

The population health impact of community-campus engagement (CCE): A qualitative study to understand knowledge translation within CCE that addresses community safety and well-being priorities in Ottawa and Thunder Bay

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Preface

Author contributions

Chloe Chambers (CC) is the sole author of the material presented in this thesis. She was supervised by Dr. Claire Kendall (CK). With guidance from Dr. Claire Kendall (CK), Dr. David Buetti (DB), Dr. Ian D. Graham (IDG), Dr. Katie Hemsworth (KH), Sydney Persaud (SP), Karen Kerk (KK), and Dr. Michael Fitzgerald (MF), she developed a detailed study protocol, which was approved by the School of Epidemiology and Public Health. CC conducted the literature review, the analysis, and wrote the article-based thesis. She was involved in the primary data collection, in collaboration with KH, KK, and SP. CK, DB, and IDG comprised the Thesis Advisory Committee who all provided insight and feedback in the development and writing of the thesis.

Ethics review and approval

This project received ethics approval from the Bruyère Health Research Institute Ethics Board (Study # M16-23 009) and the University of Ottawa Office of Research Ethics and Integrity (File #H-07-23-9478) and the ethics review boards all participating post-secondary institutions in CityStudio that were also included in the study contained in this thesis (Algonquin College, Carleton University, Confederation College, Lakehead University, and The University of Ottawa).

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A note on terminology

The Canadian Institutes of Health Research recently shifted from using the term knowledge translation (KT) to using the term knowledge mobilization (KM), which has an associated shift in the definition and guidance for researchers. This thesis was conducted and written almost entirely while the CIHR was using the term KT, but its findings remain relevant to KM research and initiatives. For more information, please visit this site to read about the updated [CIHR KM Strategy and Action Plan](#).

Abstract

Background: Community-campus engagement (CCE) refers to collaborative partnerships between academic institutions, municipalities, and community organizations that has the potential to address population health issues. This thesis sought to describe how knowledge is translated within CCE and identify the barriers and facilitators to the knowledge translation (KT) process.

Methods: We conducted an exploratory, qualitative study, interviewing 39 instructors, students, city staff, and community organization staff involved in CCE projects, and using a semi-deductive, semi-inductive analysis approach.

Results: Four distinct phases of KT arose within the model of CCE we examined: knowledge co-production, knowledge tailoring, knowledge sharing, and knowledge application. Partner engagement, diverse knowledge sources, and connection to place facilitated KT, while several logistical, contextual, relational, and systemic factors emerged as barriers.

Conclusions: Interest-holders may consider adopting a purposeful KT approach within CCE that prioritizes bridging the gap between knowledge production and use.

(141 words)

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Finally, I dedicate this thesis to my family. Mom, Dad, and Kels, I love you all so much. You are the reason I am here today (in Greece, no less) and the reason I am sure my future is bright. You push me to be thoughtful, kind, generous, confident, patient, critical, funny, determined, principled, and a citizen of the world. I know that whatever I do in this life, you will always be my biggest supporters. You know all too well how much I struggled with this degree, but even when I felt like the task ahead was truly insurmountable, I kept going because of you, doing my best, one day at a time. After all, if you do your best, can you do any better?

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List of Abbreviations

CBR/CBPR: Community-based research/community-based participatory research

CCE: Community-campus engagement

CIHR: Canadian Institutes of Health Research

COREQ: Consolidated Criteria for Reporting Qualitative Studies

CS: CityStudio

CSL: Community service-learning

CSO: CityStudio Ottawa

CSTB: CityStudio Thunder Bay

CSWB: Community Safety and Well-Being

ES: Engaged scholarship

GIS: Geographic information system

iKT: Integrated knowledge translation

KE: Knowledge exchange

KM: Knowledge mobilization

KT: Knowledge translation

KTE: Knowledge transfer and exchange

KU: Knowledge user

PAR: Participatory action research

PSI: Post-secondary institution

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Thesis structure

This thesis is written in the ‘thesis by article’ format that adheres to the School of Epidemiology and Public Health guidelines.

Chapter 1: This is the introductory chapter that describes the state of the literature and the gaps in our understanding, the rationale and objectives of the study, and the conceptual framework.

Chapter 2: This stand-alone journal article manuscript describes the exploratory, qualitative study that examines how knowledge is translated within CCE projects that address population health. This details the research that addresses Objectives 1 and 2 of the thesis.

Chapter 3: This is a chapter prepared to situate a separate applied KT initiative that supported the larger research project within my thesis. It is a brief description and reflection on the preparation of two KU-oriented research summary reports. This chapter addresses Objective 3 of the thesis.

Chapter 4: This chapter offers an integrated discussion of the overall thesis that expands upon findings in Chapter 2 and links the findings with the reflection in Chapter 3. It presents implications for interest holders, explores strengths and limitations of the thesis, and provides areas of potential future research.

Citations are in APA throughout the thesis to match the style required by the target journal for the article presented in Chapter 2, the *Journal of Higher Education Outreach and Engagement*.

Chapter 1: Introduction

1.1 Engaged scholarship: The responsibility of post-secondary institutions to address pressing societal issues

Post-secondary institutions (PSIs) are sites of innovation, where knowledge, skills, learning, dialogue, and resources are concentrated and fostered. Boyer (1996) claimed that the emphasis of scholarship within PSIs on “discovery,” or the simple advancement of knowledge through basic research, needed to be reassessed. He asserted that scholarship must also involve the integration of information across disciplines, the systematic study and improvement of teaching and learning processes, and the meaningful application of “the rich resources of the university to our most pressing social, civic, and ethical problems” (Boyer in Bowen, 2015, pp. 8–9). Several authors developed the concept of engaged scholarship (ES), which attempts to bridge the gap between research and teaching activities and key community issues (Boyer, 1996; Van de Ven, 2007). According to Hall (2009), PSIs are an “underutilized resource for community change and sustainability” (p.13), with the potential, and responsibility, to support health system change and community well-being, but in order to do so, they must be attuned to the health and well-being priorities of the community. In response to increased calls for the centering of community voices and community issues to guide research and teaching, many North American PSIs have included community engagement and public service as part of their mandates (Koepke et al., 2020). This thesis focuses on one way in which PSIs attempt to address this call to action: community-campus engagement, or CCE.

1.2 What is community-campus engagement (CCE)?

CCE refers to partnerships between PSIs and their communities to address key social, civic, and ethical challenges that affect their community, bringing together administrators, faculty, students,

community leaders, grassroots organizations, members of the public, and more (Bringle & Hatcher, 2002; Levkoe et al., 2023; Silverstrone, 2011). The Carnegie Foundation present another helpful definition: “the collaboration between institutions of higher education and their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity.” (American Council on Education, n.d.). CCE has the potential to create innovative solutions that harness varied expertise and skills, institutional resources, and community lived experience to have a positive impact on the community and to provide both hands-on learning opportunities for students and opportunities for capacity building for community partners (Andrée et al., 2016; Bernardo et al., 2012; Middleton & Whitmore, 2017).

Activities within the overarching framework of CCE can take many forms, including community-based research (CBR), participatory action research (PAR), and community service learning (CSL). While there are key distinctions between research-focused CCE (CBR, PAR) and learning-focused CCE (CSL), all forms strive towards the collaborative creation of knowledge, capacity building, and action that benefits both community and campus partners (Andrée et al., 2016; B. Hall, 2009; Kepkiewicz et al., 2018a).

Through CCE, higher education institutions demonstrate accountability to their communities by prioritizing community-driven research and teaching, supporting work towards reducing inequities in population health (Boelen & Heck, 1995; Koepke et al., 2020). Indeed, CCE is increasingly being used as a strategy address health issues. Drahota and colleagues (2016) conducted a review of articles on community-academic partnerships published from 1993-2015 and found the most common primary area of study was public health/medicine. By co-developing innovations and solutions to community-identified issues, CCE ensures that the

knowledge produced within these partnerships is grounded in community experience, which increases relevance and feasibility of interventions and innovations within specific community settings, furthering the potential impact of research findings towards the identified problems and can ultimately help restore community trust in health systems (Bringle & Hatcher, 2002; Drahota et al., 2016; B. Hall, 2009; Israel et al., 2001; Naylor & Buck, 2018). CCE's proximity to municipal and community decision-making means innovative findings can be quickly applied to bring about positive health system change (Buetti et al., 2025). However, the ability for these collaborative partnerships to bring about such system change is dependent on whether the knowledge produced is relevant and is packaged and shared in a way that can be understood and used.

1.3 What is knowledge translation (KT)?

Researchers, health practitioners, decision makers, community leaders, and members of the general public all have a vested interest in ensuring that new knowledge generated from research and collaborative partnerships, such as CCE, are used toward its intended goal of effecting positive change. However, there remains gap between knowledge production and its use that scholars, policy makers, institutions, and even countries, governments, and organizations, are attempting to address (Bowen & Martens, 2005; *Global Research Agenda on Knowledge Translation*, n.d.; Hanney et al., 2003). Disciplines and countries differ in the terms they use to refer to the activities that attempt to bridge this gap: knowledge translation (KT), knowledge mobilization (KM), knowledge transfer and exchange (KTE), and implementation science, among others. In the Canadian health research context, the term that has been adopted widely is knowledge translation, or KT, which is defined by the Canadian Institutes of Health Research (CIHR) as a “dynamic and iterative process that includes the synthesis, dissemination, exchange

and ethically sound application of knowledge to improve health status, provide more effective health services and products, and strengthen the healthcare system" (Canadian Institutes of Health Research, 2012). Table 1 provides the CIHR definition for each of these KT terms.

Table 1. Definitions of terms used within the CIHR conceptualization of KT

Concept	Definition
Synthesis	“The contextualization and integration of research findings of individual research studies within the larger body of knowledge on the topic.” E.g., realist syntheses, meta-analyses, practice guidelines
Dissemination	“Dissemination involves identifying the appropriate audience and tailoring the message and medium to the audience.” E.g., Summaries or briefings for interest holders, educational sessions, media engagement
Exchange	“Effective knowledge exchange involves interaction between knowledge users and researchers and results in mutual learning through the process of planning, producing, disseminating, and applying existing or new research in decision making.”
Application	“The term application is used to refer to the iterative process by which knowledge is put into practice,” contributing to improved health in a way that is “consistent with ethical principles, norms, social values, as well as legal and other regulatory frameworks.”

Note. From the Canadian Institutes of Health Research Glossary of Funding-Related Terms, 2007

KT encompasses activities to move research findings or knowledge into the hands of knowledge users (KUs) – those who will use or apply findings or those who are impacted by them – to

support uptake and application within practice or policy (Canadian Institutes of Health Research, 2007).

KT has moved from a “knowledge transfer” paradigm to an “engagement paradigm,” (Bowen & Graham, 2013, p. S4), with increasing evidence that suggests efforts to move knowledge into practice are sometimes unsuccessful if the knowledge produced in the first place is not pertinent, timely, and useful within a particular context (Bowen, 2015; Bowen & Graham, 2013; Greenhalgh et al., 2016; Jull et al., 2017). In recent years, there has been a push for consistent engagement of KUs throughout the research process to ensure collaborative production of knowledge (Bowen & Graham, 2013; Cameron et al., 2025; Drozdowska et al., 2025). This helps to drive targeted research activities by providing information about contextual factors that might influence the ability to share the findings and the overall impact of the research (Elsabbagh et al., 2014; Maurer et al., 2022). For example, it can inform more culturally appropriate recruitment strategies or methods of data collection, improve interpretation of study findings, or contribute to the credibility of research findings (Drozdowska et al., 2025).

