture of appreciation of non-academic employment.

To establish small and medium-sized thematic networks

Large international research programs are often seen as effective tools to promote academic work on current (global) problems and engage researchers to benefit society on a large scale. These initiatives aim not only to produce new knowledge but also to raise public awareness and influence political agendas based on sound and well-researched findings. Such programs, however, do not come

without drawbacks. They are prone to develop into large organizations with considerable bureaucratic overhead. Because of the need to agree on common positions, these alliances also tend to weaken the diversity of perspectives and the capacity to find solutions "outside the box." With their corporate-like appearance, they often remain alien to ordinary laypersons and – contrary to their actual goals – detached from society. Small and medium-sized thematic networks provide an opportunity to bypass some of these problems. While their academic members cannot escape institutional constraints (such as the reputation game based on publications and research grants), smaller networks can provide safe spaces for thinking differently without putting a large program's political endorsement or funding at risk. Also, they are more independent of science policy agendas (e.g., by influential academic organizations), and thus are more likely to achieve true integration of different disciplines and cultures. In particular, they can provide a basis for collaboration on equal terms between the natural sciences and the social sciences and humanities, avoiding the common practice of merely adding the latter to a pre-defined program. With regard to engaging non-academic audiences, small and medium-sized networks are likely to lack the resources for large-scale information and education campaigns, but this can also be a beneficial pressure to reach out locally and foster bottom-up approaches.

To embrace a more democratic culture

While demands for democratization and enhancement of epistemic diversity are popular, particularly in sustainability science endeavors, the academic community in many cases remains surprisingly resistant to self-examination in this regard. The pluralism of voices, the culture of embracing difference, or the constant effort to provide ample opportunities for participation to deal with "real-world" problems are barely mirrored in most science organizations. Universities, academies, or science councils have impacts on society through education and training, knowledge production and consultancy, community engagement and as local employers. They should therefore be forerunners in democratization. First, because as arenas of political socialization, they contribute to a democratic culture that is the very condition of a flourishing, critical science system – and not least because they exemplify a culture of evidence-based decision making that is under pressure in a growing number of political contexts today. Second, because the processes of knowledge production and mobilization benefit from more democratic structures. Enhancing diversity in knowledge production challenges intellectual hegemonies, avoids biases, and thus opens doors to discoveries and new research questions. Breaking down barriers between disciplines, on the other hand, not only rests upon curiosity and respect but also requires the democratic capacities for negotiation and compromise. Efforts to mobilize knowledge will eventually be more credible (and more likely to succeed) if the organizations that lead them are exemplary within their own practices.

Education and learning for Knowledge Mobilization – equipping change agents

There can be little doubt that education is critical to facilitate change and shape deep societal transformations. Educational institutions and organizations promote understanding of the world and help build capacities for transformative action. At the same time, schools, universities, centers for adult education, public libraries, or museums do not only educate potential change agents, but are themselves laboratories for transformation and can have a direct social impact. To provide compelling "real-life" learning experiences and enhance engagement for the benefit of society, educational institutions and organizations need to challenge traditional ways of organizing knowledge and turn learners' attention to their immediate living contexts. Furthermore, given

current populist attacks on science and evidence-based decision-making, promoting scientific literacy (i.e., the ability to understand how research addresses problems and produces knowledge) and facilitating critical communication skills for students and (young) researchers should be given priority.

To promote integrated approaches

Meaningful learning typically does not only happen through disciplines or subjects, but also through exploring issues that do not directly adhere to specific disciplines or categories. Children and adolescents, especially, often show little innate enthusiasm for history, biology, physics, or languages as such, but are fascinated by puzzling phenomena which they experience in their everyday lives. Young people often engage enthusiastically with pressing problems, but lose momentum when dealing with them in disciplinary specializations. Schools and universities often tend to "exorcise" the natural interest in complex issues and train students in highly specialized, disconnected, and often competing subjects. Also, the academic labor market in many regions of the world is geared towards disciplinary degrees, thus reinforcing the idea that disciplines are the natural order of things.

