The Collaborative Nature of Innovation

The Role of the **Social Sciences, Humanities,** and **Arts** in the **Canadian Context**

An initiative organized by the **Canadian Association for Graduate Studies** and funded by the **Social Sciences and Humanities Research Council**

CAGS ACES
Canadian Association for Graduate Studies
Association canadienne pour les études supérieures

SSHRC CRSH
Social Sciences and Humanities Research Council of Canada
Conseil de recherches en sciences humaines du Canada

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Participating Institutions

McMaster University

Queen's University

Université de Sherbrooke

Université Laval

University of Manitoba

UNBC University of Northern British Columbia

University of Ontario Institute of Technology

University of Prince Edward Island

University of Regina

Summary

The Canadian Association for Graduate Studies (CAGS) and the Social Sciences and Humanities Research Council (SSHRC) collaborated to provide nine Canadian institutions with the opportunity to host student-led workshops or roundtable discussions on "the role of the social sciences, arts, and humanities in stimulating and advancing innovation in Canada" (I. Wereley, personal communication, September 18, 2023). Although the definition of innovation provided by CAGS was broad, many of the institutional reports placed innovation within a technological context, viewing social innovation as supplementary and intended for support. Given this understanding, innovation as a collaborative practice was the most prominent recurring theme. More specifically, discussions focused on the role of the social sciences, humanities, and arts (SSHA) within this collaborative practice. The primary roles discussed included the integration of connection, person-centred approaches, and ethical considerations. However, participating institutions expressed the existence of barriers limiting SSHA involvement in innovation pursuits. This included misunderstandings of the value and rigour of SSHA work, communication challenges between disciplines, and the organizational structure of academic institutions. Academic institutions were identified as holding the primary power in alleviating these barriers through increased opportunities for disciplinary and community collaboration. However, holistic collaboration may only be possible through a collaborative and innovative endeavour between academic institutions and the individuals that occupy them.

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Introduction

In September of 2023, the Canadian Association for Graduate Studies (CAGS), supported by funding from the Social Sciences and Humanities Research Council (SSHRC), invited twelve Canadian universities to take part in student-led workshops or roundtable discussions on "the role of the social sciences, arts, and humanities in stimulating and advancing innovation in Canada" (I. Wereley, personal communication, September 18, 2023), showcasing the practices and value of social innovation. In total, 174 participants from nine institutions contributed to this project. The participating universities consisted of McMaster University (MU), Queens University (QU), Université de Sherbrooke (US), Université Laval (UL), University of Manitoba (UM), University of Northern British Columbia (UNBC), University of Ontario Institute of Technology (UO), University of Prince Edward Island (UPEI), and University of Regina (UR). All but one of the events had a discussion-based component with three having a precursory presentation. Alternatively, Université de Sherbrooke framed their discussions as student panels categorized based on topic. Most events took place in person with three having supplementary virtual participation. While some events focused solely on the prompt provided, many expanded their approach, exploring the intersection of innovation and: ideal operationalization and conditions (QU, UL), polycrisis (US), research (UM, UPEI, UR), and Indigenous instructional design (UO). The number of participants ranged from eight to 44 with various disciplines present. Further information on the event format, participant number, and disciplines present is available in Table 1.