Thus, the concept of integrated knowledge translation (iKT) was developed by the CIHR (Bowen & Graham, 2013; Jull et al., 2017), which emphasizes active partnership with KUs throughout the research process. iKT, just like KT, is just one term among many (e.g., co-creation, co-production, Mode 2 research) that vary between countries and disciplines, as well as in certain motivational and theoretical underpinnings (Bowen, 2015; Jull et al., 2017; Nguyen et al., 2020). However, all these terms describe attempts to achieve the greatest impact by generating knowledge and findings that are relevant and useful by collaborating and integrating diverse perspectives throughout the knowledge production process (Graham et al., 2019; Van de Ven, 2007). According to Bowen and Graham (2013), “this evolution, from transfer to engagement, in

KT theory and practice is occurring alongside, and in response to, other challenges to traditional research approaches, and reflects increasing societal expectations that knowledge must not only be scientifically valid, but also socially robust.” (pp. S5)

1.4 What is the relationship between KT and CCE?

Many scholars have highlighted the overlap between activities conducted as part of the CCE process and those that are undertaken within iKT or other KT strategies focused on the collaborative production and exchange of knowledge (Leggat et al., 2023; Levkoe & Kepkiewicz, 2020; Phipps, 2011). Therefore, one conceptualization of this relationship is that CCE is a strategy of KT, or more precisely, iKT. Both assert that partnerships between community partners and researchers improves communication and trust, promoting knowledge exchange and mobilization (Drahota et al., 2016; Elsabbagh et al., 2014; H. Hall et al., 2022; Jull et al., 2017; Nelson & Stroink, 2020). Some differences exist in motivational underpinnings, origins, and strategies. For example, while iKT addresses a need to increase knowledge uptake and use, CCE is driven more strongly by social change, civic responsibility, and emancipatory education (Bowen, 2015; Jull et al., 2017; Nguyen et al., 2020). CCE likewise tends to be more concerned with reducing power imbalances within these collaborative relationships, and while iKT is often attuned to these dynamics, the primary goal is focused on making research relevant (Jull et al., 2017; Leggat et al., 2023). Despite their differences, however, both iKT and CCE call for mutually beneficial relationships between researchers and KUs to draw on KU knowledge of the context (e.g., local health systems) and co-create knowledge that is relevant to KU or community-identified issues.

Other scholars have suggested that CCE alone is not sufficient to both produce and move knowledge into the hands of decision makers to ensure it is understood and used. Middleton and

Whitmore mapped two CCE projects onto a model of knowledge mobilization that identifies the various functions of knowledge mobilization at the ‘interfaces between knowledge, practice and policy’ (Middleton & Whitmore, 2017). The authors assert that “[e]ngagement activities do not simply provide a bridge between different worlds that may have difficulty talking to each other,” and that without accessible and intentional communication, the potential impacts for policy and practice may be poorly informed, and that knowledge mobilization is a helpful tool for facilitating dialogue and building relationships (2017, p. 461). Wilson and colleagues identified that CCE can be successful at promoting knowledge application at local levels, through partnerships and a culture that supports the integration of research evidence into an organization (Wilson et al., 2010). However, they also proposed a framework for additional activities within CCE that have the potential to result in better-informed and applicable knowledge production, such as engaging community in systematic literature reviews and providing dedicated funding for linking CCE on larger scales. This literature highlights that activities to support the communication, dissemination, and implementation of co-produced knowledge through CCE are necessary to bring about health systems change. According to Corcuff and colleagues (2024), “the need for tailored knowledge mobilization strategies” (p. 7) is particularly important for collaborative approaches between researchers and municipalities, given the complex setting. Within the city or community setting, there are often multiple organization with decision making authority, and each may seek or value a different type of evidence (Armstrong et al., 2013; Corcuff et al., 2024; Kothari & Armstrong, 2011).

These can be true simultaneously; although the literature demonstrates CCE’s potential to bring about targeted co-production of knowledge, it may require a greater consideration of how to ensure the knowledge is shared and understood. The relationship between CCE and KT is

muddy, and more research is needed to develop our understanding of how KT occurs within and through CCE, particularly because CCE's potential to effect positive health changes hinges on the production, exchange, dissemination, and application of relevant knowledge.

1.5 What is the gap in the literature?

1. There is a gap in the literature on the practical KT process within CCE

Much of the literature on CCE focuses on its effective implementation, participant experiences, or outcomes such as increased capacity, relationship-building, or skill development (Akintobi et al., 2023; Allen, 2009; Kniffin et al., 2020; Levkoe et al., 2023), but rarely examines the practicalities of KT. Some literature also identifies more distal impacts of KT, such as changes in program governance, policy impact, or health outcomes from individual partnerships (Buetti et al., 2024; Han et al., 2021; Luger et al., 2020; Spoth et al., 2011), but little literature exists that outlines precise KT activities to get knowledge from CCE into the hands of decision makers and other KUs.

2. There is a gap in the literature on KT and CCE within the service-learning context

The studies that have explicitly investigated KT in CCE have tended to focus on community-based or community-based participatory *research* (Flicker et al., 2007; Jull et al., 2017; Middleton & Whitmore, 2017; Wilson et al., 2010). Although CBR and CBPR involve methods of collaborative knowledge production that diverge from more traditional research processes, they are still centered around the systematic process of scientific inquiry that often produces traditional research outputs, such as papers and academic presentations (Amauchi et al., 2022; Reynolds, 2009). CSL, however, is centered around teaching and learning. Students' learning is integrated into community service in a way that promotes deeper understanding of the

organizational or professional context and provides hands on learning that directly address their learning objectives, while contributing to the needs of the community (Bringle & Hatcher, 2002; Reynolds, 2009).

Flicker and colleagues provide a snapshot of community-based participatory research in Canada, describing the frequency with which certain outputs occur within CBR, including presentations, papers, and policy recommendations (Flicker et al., 2007). Traditional academic outputs that emerge from CCE can be helpful for community organizations in their strategic planning or funding applications (Andrée et al., 2016). CCE project outputs, however, can include a range of items, from toolkits and guides to public education campaigns and creative outputs, such as storytelling, in addition to traditional academic outputs, including conference presentations and academic papers. Such forms of evidence are used in decision-making (Bowen & Graham, 2013; Chunharas, 2006), however, are often not perceived as equally valuable (Banner et al., 2019; Cameron et al., 2025; Israel et al., 2001).

1.6 Thesis objectives

This thesis attempts to respond to these gaps in the literature by addressing the following two objectives:

1. Describe how knowledge is translated within CCE projects that address key community and population health issues, and
2. Identify the barriers and facilitators that shape the KT process within CCE

This thesis provides an updated picture of KT within CCE that both captures the breadth and diversity of knowledge produced and knowledge outputs that extends beyond traditional academic outputs and the potential for CSL to contribute to evidence-based decision- and

policymaking surrounding population health and community safety and wellbeing. This work will also deepen our understanding the unique role of municipalities within CCE and offer additional insights into the way contextual factors shape KT within community settings.

The third objective encompasses a separate KT initiative that contributed to the larger research project that became a relevant addition to my thesis:

3. To situate my work producing two decision-maker oriented research summary reports within my thesis and provide a brief narrative reflection on my experiences with the process

1.8 The CityStudio model and larger research study

This thesis is part of a larger, CIHR-funded project that sought to understand how CCE can contribute to population health in two distinct Ontario municipalities, Ottawa and Thunder Bay. Since 2019, Ontario municipalities have been required to develop and implement Community Safety and Well-Being (CSWB) Plans that identify local safety and well-being concerns and provide evidence-based solutions or initiatives that work toward addressing them (Government of Ontario, n.d.). CityStudio (CS), a project-based model of CCE, was launched in Ottawa in 2021 and Thunder Bay in 2023 to support the cities' response to the priority areas of their respective CSWB Plans. The study examined five of the CSWB priority areas that overlapped between Ottawa and Thunder Bay: racism and discrimination, housing and homelessness, violence and gender-based violence, poverty, and mental health and substance use (Community Safety and Well-Being Plan 2021-2025, n.d.; Emergency and Protective Services Department, 2021). CS brought together the cities of Ottawa and Thunder Bay, five local PSIs (Algonquin College, Carleton University, Confederation College, Lakehead University, and The University

of Ottawa), and community organization partners to innovate towards these health priorities and deepen collaborative relationships across institutions and sectors.

The CS model aims to bring partners together to “collaborate on projects and co-create solutions” (*The CityStudio Model*, 2023). The CS model, as implemented in Ottawa and Thunder Bay, consists of a five-stage collaborative project cycle:

- 1) Convene: municipal staff brainstorm potential collaboration opportunities,
- 2) Match: opportunities are aligned with relevant courses and partnerships are formed between faculty and city staff,
- 3) Develop: students, supported by CityStudio faculty and staff partners, work on their projects,
- 4) Test: projects are developed and tested within the community, and
- 5) Present: students present their final deliverables sharing their work with city staff and celebrating top projects with the community.

Projects are primarily service-learning projects, course-based or for-credit immersive experiences that typically span an academic semester, where students learn through active participation in a service activity to address a community need (Bringle & Hatcher, 2002). A few students were honors or master’s students who worked with a faculty member on a CS project that fulfilled their thesis or research requirements.

1.9 Conceptual framework

The sheer number of terms, theories, models, and frameworks that exist to describe the process of producing and sharing knowledge contributes to confusion about the topic (Esmail et al., 2020; Graham et al., 2006; Grimshaw et al., 2012). When selecting a conceptual framework, our

goal was to ensure I was working with a shared conceptual understanding and definitions, which would allow this research to be situated within the larger, CIHR-funded project. Therefore, we used CIHR KT resources, such as the Guide to Knowledge Translation Planning at CIHR: Integrated and End-of-Grant Approaches (Canadian Institutes of Health Research, 2012) and Glossary of Funding-Related Terms (Canadian Institutes of Health Research, 2007) to guide this work, including developing interview questions and coding data.

Importantly, the CIHR definition of KT and related concepts were developed, and are frequently applied, in the context of academic research; I examined a model of CCE that was primarily CSL, which, as noted previously, is distinguished from research-oriented CCE through its process, the type of outputs produced, and the emphasis on learning and education, among other things. Although the CIHR iKT and end-of-grant frameworks can still be applied to CSL, these differences should be considered when interpreting the findings of this thesis. For example, a student may conduct a literature review as part of a CSL course, but it may not use academically rigorous, systematic methods that would be expected of a full study.

These CIHR KT resources were used very loosely as a conceptual framework, inspiring broad coding categories or providing useful terminology or lenses, but we purposefully did not use this as a strict framework because of the exploratory, qualitative nature of the research. I use KT throughout this thesis to refer broadly to the activities and processes that are aimed at moving knowledge and evidence into practice, specifying individual processes when necessary, and use co-production and iKT interchangeably, often opting for the term authors have used in their work.