Whereas the disciplinary mode of thinking undoubtedly helps to develop analytical skills and advances specialist knowledge and fundamental research, its downsides become obvious when disciplines are taken as the sole basis for institutional design and for developing curricula. The academic division of the world and the competition between disciplines can prevent learners – including researchers – from trying to adopt other disciplines' perspectives and understand interdisciplinary connections. Especially with regard to finding solutions for today's "wicked" global problems the capacity to analyze across disciplines and established categories is crucial. To mobilize knowledge in a more integrated way, it is necessary to push teaching and learning beyond the boundaries of fragmented canonical knowledge. For instance, greater weight should be given to integrated curricula and theme- or project-based approaches in schools. National and international assessment programs should shift their focus away from competencies in specific subjects and set incentives for strengthening students' capacities to connect knowledge from different fields. In higher education, it will be helpful to allow for greater flexibility of studying, moving away from conventional, fixed trajectories towards models based on individual preferences and purposes (Stanford's "Purpose learning" model is a valuable benchmark). Including opportunities for critical service learning in study programs will also foster students' abilities to tackle complex, non-disciplinary problems. Lastly, places of informal learning that are usually less bound by state curricular requirements can provide learners with opportunities for integrated learning and should, therefore, be recognized and widely supported as an essential part of education.

To create living labs

The living lab-approach has become popular in higher education as a way to enable students and researchers to move from theoretical knowledge to engaging in "real-world" problems and to learn in real-time about social or economic dynamics. Together with local or regional administrations, businesses, non-profit organizations, and other actors, students and researchers develop procedures and protocols for collaboration to co-produce tangible solutions as well as new knowledge. Living labs thus become a learning context for both academic and non-academic participants. With this approach, universities can fulfill social responsibilities and strengthen their local and regional connections, but they can also gain competitive advantages by increasing their graduates' career opportunities. Astonishingly, however, the living lab-approach is rather seldomly applied to the research organization

itself. As operators of (usually) a large number of buildings and other infrastructures, as major consumers of energy and materials, as employers and training providers, universities are sites where the same problems and challenges are likely to arise as in other societal sectors. Addressing these by transforming campuses into living labs – operated equally by faculty, administrative, and other staff – would benefit the entire organization. On the one hand, the organization can save valuable resources and improve its efficiency by using research capabilities to enhance campus operations and to improve staff wellbeing. On the other hand, sparking internal innovation in line with overarching societal goals puts universities in a position to lead processes of societal change and thus increases their attractiveness to (current and future) students, faculty, and other staff. Mobilizing knowledge on the doorstep provides a significant opportunity for universities and other research organizations to enhance their authenticity, and hence build credibility for future recommendations for deep societal transformations.

To enhance scientific literacy

Despite the significantly increased public visibility of research and a growing presence of science in popular culture, it becomes clear – especially in moments of social crisis – that unfamiliarity with the findings and practices of good research, and even hard-boiled science skepticism, is still surprisingly widespread. To make new robust knowledge beneficial to society, such uncertainties and ignorance must be reduced, and public trust in science built up. This runs through all areas of education and touches upon deep-rooted ideas about the role of evidence, reasoning, and authority in the public sphere. Enhancing understanding of how academic research fundamentally works, i.e., enhancing scientific literacy, is not about creating blind faith in the outcomes of academic work. It is about building basic capacities to understand and evaluate research findings or the (public) statements of experts. It is about making citizens more familiar with the landscape of research fields. That includes making efforts to overcome the stereotype of academic researchers as remote "people in white lab coats," a common portrayal from primary education onwards. Secondly, this implies the need to question the idea of experts as providers of "proven," unambiguous and undeniable solutions to problems for all circumstances. Ultimately, being scientifically literate is more about knowing the limits of the academic approach than knowing its opportunities.