Table 1: Participating Institution Details

Institution	Event Description	Participants	
		Number	Disciplines
McMaster University	Semi-structured roundtable discussions on the role of the SSHA in stimulating and advancing innovation in Canada	27	Business, Engineering, Health, Humanities, Sciences, Social Sciences
Queens University	Semi-structured roundtable discussion on SSHA innovation with a focus on understanding it, and exploring how to address and support it	20	Art History, Culture, Education, English Literature and Creative Writing, Geography, Global Development, History, Law, Mining, Psychology, Politics, Sociology
Université de Sherbrooke	In-person and virtual student conference on the concept of 'polycrisis' occuring internationally	23	Business, Education, Humanities, Law, Politics, Philosophy
Université Laval	Panels followed by correlating discussions focusing on the operationalization and required conditions for innovation	44	Business, Education, Engineering, International Relations, Kinesiology, Law, Philosophy, Politics, Theology, and more
University of Manitoba	In-person and virtual focus groups on how research in the SSHA contribute to innovation	16	Architecture, Art, Business, Engineering, Health Sciences, Nutrition
University of Northern British Columbia	Presentation, guided questions and open discussion periods on research and innovation broadly	8	Gender, Global and International Studies, Health Sciences, Natural Resources and Environment, Psychology, Social Work
University of Ontario Institute of Technology	Seminar and talking circle focusing on Indigenous instructional design	16	Criminology and Social Justice, Education, Forensic Psychology, Social Innovation and Practice
University of Prince Edward Island	Roundtable discussions on the role of the SSHA in innovation in Canada	10	Engineering, Global Leadership
University of Regina	In-person and virtual semi-structured, arts-based discussions on the role of the SSHA in innovation in Canada	10	Aging Studies, Education, Kinesiology and Health Studies, Public Policy, Social Work

Background

Throughout time, the connotation and understanding of the term 'innovation' has oscillated (Godin, 2015). However, with the introduction of economic and commercial dimensions in the twentieth century, innovation has become primarily a positively connotated term associated with economic development and commercialization (Godin, 2015; Krlev et al., 2018; Ziegler, 2017). As a result, the term 'innovation' as it is typically used refers to a specific form of innovation termed, 'technological innovation'. This refers to innovation concerned with the development of marketable processes or products (Godin, 2015). Contrarily, another specific form of innovation termed social innovation, arising through socialist critiques of capitalism, has developed as a means to challenge systems and structures in a way that contributes to social reform (Godin, 2015; Krlev et al., 2018). Like technological innovation, the connotation and understanding of the term has swayed throughout time. However, in recent times social innovators have become storied as social reformers, forming solutions to problems requiring a socially driven perspective and challenging hegemonic discourses (Godin, 2015; van der Have & Rubalcaba, 2016; Ziegler, 2017). Due to technological innovation's market ties, its legitimacy as a valuable function of society is rarely questioned (Krlev et al., 2018). Meanwhile, social innovation faces barriers due to its ambiguity, being often comprised of immaterial outcomes and having differing beneficiaries and funders – experiences often foreign to technological innovation (Krlev et al., 2018; Mulgan, 2008). [1]

Because the term "innovation" has been subject to varying understandings and connotations throughout its development, it lends itself to ambiguity. So much so that some have argued for its discontinued use (Godin, 2015). As a result, it is important for it to be appropriately conceptualized before it is applied in a new context. While the definition of innovation provided by CAGS was broad, encompassing elements of technological and social innovation, most of the institutional reports that outlined their conceptual understanding of the topic framed innovation within the common understanding of technological innovation, placing social innovation as a supplementary form intended for support. For example, the report by McMaster University outlined that those present "tended to describe innovation predominantly in terms of physical products and/or service and program deliveyr" (p. 6) and the report by University of Regina stated that "attendees' inherent understanding of innovation aligned with the common association of innovation with technological innovation" (p. 6). Conversely, some institutions challenged CAGS definition, pushing back on its emphasis on "product" and monetization. Instead, suggesting that "products, policy, strategies etc. do not have to be the only kinds of things that are innovative and add value to society ... Innovation

[1] derived and altered from the University of Regina report (Melanson, 2023)

can be about innovating attitudes and perceptions" (Queens University, p. 3). However, the institutional reports generally, whether overtly or covertly, considered individuals in SSHA disciplines to be social innovators and individuals in non-SSHA disciplines to be technological innovators. Throughout this report, the term 'innovation' refers to innovation as a general concept of development. The term 'social innovation' refers to socially driven and informed development and the term 'technological innovation' refers to market or product-driven development. In addition, the term 'consumer' refers to any person, community, or stakeholder potentially impacted or actively impacted by an innovation.