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Chapter 2 Preface

This chapter presents the manuscript “The population health impact of community-campus engagement (CCE): Exploring knowledge translation within a co-creative, community service-learning model of CCE in two Ontario municipalities” prepared for submission to *Journal of Higher Education Outreach and Engagement*. It addresses the first two objectives of the thesis: 1) Describe how knowledge is translated within CCE projects that address key community and population health issues, and 2) identify barriers and facilitators that shape the knowledge translation process.

The Journal of Higher Education Outreach and Engagement author instructions state they will only publish appendices if necessary. For this thesis, however, I have included three appendices. Appendix 1 contains the Consolidated Criteria for Reporting Qualitative Research (COREQ) Checklist that was used to guide the reporting of the study (Tong et al., 2007). Appendix 2 includes the semi-structured individual interview guide. There are no differences between the individual and focus group interview guide questions, just preamble content. Appendix 3 includes an example of a deductive coding category and corresponding codes.

CC, CK, DB, and IDG developed the study methodology. CC, KK, and KH conducted the individual and focus group interviews. CC conducted the analyses and wrote the manuscript. KH, KK, and SP provided feedback and guidance at all stages of the study and manuscript preparation, and CK, KH, DB, and IDG during the manuscript preparation. The manuscript has not been submitted for publication yet, and for the purposes of this thesis, CC, DB, IDG, and CK are the co-authors, who have revised and approved of the manuscript. Additional relevant team members will be invited to comment and be included in the author list of the submitted manuscript.

Chapter 2: The population health impact of community-campus engagement (CCE): Exploring knowledge translation within a co-creative, community service-learning model of CCE in two Ontario municipalities

Chloe Chambers, David Buetti, Ian Graham, Claire Kendall

Abstract

Community-campus engagement (CCE) has the potential to address pressing community and population health issues, yet little is known about the knowledge translation (KT) process that occurs within CCE. Using an exploratory, qualitative study, we examine how knowledge was translated within a co-productive, service-learning model of CCE implemented in two Ontario municipalities. We describe the activities, processes, barriers, and facilitators within four distinct phases of KT: knowledge co-production, knowledge tailoring, knowledge sharing, and knowledge application. KT was facilitated by meaningful engagement between partners and community connectedness and hindered by concerns about personal or institutional reputation, shifting political landscapes, and systemic under-resourcing, among other factors. CCE's potential to support municipal work towards population health hinges on collaborators' ability to understand what knowledge is needed by decision-makers, how to produce and share it in useful ways, and the necessary resources to do so.

Key words: community-campus engagement, community service-learning, knowledge translation, population health, municipal decision-making

Introduction

Post-secondary institutions (PSIs) are sites of innovation, where knowledge, skills, learning, dialogue, and resources are concentrated and fostered. Many PSIs have acknowledged and stated their responsibility in giving back to the local and broader communities that inform and drive their research and do so by engaging with the community to identify how PSI resources can be harnessed to address community issues. Community-campus engagement, or CCE, refers to the collaboration between PSIs and their communities, often rooted in equity, justice, and social change, with the objective of addressing social, civic, and ethical challenges (Bringle & Hatcher, 2002; Levkoe et al., 2023; Silverstrone, 2011). CCE can take many forms, including community-based participatory research (CBPR), community service learning (CSL), and community co-education, all of which strive towards the collaborative creation of knowledge, capacity building, and action that benefits both community and campus partners (Andrée et al., 2016; Bringle & Hatcher, 2002; B. Hall, 2009). These partnerships integrate academic expertise and skills with local knowledge to address societal needs and to provide hands-on learning opportunities for students (Bernardo et al., 2012; Buetti et al., 2025; Middleton & Whitmore, 2017). Often, CCE involves the direct relationship between PSIs and local organizations or members of the community, however these collaborations may also include local, or even national, governments. There has been increasing recognition of the potential for CCE to contribute to regional community and population health priorities, given its proximity to community and municipal decision making and ability to produce tailored findings and health interventions for key populations (Efird-Green et al., 2023; James et al., 2024). However, its potential hinges on an understanding of what knowledge is needed by decision makers, how to share it such that it is well-received and useful, and the ability to do so.

Knowledge translation (KT) is a term used to describe the practice of bridging the gap between knowledge produced from academic research and its application to real-world issues that produces the intended positive impact (Davison, 2009; Esmail et al., 2020; Graham et al., 2006). It was defined by the Canadian Institutes of Health Research (CIHR) as “a dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products, and strengthen the healthcare system.” (Canadian Institutes of Health Research, 2012) The CIHR has two types of KT; the first is “end-of-grant” KT, which involves the sharing of research findings upon completion of a study, and the second is integrated KT or iKT. In recent years there has been a push to build relationships and engage with knowledge users (KUs) – community partners, patients, health system decision makers, and others who are likely to implement research results – throughout the research process to ensure collaborative production of knowledge and not just dissemination (Bowen & Graham, 2013; Jull et al., 2017). Evidence indicates that consistent, early engagement, such as co-development of research questions, not only aids in driving targeted research activities, but also provides information about contextual factors that might influence the ability to share the findings and the overall impact of the research (Elsabbagh et al., 2014; Maurer et al., 2022).

Literature highlights the potential for findings from CCE to be relevant to KUs due to its collaborative and context-informed activities and relational pathways, but that focused activities are necessary to ensure knowledge is shared and taken up by organizations (Beere, 2009; Levkoe et al., 2023; Middleton & Whitmore, 2017; Nichols et al., n.d.; Wilson et al., 2010). Much of the scholarship on CCE focuses on exploring its downstream impacts, such as changes in program governance, policy change, community capacity, or health outcomes from individual

partnerships without examining the precise activities or processes that contribute to knowledge production, sharing, or application (Buetti et al., 2025; Han et al., 2021). The studies that have examined KT activities within CCE, such as dissemination strategies, have typically focused on the sharing of traditional research outputs, such as papers and academic presentations (Flicker et al., 2007; Middleton & Whitmore, 2017; Wilson et al., 2010). However, CCE, particularly forms such as CSL that do not involve “academic research,” produce a range of knowledge outputs, including toolkits and guides to public education campaigns, creative outputs, such as storytelling, and non-tangible outputs, such as skills and systems knowledge.

Our objectives were to: 1) Describe how knowledge is translated within CCE projects that address key community and population health issues and 2) identify barriers and facilitators that shape the process.

This study provides a holistic picture of how KT occurs within and through CCE, showcasing both the practical elements of doing KT and the diversity of knowledge outputs that extend beyond traditional academic ones. It also explores the unique role of municipalities within community-campus partnerships, and an opportunity to understand geographic or contextual features by examining the same model in two distinct municipalities. We present findings that have the potential to contribute to a re-conceptualization of KT within CCE to that might improve evidence-based decision- and policymaking related to population and community health.

Methods

Study design

The present study is an exploratory, qualitative study to investigate the process of KT within CCE that uses CityStudio (CS), a project-oriented model of community service-learning, as its context (*The CityStudio Model*, 2023). This research forms part of a larger project that sought to understand the contributions of CCE on population health using theory-based evaluation methods (Buetti et al., 2025).

CityStudio

Since 2019, Ontario municipalities have been required to develop and implement Community Safety and Well-Being (CSWB) Plans that identify local safety and well-being concerns and provide evidence-based solutions or initiatives that work toward addressing them (Government of Ontario, n.d.). As part of a CIHR-funded grant, CS was piloted in Ottawa in 2021 and Thunder Bay in 2023 to support these cities' response to five shared priorities of their respective CSWB Plans: racism and discrimination, housing and homelessness, violence and gender-based violence, poverty, and mental health and substance use. This pilot brought together the cities of Ottawa and Thunder Bay, local PSIs, and community organizations to address these shared health priorities and deepen collaborative relationships across institutions and sectors. CS is a service-learning model, with course-based or for-credit immersive experiences where students learn through active participation in a project that addresses a community need, typically spanning an academic semester. The CS model itself is designed to follow a five-stage project cycle that starts with 1) brainstorming and 2) project matching, then 3) project development by students with the collaboration of instructors and city or community partners, 4) testing or piloting within the community, and 5) sharing with partners, instructors, other students, and the community. Some students may conduct applied research projects, often honors or master's

students with direct supervision from an instructor, while others work in groups in the classroom, often working towards the same key question or issue, but with their own approaches.

Data collection

Between June and September of 2025, we conducted 22 individual and 10 focus group interviews with 44 participants involved in CS projects in Ottawa and Thunder Bay from 2023-2025. Participants included staff members from the cities of Ottawa and Thunder Bay, staff from partnering community organizations, and students and instructors from five local academic institutions: Algonquin College, Carleton University, Confederation College, Lakehead University, and The University of Ottawa. We recruited participants using a combination of purposive and snowball sampling, making use of existing relationships and networks from the planning and implementation of CS in Ottawa and Thunder Bay. Students were recruited at end-of-year public CS showcases or through their instructors.

CC, KK, and KH conducted interviews via Zoom, with individual interviews typically lasting 60 minutes, and focus group interviews typically lasting 75-90 minutes. We offered participants a \$25 gift card as compensation for their time. These individual and focus group interviews were semi-structured, using a guide that had four sections: project description and participant's involvement, community engagement, knowledge translation, and overall participant experiences and takeaways. Sections one, two, and four were designed to collect evidence to contribute to answering the research questions of the larger research project, while the third section was oriented towards identifying practices, activities, experiences, and reflections on KT for this study. These interviews comprised our main data source, but we also collected project documentation, such as scoping documents and student final deliverables, that served in the triangulation of the data, corroborating participant experiences or filling in the gaps.

We used Zoom (version 6.6.0) transcription software to record and transcribe interviews and focus groups. CC and KT cleaned and anonymized the transcripts, verifying against audio recordings when necessary, and uploaded them into ATLAS.ti (version 25.0.1) for coding.

Data analysis

CC conducted the thematic analysis using Bingham's (2023) five-stage analysis approach, which includes initial familiarization and organization of data, creation of topic codes, deductive and inductive coding, interpretation of data, and the identification of patterns and themes that are then situated within the literature. We derived broad coding categories from the Guide to Knowledge Translation Planning at CIHR (Canadian Institutes of Health Research, 2012), with the goal of ensuring consistent definitions and ability to both align the research with current understandings of KT within the Canadian health system and integrate findings from this work into the larger project. We did not use saturation as a stopping point for interviews. Rather, our goal was to collect and analyze a diverse sample that captured student, instructor, city, and community partner voices from as many different institutions as possible within the constraints of researcher capacity and timelines. The research team was committed to ongoing self-reflection about positionality, and recorded memos throughout the interview and coding process, meeting regularly to discuss our reflections, address any discrepancies, compare coding progression, and develop themes as they emerged.

Ethics

The larger study within which this thesis is situated was approved by the research ethics boards of the Bruyère Health Research Institute (Study # M16-23-009), and all participating higher education institutions. Written, informed consent was collected from all participants prior to individual and focus group interviews, along with the permission to collect and use related

project documentation. Participants were informed of the goals of the study through the consent form. Participants could remove their consent at any time, and all identifying personal information was removed from the transcripts prior to coding. Data were stored in a secure Teams folder that was only accessible by members of the research team.