Building such capacities in the first place requires a more differentiated popular concept of science which must include the social sciences and humanities as specific, but equal, approaches. Steering away from one-sided representations of the "hard sciences" as science in itself could be achieved, for example, by increased efforts by the social sciences and humanities to present their theories, methods, and results to the public or to decision-makers. Recurring encounters of researchers and laypeople in dedicated public events and efforts to address educationally disadvantaged groups could help reduce reservations. Researchers, university press officers, journalists, and others engaged in communication about research results should also learn to better convey discourse and disagreement as necessary elements of the research endeavor to fully understand and address these issues. Transparency regarding internal academic debate and negotiation processes is vital to help reduce public suspicion about contradictory statements and research results. Even if it is doubtful that scientific literacy alone leads to more evidence-based decision making – there is no direct path from such literacy to "scientifically desirable" action – understanding how science fundamentally works is a necessary condition for addressing today's complex problems.

To teach communication on complex issues in a critical way

A frequently heard argument for increasing the benefits of academic research for society is strengthening researchers' competencies in communication. Despite the still prevailing reticence of many researchers to address larger audiences, there is a growing awareness that good communication is indispensable today, both for the mobilization of knowledge and for the pursuit of individual careers. With the advent of social media and the resulting democratization of media access to the general public, incentives to engage in outreach activities have become greater – up to the emergence of "celebrity scientists" who have mastered the attention-grabbing game and have won a large number of followers. In conjunction with initiatives to strengthen universities and other research institutions as brands, this is creating pressure to reach out and produce "good PR." This even holds for early career researchers, who increasingly are asked to do training in communication, with respective courses slowly finding their way into study programs.

While there is nothing inherently wrong with understanding the mechanics of good communication (e.g., to produce stories and create comprehensible narratives), there is also a questionable trend towards a rather reduced and instrumental view of it. Given the complex dynamics of today's digital (information) society, it seems necessary to promote an understanding of the fundamental relationships between the academic approach, media, and society. Good communication on complex issues should enable dialogue, not lead to a communicative one-way street. A deeper understanding of good communication can also help to improve public awareness of the complexities involved in research and to prevent any unintended side effects of reaching out to the public. In light of the considerable attention gains promised by simple and compelling headlines, some researchers may be inclined to violate the standards of good scientific practice by concealing the complexity of the scientific debate and the tentativeness of their findings – thus doing damage to all of academic research in the long run. This should be avoided with critical approaches to communication that leave room for both practical issues and fundamental sociological and ethical questions.

Conclusion

Changing world conditions such as the rise of the digital revolution, or trends and events like (un-) sustainable development, climate change, and the current global pandemic are also changing conditions for research, teaching and problem solving for the world's common good. The implications of this for all branches of academic research, but especially for the social sciences and humanities, are significant. We know that meeting contemporary challenges and crises will require behavioral change at every level of society. But for this to occur the socio-cultural, temporal and spatial conditions of everyday behavior and actions must be understood and integrated into the development of solutions. The provision of such understanding is the purpose of the social sciences and humanities, and thus researchers in these fields must play a central role in future knowledge mobilization for more sustainable outcomes.

In this paper we have explored key issues and new strategies to produce and to mobilize new knowledge. Integrating the insights of sustainability science and practice-centered research, we suggest moving everyday practices and individual behavior to the center of future knowledge mobilization. The key policy considerations derived from interviews with 15 thought leaders from around the world highlight the need for the highest possible degree of cultural, social and regional differentiation in research as well as in the formulation of recommended policies

and solution options. The various considerations we put forward fall into three broad categories: increased community participation, institutional and organizational reform, and education and training.

Overall, this paper argues that if inclusivity and integrated knowledge mobilization are not to remain mere lip service, research environments must be created that prevent polarization and foster solidarity among researchers from all fields, and between formally trained researchers and non-academic actors in the larger community. This is a formidable challenge to the scientific community at large, and particularly to those in academia.

Specifically, to increase the willingness among researchers to engage in the proposed strategies for future knowledge mobilization will require significant change within the academic research community itself, including:

1. Broaden the concept of what a scientist is from an authoritative single-issue voice to an authentic partner in knowledge production;
2. Re-structure the academic career rewards system to promote the desire for researchers to become authentic partners in knowledge production with the larger community;
3. Provide opportunities and forums for the engagement of non-academic partners in the study of complex issues and in the development of solution options that touch and affect daily life; and
4. Promote small and medium-sized thematic research networks anchored in regional action centers to accommodate regional diversity in the development of solutions.