The Collaborative Nature of Innovation

Innovation is inherently collaborative (Fontrodona, 2013). Throughout its development, implementation, and use, it has demanded a certain level of relationality between innovators, stakeholders, and consumers. The prompt provided by CAGS encouraged institutions to engage graduate students in discussions on "the role of the social sciences, arts, and humanities in stimulating and advancing innovation in Canada" (I. Wereley, personal communication, September 18, 2023). Despite not overtly mentioning the topic of collaboration, the overwhelming majority of participating institutions repeatedly integrated it into their reports. The three most used terms when discussing the topic of collaborative work between disciplines are multidisciplinary, interdisciplinary, and transdisciplinary. While these terms are often used interchangeably, they hold unique definitions and practices, as outlined by Université Laval. The term "multidisciplinary" refers to an additive approach in which multiple disciplines work alongside one another while staying within their individual boundaries (Choi & Pak, 2006). The term "interdisciplinary" refers to an interactive approach in which multiple disciplines collaborate, leading to integrated knowledge and approaches (Choi & Pak, 2006). The term "transdisciplinary" refers to a holistic approach in which traditional disciplinary boundaries are transcended, often using broader systems as a guiding collaborative principle over limiting disciplinary domains (Choi & Pak, 2006). The term "interdisciplinary" was the most commonly used phrase by participating institutions while referring to the importance of collaborative innovation. This understanding positions SSHA and non-SSHA or social innovation and technological innovation as binarily categorized but collaborative forces.

Although most participating institutions acknowledged the importance of interdisciplinary work, clarity regarding the roles of SSHA disciplines versus non-SSHA disciplines was occasionally lacking. During the McMaster roundtables, discrepancies existed between the perspectives of SSHA and non-SSHA participants on the roles within innovative interdisciplinary work. SSHA participants perceived their expertise as consistently valuable across all stages of the innovation process, while non-SSHA participants tended to view SSHA expertise as primarily beneficial either before or after innovation-focused research. However, the value of interdisciplinary innovation work was evident throughout all institutional discussions. However, it was emphasized by several institutions that the role of SSHA in innovation is undervalued and misunderstood. The most common roles of SSHA in interdisciplinary innovation work included enhanced connection, person-centred approaches, and ethics. **This report aims to showcase the value of SSHA in innovation endeavours, outlining the previously described contributions, exploring the barriers to their application, offering potential solutions, and suggesting a more transdisciplinary approach to innovation development.**

Connection

Within innovation, there is value in connection. As outlined by various participating institutions, a better understanding of individuals and communities leads to better-informed research, resulting in better-informed innovation. Further, connection between innovators and consumers is paramount for effective and ethical innovation (see *Ethics*). Because of SSHA's emphasis on social aspects, its actors generally hold a skill set and approach that encourages increased connection. As a result, as suggested by a participant of the University of Regina, it may be SSHA's role to initiate connections throughout the innovation process whether it be between themselves and non-SSHA disciplines or innovators with consumers and stakeholders.

This connection should be fostered throughout the entire innovation process. Prior to the initiation of an innovation project, SSHA engages with potential consumers and the social structures that impact them. SSHA disciplines and research consult with individuals and communities to understand their experiences, perspectives, and stories. In addition, some forms of SSHA work (ex. philosophy, critical studies) question underlying assumptions and develop a broader understanding of the social and subjective. Through translating this works into digestible forms (i.e. academic articles and presentations), they provide non-SSHA disciplines with the necessary context to develop meaningful, equitable, and ethical innovations for consumers and stakeholders (see *Ethics*). During the innovation process, SSHA allows for continual contextualizing and feedback from those impacted. As expressed by the University of Prince Edward Island, by connecting consumers to innovators before and during innovation, SSHA "can help to focus an innovation on legitimate needs, ensuring representative voices to inform tailoring the innovation to engage user buy-in, and conduct holistic broad analysis of potential and actual impacts for users and communities" (p.7). After the development of innovations, SSHA disciplines play an important role in connecting them to the intended consumers as their "expertise is needed to transfer knowledge and educate people on what services are available to them" (McMaster University, p. 9). This may be through direct connections where an individual within SSHA works alongside individuals or communities to connect them to innovations (i.e. social work). Alternatively, it may be through more indirect approaches such as marketing or knowledge translation forms that inform consumers of available innovations.