Research team and reflexivity

This project's team consisted of seven researchers, including a community research partner, with combined expertise in qualitative research, evaluation, cultural geography, epidemiology, and community partnerships. The research team members strive to embody the characteristics of accountability and co-production in our research, which included a commitment to maintaining good relationships with partners through consultations, honoring contributions, and thoughtful knowledge sharing. CC, the primary author, is a master's student in epidemiology supervised by CK. She is both a researcher and a student, with graduate training in qualitative methods and previous experience participating as a student in CCE at a different institution. She recognizes that this provides key insight into and ability to relate to the experiences of the research participants. While no theory guided our analysis, CC adopts a situated knowledge perspective, which asserts that knowledge creation is not objective and universal, but partial, and shaped by localized experiences, geographic context, and material conditions (Haraway, 1988).

Several participants were recruited via personal and professional networks. KK and KH had ties to Thunder Bay, CC is from Ottawa and a student at one of the institutions we studied, all of which shaped the social and power dynamics of interviews at different times, often in positive ways, such as putting people at ease through familiarity. Research team members and interview participants acknowledged these relationships in interviews, which sometimes became a tool for participants to situate individual projects and partnerships within the larger picture of CCE.

Participants were always offered opportunities to follow up with additional insight and be updated with the progress of the research.

Results

We included 17 out of 22 individual interviews and all 10 focus group interviews in our analysis for this paper. Four interviews were excluded because they addressed CSWB priority areas that fell outside of the five shared population health-related priorities between Ottawa and Thunder Bay. Another interview was excluded because it was unclear whether the participant had been involved in CS, or a different CCE initiative. Our total sample was 39 individuals, whose characteristics are described in Table 1.

Table 1. Interview participant characteristics

Characteristic	Total number (n=39)
City	
Ottawa	12
Thunder Bay	27
Role	
Student	9
Instructor	11
City staff	16
Community organization staff	3

Four different phases of KT emerged from our thematic analysis: knowledge co-production, knowledge tailoring, knowledge sharing, and knowledge application. These categories encompass, and extend beyond, the stages of the CS project cycle capturing what happened to knowledge outside of CS-guided activities and after the project cycle ends. CCE, however, is not a linear process (Nelson & Stroink, 2020), these four phases are intertwined, as are the barriers

and facilitators that shape KT at each stage, which we have done our best to highlight in the results.

Phase 1: Knowledge co-production

The CS process is designed to be co-creative, involving a tripartite collaboration between institutional instructors, students, and city or community staff who all contribute their knowledge and context to address a community-identified issue. It starts out with idea generation, either formal sessions or informal conversations, between city decision makers, city department staff, community organization staff, and CS coordinators. City and community staff brought forward key gaps or goals that related to the health priorities outlined in the CSWB Plans or Strategic Goals, and together with instructors, identified how these gaps could be addressed through student projects and address student learning outcomes. The city or community staff who worked directly with students on the projects, henceforth project partners, worked with course instructors to scope the project, identifying expectations, time commitment, and final deliverables. As one project partner shared:

I'd initially really boxed in a data challenge and a pitch for the students . . . but then, right at the outset, the professor was trying to get me to break out of that a little bit and think more broadly about data engagement . . . I found that to be pretty eye opening and pretty helpful in terms of the direction that we ended up taking. (P9, city partner)

Project partners came into the classroom to at the beginning of the semester to present the initial gap, and for most projects, returned multiple times during the semester to offer additional context, ask questions, and provide feedback. These in-person engagement activities were aimed at providing students with the foundational knowledge and context to produce their deliverables,

and some projects even invited different municipal staff or community partners to provide additional information. This was almost always in the classroom, but sometimes students visited partner workplaces or key locations in the community.

Students worked on responding to the question or issue, relying on a variety of sources of data and information to conduct their projects, such as an exploration and synthesis of existing literature, others pulling from municipal or provincial databases (e.g., the City of Ottawa Open Ottawa data portal), and a small number of projects collecting primary data from the community (e.g., city staff, students, members of the general public) through surveys and interviews. When collecting community data, it was clear that careful consideration had gone into how to protect potentially vulnerable or historically marginalized populations, including priming students on language use and professionalism or interacting with intermediary community representatives. For example, one instructor opted not to engage directly with Indigenous community representatives:

No, I had them just do a literature search . . . I didn't want those interactions to be done in a mis-stepped way . . . I find it a little bit of a struggle sometimes about whether we bother someone who might otherwise be really busy and have other high priorities to tell us about their things when there's lots of other literature, and people have spent their time sharing that outwards. . . because they were generous with that knowledge, and it also allows us to do our homework before asking the questions that are already answered.

(P15)

These engagement activities also provided opportunities for conversations in which project partners gained insight into how students might be experiencing the very community and population health issues they are seeking to address:

[I]t was interesting to hear the students in terms of how they're surviving, the challenges they're facing from like a housing point of view, how expensive housing is, how they're trying to do survival jobs, trying to educate themselves and then land that first job. It was really eye-opening, and it really made us think in terms of what young people are going through right now. (P8, city staff)

City partners indicated that capturing the student perspective was invaluable, since they are a hard-to-reach population and an underrepresented voice in both municipal strategic planning and health policy development. Students are often a population of interest in discussions about housing and food insecurity, mental health and substance use, and poverty, some of the municipally identified health priorities in the CSWB Plans.

Barriers and facilitators to knowledge co-production

Facilitator: Diversity of student knowledge

Students provided an array of diverse perspectives and knowledge that many participants perceived as a strength of the collaboration. Multiple project partners and instructors spoke to the high number of international students in their projects, some of whom had recently immigrated to Canada for schooling opportunities. Many international students also had previous work experience, including in health professions, and health systems knowledge, which they integrated into their approaches to the projects:

And I would say the majority of students that I've had an opportunity to engage with have been students who have come to Canada for an educational opportunity. . . several of them have built the newcomer experience around vaccines specifically into the kinds of questions that they ask me . . . (P36, community partner)

Although students in both cities spoke to how these projects shaped their understanding of their city and community, our international student participants shared that the projects represented an opportunity to build networks in a new city. This perceived benefit was a strong motivator behind students' initiative to produce high quality outputs: "International students, they take the project seriously. . . we know how it will be beneficial to our career . . ." (P37, student).

Barrier: Building student understanding of context

Although these diverse perspectives contributed rich knowledge to the projects, it was also a source of difficulty for project partners and instructors to ensure that students had sufficient understanding of the local context to properly conduct the projects. Partners shared that because of the high international student composition, they put a lot of consideration into developing student understanding of the local context, which takes time and effort.

Project partners spoke to challenges dealing with negative student preconceptions surrounding certain health issues, such as substance use, citing that it arose with all students, not just international ones. However, they were quick to share that this represented an important learning opportunity and that they were consistently impressed with how students often confronted their biases and shifted their perspectives.

Barrier: A lack of access to locally relevant data

Several participants experienced challenges accessing locally relevant data, particularly in Thunder Bay, which compromised students' ability to accurately reflect the local context in their work. Sometimes this lack of access was because there were no data sharing agreements or channels between the institutions that collected data, such as local health units, and PSIs. When no data were available, students turned to data from other municipalities, provinces, and even other countries:

One of the groups . . . they were looking at Public Health Ontario data, and they were comparing Thunder Bay rates to Ontario rates, and then they noticed that if they took the GTA out of the Ontario rates it really changed things. And that's a pretty common thing in small Northern communities, when we get sort of lumped together with Ontario, our results get really, really skewed. (P12, instructor)

Instructors responded to a lack of data availability using related literature, and one shared that local students “kind of filled the void with their knowledge of Thunder Bay,” (P38), but that it ultimately did not sufficiently make up for the missing local data. This resulted in limited opportunities for the knowledge generated, and consequently, the deliverables, to reflect the unique health landscape or offer solutions that were grounded in local context.

Barrier: Timelines

Short timeframes and timeline misalignments were some of most common issues cited by participants at all stages of the CS process. One academic term was perceived as too short to provide sufficient context, build relationships, and meaningfully engage with students or community:

I think the challenge of the community service learning. . . is that it is so short. And so, you know, they're able to produce an amazing product in 30 [hours], but 30 [hours], as you know, is not nearly enough time to do anything particularly robust. (P18, community partner)

There were several consequences of short timelines on the ability to co-produce knowledge. For some participants, they experienced challenges trying to coordinate times for partners and students to meet, while for others, they felt as though the initial investment of time to provide students with the foundational knowledge required to produce a good output did not leave enough time for the students to do their work developing them. These challenges had implications on downstream processes to translate and move knowledge beyond the projects. For example, partners found they struggled to provide feedback to students quickly enough for them to integrate into the production of course deliverables and final presentations.

Phase 2: Knowledge tailoring

During the process of knowledge co-production, students also worked to tailor and produce knowledge outputs to share with project partners and the community. This was a distinct and important phase because it involved different forms of engagement between students, instructors, and partners to create an output that could be evaluated for student learning outcomes while communicating findings in a way that fit the project partners' needs. The majority of projects required students to produce final reports or written outputs, and for others, students produced deliverables relevant to the course, such as marketing materials. These outputs often met a specific need, with the potential to be quickly adapted into a tool or contribute to ongoing work by the municipalities, such as document templates, triage guidelines, or educational tools. The

development of the outputs over the course of a semester was shaped by several different factors identified by different participant groups: course content and student learning objectives, course structure and expected deliverables, instructor feedback, student group work dynamics, student initiative and creativity, freedom in determining outputs, consultation and opportunities to receive feedback from project partners, types of data used, among others.

The range of different knowledge outputs that emerged from CS projects is presented in Table 2. Students also produced final class presentations, posters, and infographics that they used to share findings with project partners and members of the community. We discuss this in the knowledge sharing section but have included these outputs in Table 2.

Table 2. Types of knowledge outputs produced in CS projects

Output type	Examples
Reports or proposals	Recommendation/advice, proposed methodology, reflection, environmental scan, case study, professional report, short essay, marketing strategy, template, governance structure, model of care, programming, guidelines, prototypes
Assessments	Ergonomic assessment, health equity impact assessment, primary care needs assessment, stakeholder assessment
Data-oriented outputs	Dashboard, data management structure, key performance indicators, data visualizations (e.g., GIS story maps), raw data (interviews, surveys)
Communication materials	Marketing or branding materials, brochures, public communication materials, social media content, web content, promotional videos, posters
Scholarly research outputs	Conference presentation, bibliography

Presentations Class presentations (e.g., PowerPoint), posters, infographics

Other types of knowledge that arise out of these projects beyond a tangible knowledge output. Our participants spoke to how the co-production process resulted in a wide range of non-tangible knowledges, especially students and project partners. This included systems knowledge (e.g., deepened understanding of local health systems, familiarity with municipal resources), technical skills (e.g., professional presentations, literature synthesis, interpersonal skills (e.g., increased empathy, confidence), place-based knowledge (e.g., increased civic engagement, knowledge of neighbourhoods), and new perspectives. Deepening systems knowledge through knowledge exchange practices gave participants a greater understanding of how their projects contributed to community and population health. We have chosen to focus on the production of tangible knowledge outputs in this paper because existing literature on CCE has examined in greater detail participants' learning and skill development and identifying the KT process and factors of a person's tacit knowledge or skill is outside of the scope of our results.