These changes in individuals' attitudes and perceptions as well as within institutions will provide the fertile soil necessary for future knowledge mobilization that is necessary for societal transformations needed to address our planet's most pressing problems.

Acknowledgments

We wish to thank the following interviewees for sharing their personal views of the future of knowledge mobilization. The conclusions presented in this paper are, however, the sole responsibility of the authors and do not reflect official views of the individuals or institutions mentioned.

Carlos Álvarez-Pereira (Spain), Engineer and entrepreneur, Executive Committee member of the Club of Rome

Howard Blumenthal (USA, University of Pennsylvania), Media producer and author, founder of the global citizenship project "Kids on Earth"

Dr. Mathieu Denis (Canada/France), Historian, Science Director, International Science Council (ISC), former Executive Director of the International Social Science Council (ISSC)

Prof. Mamadou Diawara (Mali/Germany, University of Frankfurt/M), Anthropologist, Founder and director of Point Sud Bamako: Local Knowledge Research Centre, Deputy Director of the Frobenius Institute for Cultural Anthropological Research

Prof. Anthony Giddens (UK, Member of the British House of Lords), Sociologist, former Director of the London School of Economics

Prof. Helena Henriques (Portugal, University of Coimbra), Paleontologist, Director of the Portuguese Regional Action Center of the International Year of Global Understanding (IYGU)

Garry Jacobs (USA/India, WAAS), Social scientist, President & CEO of the World Academy of Art & Science (WAAS), Chairman of the board of the World University Consortium

Prof. Sebastian Lentz (Germany), Geographer, Director of the Leibniz Institute for Regional Geography (Leipzig), Vice-President of the German Leibniz Association and head of its project group "Mission Statement for Knowledge Transfer"

Prof. Luiz Oosterbeek (Portugal, Polytechnic Institute of Tomar), Archaeologist, UNESCO Chairholder in Humanities and Cultural Integrated Landscape Management, Secretary-General of the International Council for Philosophy and Human Sciences (CIPSH)

Prof. Maria Paradiso (Italy, University of Milan Statale), Geographer, chairperson of the Social Sciences Section of the Academia Europaea, founder and chair of the IGU-commission "Mediterranean Basin"

Dr. Ana Persic (Croatia/France, UNESCO), Ecologist, Acting Chief of Section for Science Policy and Partnerships, UNESCO Division of Science Policy and Capacity-Building, former Science Specialist at the UNESCO Office in New York and Programme Specialist at the UNESCO Man and the Biosphere Programme

Prof. Thomas Reuter (Australia, Asia Institute University of Melbourne), Cultural anthropologist, former chair of the World Council of Anthropological Associations, Board member of the World Academy of Art & Science (WAAS) and Future Earth Asia

Prof. Inguelore Scheunemann (Brazil, Coordinator of Polo Morro Redondo UNESCO Chair of Humanities and Cultural Integrated Landscape Management), Microbiologist and immunologist, President of HERITY International, former coordinator of Science and Society Area of CYTED – Iberoamerican Program of Science and Technology for Development

Prof. Paul Shrivastava (USA/India, Pennsylvania State University), Economist, Chief Sustainability Officer at Penn State University and Director of the Sustainability Institute, former Executive Director of Future Earth

Dr. Lucilla Spini (Italy), Bio-anthropologist, sustainability scientist and science/policy broker with more than 15 years of working experience in the UN System (UNESCO, FAO and UNU), and adjunct positions and/or fellowships at universities (e.g., McMaster University, Canada)

Imagining the future of Knowledge Mobilization:
Perspectives from UNESCO Chairs

K34-14/2021E-PDF

ISBN: 978-0-660-37044-6

Design: Mario Scaffardi

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Research Council of Canada

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