Person-Centred Approaches

Without integrating SSHA perspectives, innovators risk failing to consider the role of individual and collective experiences, perspectives, and stories. SSHA approaches ensure that innovations are informed by person-centred perspectives that value subjectivity both

individually and collectively. Person-centred, in this context, refers to the application of the values of Carl Roger's "person-centred" therapy model (Haselberger & Hutterer, 2013) supplemented by other humanistic thinkers such as Freire that emphasize relational empowerment and social justice perspectives (Jacobs et al., 2017). These values, in a research or innovation setting, involve an emphasis on personal experiences, involvement of persons, and meaning for persons (Haselberger & Hutterer, 2013). Previously, person-centred approaches and their associated values have been compared to those of social innovation (Haasis, 2013). As a result, the integration of this focus throughout the innovation process is typically the role of social innovators or SSHA collaborators. Various institutions reported the importance of approaching innovation with a person-centred focus, especially emphasizing the previously mentioned values of personal experience and involvement of persons.

Personal Experience

The value of personal experience was supported by several institutions. This included both the innovator's personal experience and the consumer's personal experience. As one participant from the University of Regina expressed, "what good are innovations unconnected to the human experience?" (p. 7). To preface the importance of the innovator's personal experience, a statement from Rogers (1995) asserts that "it is indeed in the matrix of immediate personal, subjective experience that all science, and each individual scientific research, has its origin" (p. 217). Participating institutions such as Queens University, the University of Northern British Columbia, and Université Laval touched on the role of the innovator's personal experience in innovation development and the resulting importance of reflection. This is summarized in the report from Université Laval when it is explained that "the person at the origin of the innovation project needs to remain aware of his or her own biases and epistemological frameworks to avoid undertaking useless projects or ones that take a non-beneficial direction" (p. 6)[2]. Certain SSHA disciplines (ex. psychology, sociology) provide frameworks for approaching reflexive work that imparts innovators with an increased understanding of their biases and epistemology. Most participating institutions also emphasized the role of the consumer's personal experience in innovation development. The impact of considering consumers' personal experience included increased: (a) benefits and solutions for users, (b) addressed needs of users, and (c) informed ethical considerations that protect users (see *Ethics*). Ultimately, it was expressed that it is individuals in the SSHA disciplines or social innovators who are responsible for orienting technological innovations to the users' experience "by asking person-centred questions that provide the 'stories behind the numbers'" (University of Regina, p. 6-7).

[2] translated from French to English via DeepL software

Involvement of Persons

While SSHA disciplines can act as connecting mediums between consumers and innovators (see *Connection*), it is important to remember that consumers are the experts or persons of knowledge for their own experience. The University of Ontario Institute of Technology provided context for this. They explained that the dominant research paradigm, as a product of a Eurocentric worldview, conceptualizes researchers as "the source and owner of knowledge" (p. 7). However, other paradigms, such as an Indigenous worldview, conceptualize knowledge as being under "joint ownership" (Wilson, 2008; Sayers, 2024 as cited by the University of Ontario Institute of Technology). As such, in an ideal innovation process, consumers and their knowledge should be as directly involved as possible. Several of the institutions alluded to an increased involvement of consumers in innovation development. This could ensure that adequate value is attributed to their experiences, perspectives, and stories and that they maintain a level of ownership over the knowledge they contribute. As described by Université Laval, the integration of experiential and endogenous knowledge, using a transdisciplinary and holistic approach, enriches innovation and ensures that concrete and tailored benefits are produced. Due to the relational endeavours of SSHA, it is their role in an innovation context to advocate for the value and increased involvement of those impacted.