Barriers and facilitators to knowledge tailoring

Facilitator: Consistent engagement and opportunities for communication

The engagement between project partners, instructors, and students that contributed to the co-production of knowledge was equally important in shaping how students then took that knowledge and produced knowledge outputs. These two processes often happened simultaneously:

So we had someone from the health unit this semester come in, see where the students are at, help them with some of the ideas they found and kind of poked holes in things and

tried to really get them to think about what the community needs and could actually follow through with . . . and it really helped to kind of guide a better product at the end.

(P11, instructor)

Both instructors and project partners played this role. As one student put it, they would guide students by “asking pointed questions, and then leaving... [to] let [them] figure it out” (P22), which seemed to be a common way to support student learning while ensuring knowledge outputs met partner needs and expectations.

Barrier: Misalignment between partner expectations and final knowledge outputs

Project partners reported experiencing misalignments between their expectations and the final knowledge outputs that students produced, in format, quality, or relevance to their particular needs, despite clear efforts of the CS model to address this.

In some cases, this arose due to a lack of collaboration during initial scoping or establishment of expectations for the trajectory of the project and the final knowledge outputs. One partner shared that when this did not occur, the student knowledge outputs were not fully grounded in context, failing to consider factors such as budget or feasibility:

You know what it becomes in those situations. It is a theoretical and academic project, right? . . . So it's kind of that free reign approach, and there may be great ideas in there, but they're not based in reality, and they're certainly not based in, you know, the City's reality of . . . budget, human resources, political palatability. (P29, city partner)

In contrast, some partners expressed that purposeful, detailed initial scoping led to the production of knowledge that partners perceived as more valuable:

And I think, yeah, some projects, if it's clearly defined and, you know, there's you know, everything aligns nicely from the faculty and the class and course perspective, but also from the city's perspective... you're gonna end up with some better data points. (P3, city partner)

A few project partners shared that instructors did not involve them in decisions on the knowledge outputs to be produced. Partners occasionally approached projects with low expectations: "... we just kind of accept that it's a student project, and we're gonna get what we get." (P29, city partner), which sometimes reflected an understanding that student learning outcomes took precedence over their needs, but sometimes also reflected a pessimism about the potential of projects to produce useful knowledge outputs. Instructors, however, shared that project partners did not always understand what the students could produce in the confines of their coursework and corroborated that their priority was student learning, rather than producing what will be most helpful for the city partner, "at the end of the day I need to teach the students what's best for them." (P38)

Barrier: Volume and quality of student work

For several project partners, they were candid about their experiences receiving student work that did not meet their expectations of quality. Some partners brought up issues surrounding trust, such as student use of AI and professionalism, which had implications on how the knowledge outputs were received and whether they would be shared further. Tweaks to language or formatting or imagery in final deliverables were deemed necessary to ensure it was accurate or representative of the organization. For a majority of projects, there was an additional step of synthesizing student final deliverables into a new knowledge output. Instructors and project partners received a large volume of student deliverable, sometimes of varying quality, which they

reported needed to be collated into coherent “packages” and edited before sharing with project partners, other staff, or downstream KUs (e.g., municipal decision makers):

I would say, and this is me being a bit harsh... 80% of what the students are going to give me is not going to be usable. It's just a fact. But I get those like nuggets of really awesome stuff that I can take out and put into a project. And when I have, like multiple people working on this one report. I can take something from like 3 or 4 reports, and it's great and I have that information that I need. (P4, city partner)

We learned that this repackaging of student outputs was a critical step and occurred in almost every project. Instructors and project partners indicated that they assumed the role of repackaging automatically, suggesting that they understood what would be most helpful to KUs and that the intended recipients would not have the time or capacity to do it themselves. For several participants however, it was an unanticipated undertaking that required a significant investment of time, particularly when student work did not meet expectations in terms of formatting, quality, or relevance: “. . . we got overwhelmed . . . That was a good lesson learned . . . we should have been a little more strict in the formatting.” (P8, city partner). Limited capacity to do this repackaging affected their ability to share knowledge outputs beyond the project.

Phase 3: Knowledge sharing

We use “sharing” to describe the active process of moving tailored knowledge outputs from the projects into the hands of partners and the community. Purposeful knowledge sharing was an integral part of the CS model; all students were required to present findings and share final deliverables with project partners, who came into the classroom for end-of-semester presentations. Students then submitted final deliverables to instructors and sometimes directly to

partners themselves, typically in digital formats, occasionally providing physical copies or prototypes. Almost all project partners then shared student work, often re-packaged, internally with other staff and downstream KUs within their organization or department via institutional sharing platforms (e.g., Teams, Google Drive, Intranet), through formal presentations, during meetings, or informal conversations.

CS also provided the opportunity and spaces for students to present their findings with broader audiences via end-of-year showcases, which were optional and required students to seek approval from their instructors, partners, and CS coordinators. Students prepared posters and presentations that were intended for engaging broader audiences, including other students and faculty, community organization staff, policymakers, and the general public. There was a particular impetus for students to make their communication community oriented. This included opting for non-technical language, accessibility, and appealing visuals, which was something that instructors emphasised to students:

Yes, that is something that I communicate directly with [students] about, and I even suggest alternative words that they can use that are more recognizable, ‘So instead of brand salience, you can use this word instead’ . . . They're not, you know, business people . . . (P38, instructor)

Instructors and project partners also spoke to how these presentations provided opportunities for cross-project knowledge exchange where they could learn what other, often-siloed, departments, teams, groups, or disciplines and classes are working on.

However, opportunities for knowledge sharing with the broader community were more limited. Three projects had partners or instructors who facilitated engagement opportunities with the

populations who would be most impacted by knowledge produced in these projects, two of which involved people with lived experience for projects that addressed issues of substance use and addiction, and one engaging city staff who would be the beneficiaries of a workplace health intervention. The showcases were open to the public, and KUs such as health practitioners or city staff were invited by instructors, project partners, or CS coordinators, but members of the community that were not affiliated with the city or community organizations did not frequently attend, to our participants' knowledge.

Barriers and facilitators to knowledge sharing

Facilitator: Community closeness and connection to place

Community closeness and a sense of connection or belonging to place are foundational to CCE projects. Participants indicated that they felt locally relevant work to be more meaningful when sharing it with broader audiences. One city partner pointed out that having knowledge outputs reflect local context had a greater potential to provide a meaningful narrative for those applying the findings than more precise data from another region or country:

So, having this local context, that sense of like being able to look at the map . . . “look, Miles Street, . . . look at the temperature difference right here,” that has a much bigger impact than me saying with a higher degree of certainty . . . “there is a difference in and like heat stress of like X and X percent . . . (P19, city partner)

This highlights that access to locally relevant data and findings during the knowledge production phase has implications on subsequent attempts to share knowledge outputs more broadly.

Students' local connection to projects, along with their ability to feel a sense of ownership and understand how they might contribute to positive health change in their own communities

seemed to foster student initiative, which played a role in the sharing of final outputs. These CS projects fostered in all participants, but particularly students, an interest in how to share knowledge beyond institutions:

I was very proud of how people saw this, and were engaged with their own area. I had them type in their own address at HUBBUB, and see how it affected them, but in terms of getting it broadly out there, that's really something that requires, at least in this context, some type of like institutional backing to get it to people. I could see it on posters with QR codes, or something like that. (P22, student)

Instructors and project partners indicated that students who took more “ownership” of the work were more likely to opt to present at final showcases and extend work on the projects beyond the end of the semester.

For Thunder Bay in particular, the smaller size and community closeness seemed to be particularly impactful on how knowledge was shared. Participants from Thunder Bay spoke to strong pre-existing networks and relationships between project participants that predated or extended beyond the projects themselves, emphasizing that this contributed to an ease of creating partnerships between PSIs and communities, and consequently, networks for disseminating knowledge, even through informal conversations.

Barrier: Concerns about personal and institutional reputation

We learned that there was a delicate balance to be struck between knowledge sharing and the potential for the knowledge to unintentionally reproduce inequities or cause harm to students, communities, or institutions, and instructors and project partners used their expertise to inform strategies to avoid this.

Instructors and project partners acknowledged a responsibility to students' intellectual property and learning. One project initially had students produce social media content that was posted online but later shifted to keeping student work entirely internal to reduce the pressure on students: "They're learning. We want to keep the stakes very low." (P5, city partner). Other approaches included discussions with students about Creative Commons, or personal or institutional protocol-driven decisions not to share or reproduce student work without permission.

There were also concerns about the potential for knowledge sharing to inadvertently damage both personal and institutional reputations. When student work fell short of partner expectations of quality or used language or imagery that reproduced stigma or stereotypes, they did not share it within their department or organization because of the potential to cause harm to individuals or reflect poorly on the institutions involved. For students in Thunder Bay, community size seemed to add a layer of accountability, particularly for students who may look to pursue careers in healthcare. One instructor pointed out that "there is one health unit, one hospital," and that she emphasized to students the importance of producing high quality work, because ". . . Thunder Bay is a small town, you may very well end up having this person on an interview panel . . ."

(P12).

Barrier: The politicized nature of health research

The ability to publicly share knowledge produced from these projects was shaped by changing political and institutional landscapes. For example, one participant explained how a pending grant application prevented them from sharing the findings beyond the project team:

I would say for mine. I'm not sure if it's a challenge or a barrier, or reason not to disseminate information, but a lot of it was planning to apply for a grant. . . until the grant was secured, I don't think they wanted to disseminate a ton of the information, even just, you know, not wanting to get everyone's hopes up . . . (P35, student)

This project was also working towards a larger initiative surrounding substance use, which was impacted by the Province of Ontario's decision to transition safe injection sites into recovery and treatment hubs (Government of Ontario, 2025), and the participant was unsure whether the project findings would still be useful for the ongoing work. Other partners raised concerns about media coverage and a hesitancy to share findings and projects publicly, particularly when projects tackled issues that were politicized, sensitive or potentially stigmatizing:

Yeah, no students definitely were not too public facing. . . just because of how polarizing the topic is, [I] didn't want to. . . we also can't be looking like we're trying to push or motivate people to go a certain way. (P31, city partner)

The sensitive nature of the project topics seemed to be tied in with concerns about community accountability, as well as the protection of personal and institutional reputation. These concerns did not always halt the knowledge sharing process, but it slowed timelines and required additional investment of staff time and resources, which were often already stretched.

Stage 3: Knowledge application

All the previous phases seemed to have the ultimate goal of producing knowledge that can be taken up and used towards the key issues identified by city and community partners. However, the CS model officially “ends” with the final student presentations, and as a result, there was little active collaboration or communication between partners in the integration or

implementation of findings within city departments or community organizations. We learned that this was left to city staff to advance, and most students and instructors in our individual and focus group interviews did not know precisely, or at all, how knowledge outputs were used after they had been passed to the project partner:

Yeah, there's not a ton for me. It's difficult for me to track . . . after I'm done these projects . . . unless I'm like meeting someone walking down the street and seeing them, say, 'Hey, thanks for that report, yeah, we used it for this,' then that that's very rare. (P7, instructor)

A couple of city staff likewise were unsure of how the knowledge might have been used, since their role was more that of an intermediary, condensing and sharing the student work internally, and could only offer insight about the anticipated use of the work. Some participants suggested that it was perhaps too soon to see how knowledge had been used or integrated, particularly for recently finished projects, or projects facing changes in funding, priorities, timelines, or staffing. Others indicated that while they were not at a point to integrate the information yet: “. . . maybe [it's] just sitting and waiting for [the] perfect opportunity to be utilized or referenced along with a whole bunch of other student projects . . .” (P32, instructor).

Several project partners, however, were able to speak to how knowledge had been implemented within their department or organization. By far the most common use of knowledge was to contribute to ongoing conversations and growing bodies of knowledge within the city or community organizations around addressing a particular issue. Partners shared that student approaches to these projects prompted them to reflect on new ways of approaching problems or

improving the existing data infrastructure: “They help us identify where those blind spots are.” (P9, city partner).

Student knowledge outputs were not often used directly by partners, but raw data, indicators or metrics, research syntheses, or sections of student writing were sometimes integrated into project partners’ deliverables, such as contributing to grant applications, public communications, or institutional reporting requirements:

[I]t’s been built into a report for the ministry . . . not only does that help us fulfill our provincial requirements with the ministry, but it also will serve as a really helpful resource to a lot of [health profession] services across Canada . . . (P17, community partner)

Knowledge outputs sometimes served as evidence of engagement or student learning, used to provide assurance that consultation and collaboration with students and youth, universities, and communities was occurring. One project partner indicated it was a way to be accountable to the broader community: “. . . a lot of [people] were placated by being like, ‘I am working with other people in the community, this is not just me doing this alone’” (P4, city partner). In this case, student deliverables were tangible proof of engagement that could be presented to decision makers, such as steering committees, city council, institutional offices, or to the public.

Barriers and facilitators to knowledge application

Barrier: Impacts of misalignments during earlier phases

Critically, if projects encountered one or multiple of the barriers discussed at earlier stages, it jeopardized the ability to use or apply the knowledge outputs for their intended purpose. For example, we noted earlier that several participants expressed that misalignments between project

partner needs and what students produced. If an output (e.g., proposed community programming) did not reflect the precise health context or take into consideration implementation constraints, such as funding, while it could provide inspiration, it was not useable by the city or community partners.

We also highlighted the risk for poor quality student work to risk reputational harm or perpetuate stigma or stereotypes. For partners, being able to edit a student deliverable, was the difference between being able to use it or not, but the ability to make these changes was hindered by issues such as access to software, non-editable deliverable formats, and limited communication following the initial deliverable handoff:

But the university functions on like a Google account. And you can't access that through, like the public health care's Internet network . . . so that causes just like huge, not huge roadblocks, but huge roadblocks when you're in like a 4-to-6-week project. That's a really quick turnaround. (P4, city partner)

Some project partners and instructors shared that they maintained communication following the initial handoff, which they found helpful to overcome these challenges. The majority, however, reported no collaboration within the implementation phase.

Even if projects did not run into barriers that stemmed from issues with the CS cycle itself, or how it was carried out by participants or partnerships, there were still external factors, such as shifting political priorities, that impacted the ability to produce and disseminate knowledge that could be used by community partners.

Barrier: Institutional resource constraints

Often, smaller barriers were exacerbated by larger systemic barriers relating to under-resourcing that ultimately made the implementation of knowledge outputs difficult. For example, even small edits to a document were not possible due to a lack of partner capacity, and misalignments that could not be fixed within project timelines and knowledge outputs that were shelved for future use seemingly fell through the cracks:

But seriously, that who knows? Because the city is so understaffed in many ways that it's difficult, and the [city department] office has had changing directors, changing staff, and been undercut in terms of staff for a long time. So I actually don't know what's going to happen. (P32, instructor)

Several partners and instructors expressed disappointment at the lack of institutional support for the projects, explaining that the projects ended up being secondary to other work, and that they did not have the capacity or resources to implement the findings despite seeing their value. They pointed to the responsibility of the city or the PSIs to support the work:

It won't happen without governance. . . You need someone to own this. . . it won't happen because that comes to another group of knowledge, which is about management. It's an organization that has budget for this. (P28, instructor)

Thunder Bay's size was also brought up in the context of institutional support and resources; for example, CS Ottawa was supported by multiple PSI- and municipally affiliated coordinators, while Thunder Bay only had one dedicated coordinator. A lack of funding and support, however, was echoed by participants from both cities.

Discussion

In this study, we asked participants involved in a co-productive, service-learning model of CCE about how knowledge is translated within projects that address key community and population health issues in two different Ontario municipalities. We found that knowledge co-production, tailoring of knowledge outputs, and sharing processes are already integrated, whether intentionally or incidentally, throughout the CCE process. However, we identified a gap between these phases and the application of the knowledge. We also highlight specific facilitators and barriers that shape KT at various points. These reflect the co-creative, relational, and practical elements of CCE, and the contextual and systemic factors within which it is situated.

CS projects harnessed community partners' understandings of the health system context through initial project scoping that shaped the knowledge production process and determined key questions or knowledge gaps. Initial contextualization and frequent communication with project partners also built a shared conceptual base that sought to give students the necessary understanding of how to develop outputs that addressed the issue at hand. We also found that it produced an environment that was conducive to mutual learning, although there was a stronger focus on student learning. These aspects have all been identified in the literature as necessary or facilitating knowledge exchange and integrated KT (Bowen, 2015; Gagliardi et al., 2016; Jull et al., 2017; Nguyen et al., 2020). Other scholars have examined this close relationship between CCE and iKT, likewise finding strong overlap between their approaches to linking findings to practical applications, and in particular, "the importance placed on partnerships before, during, and after research initiatives" (Wilson et al., 2010, p. 5).

The tailoring of knowledge outputs to be shared was shaped significantly by engagement between the participants of a project. There was a focus on producing knowledge outputs that

was linguistically and visually appealing and accessible, which have both been found to bring about effective dissemination, particularly in community settings (Drozowska et al., 2025; Gagliardi et al., 2016). Students produced final deliverables and presentations tailored to project partners, KUs, and the broader community, while CS provided the space for face-to-face knowledge sharing opportunities. Together, these processes make up “dissemination” as defined by the CIHR, which involves the identification of appropriate audiences, development of appropriate messaging, as well as the process of sharing that information with the intended audience (Graham et al., 2006; Lomas, 1993). We presented these two as distinct phases because they were impacted by distinct barriers and facilitators and required roles. For example, we learned that in CSL, the secondary packaging of student final deliverables by instructors and city or community partners was a critical step in the process of KT. However, they were inextricable; knowledge sharing activities, such as community-oriented presentations, were dependent on knowledge tailoring, and both were dependent on initial knowledge production.

Scholarship on both CCE and KT emphasizes the importance of local context in being able to tailor and apply knowledge (Drozowska et al., 2025; Kahlke & Taylor, 2018; Khoddam et al., 2014), and this study contributes insight into how this occurred in Ottawa and Thunder Bay. We found that participants in Thunder Bay often offered a distinct depth of information about how place-based factors (e.g., community size and closeness, institutional funding) impacted KT within these projects. This may speak to a greater attention paid to the community context by these participants, which is supported by findings that suggest CCE in more rural settings is more community-adjacent (H. Hall et al., 2022; Kahlke & Taylor, 2018). Our study found that community closeness often facilitated the production and sharing of high-quality knowledge: it produced networks for sharing, provided a sense of accountability, and contributed to

participants' feelings of connectedness to the issues being addressed and the potential impact of the findings. Kennedy and colleagues (2026) assert that by allowing students to explore issues that are important to them, CSL projects become important learning experiences, and we add that this also helps broaden the reach of knowledge that is generated within CCE.

We learned that instructors and project partners took steps to protect vulnerable populations, including students and members of the community, which resulted in slowed or even halted KT. Ultimately, however, it was intended to prevent the sharing of knowledge that could potentially bring harm. Bata and colleagues' (2019) found when students engage in experiential learning with little guidance, it can cause reputational harm which jeopardizes the relationship between universities and communities. In the case of CS projects, this also contributed to the limited sharing back with the populations that comprise the potential beneficiaries of the knowledge. Successful community engagement requires long-term investment into relationship and trust-building (Cameron et al., 2025; Han et al., 2021), which, in the face of short timeframes, resources, capacity, and other barriers identified by our participants, may have been difficult to achieve.

Simply engaging in knowledge co-production through CCE did not guarantee its effective dissemination or use, and that even within projects that fostered purposeful and meaningful engagement between students, project partners, barriers arose that impacted the dissemination and use of the findings. Misalignments at earlier stages of the projects, such as difference in expectations for the knowledge outputs, manifested materially when partners sought to apply the knowledge. Issues with work quality, language and formatting, or suspected AI use, for example, prevented partners from sharing knowledge more broadly. Once final deliverables were handed off to project partners, who then shared it with relevant KUs, there was little collaboration

between partners. Co-production and iKT literature emphasizes the collaboration of parties at *all* stages of a study or project in order to bring about effective implementation (Campbell, 2010; Kothari et al., 2025), which suggests it may be necessary to extend the collaborative model beyond an initial deliverable handoff to address these mismatches.

Several barriers to KT at all phases reflected systemic issues, including a lack of funding, lack of time and capacity, staff turnover, shifting political landscapes, or access to locally relevant data. For example, our work corroborates the gaps in health data and data collection or sharing in Northern Ontario (Association of Public Health Epidemiologists in Ontario Core Indicators Work Group, 2012; Russell et al., 2019) and showed the implications that this lack of data can have on the ability to tailor knowledge, and consequently, the ability to apply the findings. Many other studies have identified timelines, resources, and capacity as being significant barriers to both CCE and iKT (Cronley et al., 2015; Gagliardi et al., 2016; Kothari et al., 2025; Lawrence et al., 2019).

However, a few projects successfully contributed to ongoing work within municipal departments or community organizations, suggesting that these barriers can be overcome. We were limited in our ability to describe knowledge application and its barriers and facilitators in detail because of a lack of tracking and evaluation. Both CCE and iKT initiatives within the field of health research are still under-evaluated (Buetti et al., 2026; Gagliardi et al., 2016), which highlights a potential impetus to better evaluate how knowledge generated from CCE projects is used within a city department or community organization, and the impacts it may have.