Ethical Considerations

Innovation holds the potential for significant ethical implications due to its multifaceted impact on behaviours, socioeconomic relations, power relations and environment (Wessel et al., 2018). Further, as stated by Université Laval, "innovation can only embody progress and the betterment of society if it is carried out responsibly" (p. 8)[3]. Innovation is guided by research ethics requirements due to the intersection of science and innovation development. However, technological innovation specific ethics are generally underdeveloped, lacking widely accepted ethical methods (i.e. health technologies) (Wessel et al., 2018). Within the domain of technological innovation, there appears to be an emerging ethics practice organized into three categories: (a) "ex ante" or the beginning phase of innovation development, prior to tangible design or application; (b) "intra" or the translation phase where concrete designs are being developed; and (c) "ex post" or the retrospective phase after the existence of an innovation. Within these phases, various SSHA expertise are recruited in a multidisciplinary fashion. Ethicists and "foresight specialists" may be consulted in the ex ante phase; ethicists, policy makers, and researchers may be consulted in the intra phase; and ethicists, institutional bodies, and sometimes the general public (potentially through qualitative means) are consulted in the ex post phase. However, these consultations, framed within a multidisciplinary approach, appear to be quite brief and calculated. This leaves little room for the subjectivity and

[3] translated from French to English via DeepL software

ambiguity valued in social innovation and SSHA disciplines, leading to meaningful ethical outcomes. As a result, many of the institutions alluded to a need for increased SSHA involvement in innovation projects.

The concept of ethical, moral, or responsible innovation was reported by most participating institutions. While their definitions varied slightly, the general understanding was summarized well in Université Laval's description of responsible innovation as "innovative solutions that respect ethical, social and environmental standards" (p. 10)[4]. However, some institutions emphasized going beyond "standards", taking a more moral or subjective approach. A participant from the University of Manitoba outlined the difference between ethics and morality, explaining that "ethics is an external code of conduct, but morality is linked [to] individual thinking about what is right versus what is wrong" (p. 1). Regardless of the defining framework, discussions surrounded the role of social innovators and SSHA disciplines in promoting responsibility in technological innovation processes. Some institutions attributed this to SSHA's role in philosophical thought. As outlined by the University of Manitoba, "the social sciences, arts and humanities challenges/question the ways in which innovation is framed that may not prioritize societies' ethics, morals or ways of thinking" (p. 2). However, most institutional reports tied the achievement of ethical, moral, or responsible innovation to the integration of social innovation's values of person-centred approaches (see *Person-Centered*) and/or connection (see *Connection*) and their resulting considerations surrounding equity.

SSHA Values and Responsible Innovation

The previously mentioned SSHA values of connection and person-centred approaches significantly contribute to the SSHA's ability to encourage responsible innovation in collaborative work. For example, Université Laval explained the function of SSHA-based person-centred approaches in promoting responsible innovation, stating that "by focusing on understanding the behaviors, needs and aspirations of individuals, the human sciences contribute to the creation of human-centred solutions ... encouraging [innovators] to integrate ethical values and design innovations that genuinely meet society's needs and values" (p. 8).[5] Other institutions, such as the University of Manitoba, attributed SSHA's capacity for connection with community as a driving factor for responsible innovation. They explained that "community-based participation in research leads to innovation that is more empathic of the needs of community, culturally grounded and specific rather than universal and, ethical in the way the research and innovation is conducted" (p. 1). By integrating SSHA values, innovation

[4] translated from French to English via DeepL software
[5] translated from French to English via DeepL software

(specifically technological) becomes more considerate of its impact on individuals and communities, encouraging ethical practices and outcomes.