Implications

Our findings have implications for ongoing and future CCE partnerships between PSIs, municipalities, and the community. We encourage partners and interest holders engaging in CCE to reflect on the KT goals of such projects early on. If the goal is to produce useful knowledge outputs that can be quickly adapted to address city and community partner needs, then it may be helpful to concentrate efforts towards accessing local data, addressing logistical issues and ensuring greater alignment between project partner expectations, student learning needs, and the knowledge outputs produced. This could potentially be achieved through more explicit scoping at the beginning stages or extending timelines and fostering communication following deliverable handoff. It could be helpful for CCE initiatives to integrate or develop a KT strategy aimed at collaborative dissemination and application of knowledge, on top of collaborative knowledge production, using an existing framework, or developing a simple one that reflects the goals of the project. However, sometimes CCE's priorities, and particularly CSL, are to encourage skill building, systems learning, and allow for participants to gain diverse perspectives on health issues, which contributes more indirectly to health systems change. In this case it will be more helpful to support greater opportunities for in-depth engagement, such as encouraging staff and instructors to go on, in the words of one of our participants, "parallel learning journeys" (P20, instructor), and seeking opportunities for sharing findings in more accessible places, such as town halls or community events.

Limitations

Although we attempted to capture a sample that provided insight from all the types of participants and all institutions or organizations, we learned that there were some key participants that we failed to recruit, which affected our ability to produce a clear picture of the entire CS process, and in particular, initial scoping, knowledge application, and its impact. For

example, we learned during data collection that many of the project partners were not the final KUs; only one of our participants was a “senior” decision maker (e.g., city councillors, department managers, or executives). A future study could consider exploring similar research questions, but with recruitment that targets downstream knowledge users and decision makers.

Another limitation is that interview methods are not always suited for capturing more challenging interpersonal and power-related dynamics, and can be susceptible to social desirability bias, particularly focus group interviews (Bergen & Labonté, 2020; Westland et al., 2025). We picked up on subtle indicators of negative attitudes and preconceptions through the language and tone used by participants. Comments about other participants’ competence or work ethic may have reflected one individuals’ negative experience, or could allude to larger issues with differential valuation of knowledge (peer-reviewed research evidence versus non-academic outputs or organization-specific information) and where it comes from (researchers, students, or community) (Cameron et al., 2025; Kepkiewicz et al., 2018b; Kothari & Armstrong, 2011).

Future studies on this topic may require careful consideration about methods, and consider using either longer, in-depth individual interviews that allow for rapport-building and gradual interview progression, or anonymous surveys to uncover topics that are more sensitive, such as relational challenges (Dickson-Swift et al., 2007; Westland et al., 2025).

Finally, we think it is important to acknowledge the presence of KK, the CS coordinator for Thunder Bay, in our interviews and how it may have shaped the conversations. Just as our participants shared in their interviews, we experienced the impact of Thunder Bay’s community closeness and how it shapes knowledge sharing. KK had pre-existing rapport with participants, and an ability to fill in details, provide updates, and prompt reflection. This contributed to a deeper understanding of the interpersonal and logistical factors that shaped KT in Thunder Bay,

that we did not have for Ottawa. However, this arose consistently in our discussions, and we accounted for it to the best of our abilities.

Conclusion

CCE has the potential to contribute key knowledge to address local community and population health needs, but CCE alone is not sufficient to both produce and move knowledge into the hands of decision makers to ensure it is understood and used. There are key elements of KT that must be present and key barriers that must be addressed to ensure the knowledge can be used towards its intended goal. We learned that the ability to disseminate and apply knowledge depended on the production of high-quality, tailored knowledge outputs that aligned with partner needs, which in turn was determined by meaningful engagement, access to locally relevant or diverse sources of knowledge, and clear scoping. Across the CCE process, consideration for personal and institutional reputation, a lack of time, capacity, and resources posed barriers to knowledge production, dissemination, and use. Addressing both project-level logistical and systemic barriers will likely facilitate the application and impact of CS-generated knowledge, but KT is highly contextual and responds to local landscapes, which means projects must be flexible and attuned to shifting priorities. It is important for PSIs and municipalities looking to partner on similar types of projects to ensure they are committed to investing sufficient time, planning, and institutional resources into CCE and KT, and reflect on their motivations and responsibilities to the broader community.

(9815 words)

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Appendices

Appendix 1: COREQ Checklist

COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
<i>Personal characteristics</i>			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	26
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	N/A
Occupation	3	What was their occupation at the time of the study?	28
Gender	4	Was the researcher male or female?	28
Experience and training	5	What experience or training did the researcher have?	28
<i>Relationship with participants</i>			
Relationship established	6	Was a relationship established prior to study commencement?	28
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	27-28
Interviewer characteristics	8	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	28
Domain 2: Study design			
<i>Theoretical framework</i>			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	27
<i>Participant selection</i>			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	26
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	26
Sample size	12	How many participants were in the study?	26
Non-participation	13	How many people refused to participate or dropped out? Reasons?	N/A
<i>Setting</i>			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	26
Presence of nonparticipants	15	Was anyone else present besides the participants and researchers?	N/A

Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	29
<i>Data collection</i>			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	63
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	N/A
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	27
Field notes	20	Were field notes made during and/or after the inter view or focus group?	27
Duration	21	What was the duration of the inter views or focus group?	26
Data saturation	22	Was data saturation discussed?	26
Transcripts returned	23	Were transcripts returned to participants for comment and/or	N/A
Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
<i>Data analysis</i>			
Number of data coders	24	How many data coders coded the data?	27
Description of the coding tree	25	Did authors provide a description of the coding tree?	N/A
Derivation of themes	26	Were themes identified in advance or derived from the data?	27
Software	27	What software, if applicable, was used to manage the data?	27
Participant checking	28	Did participants provide feedback on the findings?	N/A
<i>Reporting</i>			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	30-49
Data and findings consistent	30	Was there consistency between the data presented and the findings?	30-49
Clarity of major themes	31	Were major themes clearly presented in the findings?	30-49
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	30-49

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Appendix 2: Semi-structured interview guide

The following shows the high-level categories and questions. Prompting based on participant responses occurred.

Overview:

1. Project descriptions/involvement
2. Community engagement
3. Knowledge translation (connected to engagement)
4. What you got out of participating

Section 1: Project description and involvement

1. Can you tell me about the project and its goals?
2. Was this project part of a course?
 - a. If so, why did you take that class? Did you know it was a CityStudio course?
 - b. If not, how did you become involved in the project?
3. How were you involved in the project?
4. What were the activities and outputs?

Section 2: Community engagement

1. How were community members or organizations engaged in the project?
2. Did the engagement change during or as a result of the project? If so, in what ways?
3. Did you feel this engagement was successful? Why or why not?
 - a. What do you think the impact of the engagement has been on the participants/community/institution/yourself?
 - b. Who do you feel benefited? In what ways?
4. What did you learn from the engagement?

Section 3: Knowledge mobilization

1. What happened with the project outputs or deliverables?
2. How were they used?
3. What was the impact?
4. Did the engagement activities of the project contribute to the use or impact? If so, how?

Section 4: Project experience

1. What did you get out of participating in this project?
(things to keep in mind: e.g. leadership skills, other skills, networking/new relationships, emotional/social, learning, experiences)
2. Did you encounter any challenges in doing this project? If so, how were they addressed?
3. Was there anything that surprised you?
4. Did your experience with this project change your understanding of the community/institution you engaged with?
5. Is there one key takeaway you would like to mention?

Appendix 3: Example of deductive coding category and codes

Supplementary Table 1. Deductive coding category and codes for “dissemination”

Dissemination		Definition or example
Audience	Audience	Who is the output intended for?
	Recipients	Who receives the outputs?
	Beneficiary	Who benefits from the knowledge?
	Users	Who uses the knowledge?
	Institutional partner	Other faculty members, PSI admin
	Municipal partner	City staff, decision makers
	Community partner	Community organization staff, community liaison
	Members of the public	Members of the community
Nature of output	Student course deliverable	Submitted for a grade e.g., final paper
	Academic output	Journal articles, conference paper
	Data/data outputs	An open-access database, data visualizations (e.g., GIS maps)
	Presentations	Class presentations e.g., PowerPoint, posters
	Digital output	E.g., web content
	Physical output	E.g., printed out poster

Chapter 3 Preface

In this chapter, I reflect on my own experience developing two research summary reports for institutional partners that were involved in the larger CIHR study. Although not initially included in my thesis proposal, I learned while producing these reports that I was gaining new insights into the process of co-creating and tailoring knowledge outputs and experiencing some of the challenges that my interview participants identified within my own research. As such, I decided to include this supplemental chapter in my thesis that describes my experience developing city partner-oriented knowledge outputs.

This chapter was not prepared for publication; it was intended to situate my work on the two reports within my thesis and provide a brief narrative reflection on my experiences preparing them. It addresses Objective 3 of the thesis: To situate my work producing two decision-maker oriented research summary reports within my thesis and provide a brief narrative reflection on my experiences with the process. I (CC) am the sole author, and CK, KH, IDG, SP, and DB provided feedback.

Chapter 3: Turning knowledge into action: A research trainee's reflection on undertaking an applied KT initiative

Introduction

Why were these reports produced?

Since June 2000, knowledge translation (KT) has been identified as a core activity of all Canadian Institutes of Health Research (CIHR) projects with the goal of improving the application of research findings to real-world issues (Tetroe, 2007). This means all CIHR-funded research grants needed to have an explicit KT plan. My thesis work is situated within a larger CIHR-funded project, *The Population Health Impact of Community-Campus Engagement (CCE)*, that sought to understand how engagement between the Cities of Ottawa and Thunder Bay, five local post-secondary institutions (PSIs), and several community partner organizations contributes to population health outcomes in the two distinct settings. We examined a project-based model of CCE, CityStudio (CS), that was implemented in Ottawa and Thunder Bay to help address five shared priorities of the cities' Community Safety and Well-Being (CSWB) Plans (Community Safety and Well-Being Plan 2021-2025, n.d.; Emergency and Protective Services Department, 2021; *The CityStudio Model*, 2023).

The project had the following KT objective:

“Our KT objective reflects and draws from the participatory approach of this study by integrating key stakeholders throughout all of our collaborative processes and by disseminating findings to communities, campus and city partners.”

Therefore, one of the goals of the larger research team was to produce partner-involved and partner-oriented knowledge outputs in addition to academic outputs, such as journal articles and

conference presentations. Unrelated to my planned thesis research, I volunteered to take on the writing of two reports that were intended to summarize findings from our analyses within the larger project. I saw this as an opportunity to gain experience in knowledge co-production and dissemination within the CCE context.

How were the reports produced?

The CIHR study engaged a number of knowledge users (KUs) throughout the inception and implementation phases, including staff and decision makers within the cities of Ottawa and Thunder Bay, post-secondary institutional (PSI) administrators, PSI community connectors, and CS coordinators. Members of the research team (CK in Ottawa, KK in Thunder Bay) reached out to these KUs via email to ask what they might like to see a summary report for ongoing decision making or for upcoming reporting or communication purposes. They identified metrics and priorities, often ones that aligned with municipal strategic goals or the CSWB Plans whose evidence of impact could support ongoing investments in CCE or similar initiatives.

I turned these metrics and priorities into a set of deductive codes (e.g., “career-ready skills”), which I applied to my transcripts, coding for both my thesis research and the reports simultaneously. Other members of the research team used the metrics as categories to organize and analyze their existing inductive codes. Finally, we drew from preliminary thematic analysis to address both the larger CIHR study’s research question and my thesis research questions to supplement the report with findings we thought would be of interest to the partners.