Resulting Equity Concerns

The SSHA values of person-centred approaches and connection with community, showcasing individual and community impact, demand a stark awareness of social justice-related concerns. The importance of diversity in innovation projects was outlined by several participating institutions. One of which, the University of Regina, explained that "technological innovations often fail to consider the experience of and impact on diverse populations" (p. 7). This was echoed by the University of Prince Edward Island as one of their primary discussion themes was the importance of integrating diverse values and voices into the innovation process. Person-centred approaches incorporating personal experiences and involvement alongside connection with community amplify diverse perspectives and voices in the SSHA research context. The integration of diverse voices in innovation endeavours promotes accessible, equitable and inclusive innovation through its understanding of diverse experiences. However, this integration is not possible within a technology innovation context without collaboration between SSHA and non-SSHA domains.

Limitations of Research Ethics Boards

While the topic of research ethics boards (REB) was not prominent in most institutional reports, important conversations surrounding their role and impact were included by McMaster University and the University of Ontario Institute of Technology. These institutions questioned REBs' ability to adequately assess ethical considerations in a broader context without increased social innovation. A participant from McMaster University suggested that ethics approval processes for non-SSHA domains should include social and cultural considerations driven by SSHA expertise. While discussions at the University of Ontario Institute of Technology challenged REBs' ability to review research by Indigenous researchers and/or Indigenous research methods, suggesting that Indigenous communities develop their own ethical research frameworks. Because research is such a monumental factor in the innovation process, as are research ethics boards. It is important that the appropriate voices are being considered in this process, whether it be SSHA domains broadly or Indigenous perspectives.

Barriers

Participants at McMaster University discussed barriers to SSHA involvement in innovation pursuits, many of which were echoed covertly in other institution reports. The first barrier is a poor understanding of the purpose or value of SSHA expertise in an innovation context leading to decreased justification of cost. As elaborated on by the University of Regina and Queens University, SSHA and social innovations' value can be ambiguous due to its

sometimes “immaterial” outcomes. In contrast, technological innovations’ value is rarely, if ever, questioned due to their market ties and influence on capital (Krlev et al., 2018). A participant from the University of Manitoba explained that it may be the role of SSHA to reframe or redefine innovation so that it is more widely associated with SSHA and social innovation. The second barrier is misunderstandings of SSHA as lacking rigour by non-SSHA disciplines. The third barrier is the phenomenon of discipline specific jargon making collaborative work more difficult. As expanded on by Université Laval, a shared language is crucial for avoiding misunderstandings. The fourth barrier is the organizational structure of academic institutions as disciplinary silos. Queens University supported this, explaining that “students are so often divided between faculties and have little opportunities to come together and learn” (p. 3). However, Université Laval reminds us that discipline categorizations are socially constructed and, therefore, can be altered.

Solutions

Many of the participating institutions identified academic institutions as holding the power to encourage collaborative work and dismantle barriers limiting innovation from a social perspective. Namely, they advocated for increased disciplinary and community collaboration. However, these changes rely heavily on the current academic organizational structure, which limits collaboration to solely multidisciplinary or interdisciplinary approaches.

Disciplinary Collaboration

Many participating institutional reports expressed that academic institutions need to encourage collaborative work between disciplines in order to foster innovation. Some institutions such as McMaster University and Université Laval suggested the integration of SSHA approaches (ex. Ethics, critical studies) into non-SSHA disciplines with hopes that it may encourage an improved perception of the value of SSHA in innovation. These same institutions, alongside Queens University, also advocated for more cross-faculty courses that would provide opportunities for “demonstrating how interactions between fields of knowledge can lead to responsible innovation” (Université Laval, p. 9)[6]. Additionally, these institutions’ called for increased offerings of collaborative programs or enhancement of existing collaborative programs. This is summarized by Queens University:

> Interdisciplinary programs at universities were brought up. Such programs could be seen as a way to create more dialogues between fields ... However, it was also noted that given the sometimes-entrenched nature of disciplinary silos at universities, even a program that is intended to embrace interdisciplinarity can still feel disconnected (p. 4).

[6] translated from French to English via DeepL software

This disconnection may lead to struggles such as complex graduation requirements or unrecognized diplomas in industry within current collaborative programs, as suggested by Université Laval. This may be alleviated through McMaster University's proposal of institutionalizing collaborative practices with clear guidelines and frameworks.

Community Collaboration

Academic institutions can alleviate barriers to social innovation and enhance the value of SSHA in technological innovation by providing opportunities for community collaboration. As stated by McMaster University, "there is a lack of institutionalized networks and effective communication channels between academic institutions ... and communities" (p. 13). Some participating institutions attribute this directly to academic culture. For example, McMaster University calls for shifts in academic culture, identifying current knowledge translation practices and the 'publish or perish' culture for lack of community-accessible knowledge and community engagement. While other institutions attribute this to current curricula practices leading to, as University of Northern British Columbia described, a lack of engagement and access to stakeholders. Université Laval, University of Northern British Columbia, and Queens University suggested a solution through increasing student experiential learning opportunities, bringing academics into communities (i.e. internships, fieldwork). In addition, Queens University proposed increased student training in community outreach, networking, and partnership development. SSHA disciplines' innovative value lies heavily in their relationships and relational skills. Academic institutions must provide the means to pursue relationships and develop the corresponding skills for SSHA's innovative value to be fully actualized.

Transdisciplinary Approaches

Throughout the institution discussions and this report, innovation has been categorized binarily, often presented as SSHA versus non-SSHA, social innovation versus technological innovation, and innovators and consumers. These categorizations maintain a limiting multidisciplinary or interdisciplinary collaborative practice in which disciplines or other determining factors (ex. education level, paradigm) act as barriers to holistic collaboration and meaningful innovation. The previously outlined barriers would be resolved or have a decreased presence within a transdisciplinary context, less defined by academic silos and elitism. In reference to academic silos, Université Laval explained that "disciplines were created primarily to organize educational systems. As categories and groupings are largely subjective, they could be reviewed or abolished" (p. 9).[7] However, it would take significant alterations to the current academic structure. Further, due to the ingrained disciplinary nature of universities, the promotion of transdisciplinary approaches must be done not only through a top-down

[7] translated from French to English via DeepL software

approach (change from academic institutions) but also a bottom-up approach (change from individuals) (Rocha et al., 2020). Perhaps due to this complexity, participating institutions did not propose tangible suggestions surrounding this topic. However, some related propositions that may encourage a transdisciplinary paradigm were provided, including:

- decolonization efforts in science and knowledge (Université Laval)
- development of novel spaces or communities wherein indigenous knowledge and traditional academic knowledge are equally valued (University of Ontario Institute of Technology)
- decreased gatekeeping of research areas or fields (McMaster)
- increased community relationships and perceived value of lived experience (Queens University, University of Manitoba, University of Northern British Columbia, University of Prince Edward Island, University of Regina)
- increased acceptance of flexible research frameworks (University of Manitoba)
- fostering of creativity (University of Northern British Columbia)

Promoting these suggestions may lead to a less restrictive academic culture, promoting enhanced innovation opportunities. While academic institutions do hold significant power to alleviate collaboration barriers, they are heavily influenced by the individuals within them. Academic institutions and the individuals that occupy them (ex. administrators, graduate students, instructors) may themselves need to collaborate on innovative pursuits in order to challenge current academic structures that restrict collaborative innovation.

Appendices

Appendix 1: Final Report - McMaster University

Author: N/A

Appendix 2: Final Report - Queens University

Author: N/A

Appendix 3: Rapport Final - Université de Sherbrooke

Author: Florence Choquette

Appendix 4: Rapport Final - Université Laval

Author: Simon Bilodeau-Carrier

Appendix 5: Final Report - University of Manitoba

Author: N/A

Appendix 6: Final Report - University of Northern British Columbia

Authors: Katerina Standish, Gabrielle Daoust

Appendix 7: Final Report - University of Ontario Institute of Technology

Authors: Victoria Baker, Ashlee Quinn Hogan

Appendix 8: Final Report - University of Prince Edward Island

Author: N/A

Appendix 9: Final Report - University of Regina

Author: Elise Melanson

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