Throughout the report writing process, I shared drafts with KUs via email to solicit feedback, which I integrated into the reports. KUs sometimes wanted to know if a certain result they had expected had come up in the analyses and shared their own insight from being involved with the

projects. For example, we highlighted that students gained key tacit knowledge and skills from participating in the projects, and one KU pointed out that he perceived this was also a key benefit to city staff and wondered if our data supported this finding. Other feedback included requests regarding accessibility, language choice and tone, or suggestions for additional types of outputs, such as infographics or visual representations.

I shared the progress of the reports in research team meetings that sometimes included our KUs, where they had additional opportunities to ask questions and provide feedback. Once our larger research team felt we had received sufficient feedback, I used Canva, a graphic design tool, to produce visually appealing final reports that were shared with KUs again for their input, integrating any final edits. Final reports were shared via email with the KUs, who were then able to share them internally. The CS Ottawa report was shared publicly at the HUBBUB end of year showcase. Links to the two reports can be found in Appendix 1.

Approach to the reflection

As a way to ensure methodological rigor in my thesis, I consistently engaged in self-reflection on my methods and findings and continued to use this approach when developing the knowledge products, so this reflection occurred throughout my entire research process. I, and several members of the research team often critically questioned our roles in producing and sharing knowledge, our accountability to both our participants and city and community KUs, and how we fit into, and challenged, larger conversations about institutional CCE practices, such as the use of KT activities to provide evidence of community engagement, without having considered the needs of community or oriented the KT towards them (Cain et al., 2018; Kepkiewicz et al.,

2018a). To write this reflective piece, I pulled from my own coding memos from my larger analysis and re-visited correspondence between myself, KH, and KK that occurred during the report writing process.

Reflection

The co-production process

This process prompted me to reflect on the varying degrees of co-production. Some CCE projects exemplify comprehensive KU engagement throughout the research process, designing the research question and recruitment strategies or collecting, analyzing, and interpreting the findings (e.g., Bowen & Martens, 2006; Campbell, 2010). In our larger research project, many of our KUs provided guidance before the recruitment phase, having been consulted during the early development of the research project as to the questions to address, the goals of the project, and key voices to capture. Ultimately, however, these KUs did not play a significant role in determining the research methods, conducting the research, analyzing the findings, or determining the format or the content of the summary reports. Engagement for the reports in particular was limited to email correspondence, which made the consultation feel incomplete. I did not have the opportunity to meet any of the partners in-person or develop any kind of relationship with them, and sometimes the communication about the reports was conducted without me involved. As a graduate student, I felt like I was in a very awkward position, because although I was not engaging with KUs in the ways I knew were best practice based on my understanding of the co-production and iKT literature, I did not know how to bring it to action,

which Cassidy and colleagues (2022) highlight as a common issue when trainees engage in co-production without sufficient preparation.

I was likewise surprised at the challenges I experienced obtaining input from KU partners, particularly at the initial planning stages, during which I received little input about structure or necessary content. Sometimes KUs were not able to provide feedback on what they would like to see within reports until they had been partially developed, but this meant that sometimes work I had done needed to be re-done. This was frequently a result of limited partner capacity and competing priorities, and after an email follow up, partners were helpful and quick to provide their thoughts. However, these reports were driven by external timelines, intended to support larger projects or other work that had their own deadlines, such as the update to the Thunder Bay CSWB Plan. When I was unable to obtain partner feedback, I found myself having to make decisions independently to move the project along, which felt antithetical to CCE and its emphasis on engagement and collaborative decision making (Middleton & Whitmore, 2017; Levkoe et al., 2023). I reflected on how decision-making within community-engaged work can sometimes seem unilateral, but rather than stemming from power imbalances or problematic attitudes towards community knowledge, as is discussed in the literature (Cameron et al., 2025), it can indicate other barriers such as capacity or time constraints.

The knowledge tailoring process

I am grateful to my individual and focus group interview participants whose insights were invaluable to guiding the process of writing the reports. Many of our participants shared that they placed great emphasis on making community-oriented communication accessible and visually appealing, which I attempted to achieve when producing the reports. Pulling inspiration from publicly available decision maker-oriented research reports, such as reports prepared for the City

of Ottawa by partner organizations, I included visual elements, photos, and ensured that accessibility standards were met. Our participants consistently brought up the challenge of not being able to access or edit final student deliverables at the end of a CS project. I shared editable Word and Canva files, as well as PDFs, with our KUs, and kept an open line of communication to facilitate any edits, even after I had handed over a “finished” product.

I finished writing the report for the City of Thunder Bay before I started the report for the City of Ottawa, which provided me with an understanding of how to write for a municipal audience. For example, using wording that is already being used within municipal strategic planning documents made it easier for KUs to situate the report findings within their ongoing work. Having a member of the research team who worked directly with the City of Thunder Bay was key in guiding these decisions about content, language, and formatting, such as the purposeful inclusion of findings around the retention of international students, which was an area of interest for the city. This points to the literature that suggests KT activities, including co-production, dissemination, and collaborative application of knowledge benefit from having members with diverse backgrounds and expertise (Cloke et al., 2023; Han et al., 2021; James et al., 2024).

A strength of CCE is that it invites multiple interest holders and encourages interdisciplinary collaboration, which brings forward varied ideas, perspectives, and approaches. This strength can likewise be a weakness. Multiple interest holders in these reports, including research team members and KUs seemed to have different goals for the reports, which contributed to confusion as I attempted to address the needs and the wishes of partners. Some PSI and municipal partners viewed the reports as an opportunity to convince decision makers to continue the partnership, while others wanted them to be an objective research summary. I also felt conflicted when attempting to balance my goals of delivering a knowledge output that was tailored to the needs

and wishes of the KUs while also reporting on the findings in a way that was truthful and accurate. Further, the more partners involved, the more complicated the communication. There were multiple instances of miscommunication, stemming from differences in language, viewpoints, skills, and even values, which can be the source of negative experiences, no matter how well-intentioned. The work can be frustrating at times; it requires negotiation, follow-ups, significant editing, and waiting. Ultimately, this dialectical process resulted in a better, more helpful knowledge output, but it was an unanticipated challenge.

Similar to some of the CS projects, the production of the reports was also shaped by “political” factors, which required a careful consideration of how to convey and share findings. In this case, there was an uncertainty about the viability of CS in Ottawa and Thunder Bay. The grant was ending, which meant that institutional and municipal partners were deliberating on how to proceed with the partnerships. I was sensitive to the fact that these decisions were shaped by factors that several KUs could not anticipate, and sought to frame the reports in a way that would be helpful to KUs regardless of whether the model was deemed a good fit for each municipality.

Learning and skill building

As a research trainee, producing the research summary reports was a valuable undertaking that allowed me to further develop skills in KT, including writing for non-academic audiences, professional communication, and even graphic design. I learned more about the processes that exist to get research findings to decision-makers, particularly within municipalities, such as the stages of approval that must occur before knowledge outputs can be passed along or the reporting requirements (e.g., must contain a one-page executive summary, must be bilingual in Ottawa). Developing the reports also provided me with the opportunity to share my research participants’ voices beyond my thesis, which I found particularly important. I posit that a non-

academic, city-oriented report captures the ethos of CCE – real-world, community-minded, and collaborative – better than an academic journal article. In the interviews and focus groups, our participants shared a breadth of valuable knowledge that may not have addressed my research questions, but that I felt was important to highlight and share with individuals involved in CCE planning, which I could do through these reports. I aimed to ensure the participants could speak for themselves, taking their own learnings to guide the recommended “wise practices.” For me, it was an opportunity to ensure the findings of the research could be shared back with the community that informed our work, including city and community organization leaders and staff. However, much of this experiential learning about co-production and KU engagement occurred “on the fly,” because this task was presented to me part way through my thesis research, and scoped relatively quickly. Although learning by doing can be valuable, without a foundation in these concepts, I may have missed learning some critical skills, such as being able to navigate complex, and often subtextual, interpersonal challenges. There is a lack of structured opportunities for trainees to gain experience in knowledge co-production and engagement practices (Cassidy et al., 2022). The authors proposed a learning process for research co-production for trainees, which involves several initial steps before undertaking co-production approach, including building foundational knowledge and developing professional competencies, or observing KUs and researchers in the context. I believe my learning could have been enhanced through a structured or formal training opportunity prior to undertaking the task, which is something I intend to seek out in the future.

Conclusion

Despite the number of challenges throughout the process, the production of the two research reports contributed to the KT goals of the larger research project and the reports themselves have the potential to bring about tangible, positive impacts for future CCE partnerships in the cities of Ottawa and Thunder Bay. The reports were received enthusiastically by municipal and institutional interest holders at all points within the engagement process and the findings have already contributed to ongoing conversations about data access and sharing, and community safety and well-being policy.

For myself, producing the summary reports was a valuable experiential opportunity to apply key insight from my thesis research process to a “real-world” problem, much in the same way students do in CS. I learned from my interview participants who provided key insight into the barriers and facilitators to KT within the CCE context.

This applied KT activity contributed both to my repertoire of skills relevant to partner engagement to guide the production of tailored, accessible knowledge outputs from the broader research project, which ultimately has the potential to improve future CCE partnerships that support ongoing work towards improving community and population health.

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Appendices

Appendix 1: Links to final versions of the KU partner reports

Ottawa Report: <https://canva.link/pr55sxc0ivr269>



Thunder Bay Report: <https://canva.link/hxdtowah9m3n9w6>



Chapter 4: Discussion

4.1 Summary of rationale and outline of thesis

This thesis sought to describe how knowledge is translated within CCE projects that address municipal initiatives towards key community and population health issues. Chapter 1 outlined the state of the literature on CCE, KT, and the intersection between the two, identifying several gaps in the literature on KT activities that occur within CCE, particularly for CCE that is teaching-centric as opposed to research-centric and that which produces non-academic knowledge outputs.

Chapter 2 presented an exploratory, qualitative study that examined CCE through a project-based CSL model that supported municipal work towards community safety and well-being priorities in two cities to understand how knowledge was translated (Objective 1) and what barriers and facilitators shape the KT process (Objective 2). Through the thematic analysis of individual and focus group interviews with academic faculty, students, and municipal and community project partners involved in CCE, I identified and described distinct stages where knowledge was co-produced, tailored, shared, and used, each with unique barriers and facilitators.

Chapter 3 described the process of producing two KU-oriented research summary reports that were developed in consultation with institutional and municipal interest holders of the broader research project within which this thesis was situated. This chapter also presents a reflection on knowledge output co-production and tailoring within the context of CCE and my learning throughout the process.

In this chapter, I expand on the findings from the initial study and situate the reflections in Chapter 3 in the context of the thesis. I also explore some of the implications for interest holders in CCE and present areas future research.

4.2 Contributions

This thesis contributed to a practical, context-specific understanding of how KT occurs within a co-creative, CSL model of CCE. The main component article (Chapter 2) provided a summary of activities that may occur in CCE projects that contribute to KT can be attained through CCE and presents a snapshot of the kind of outputs that can arise from CCE projects that address local community and population health issues. It identified barriers and facilitators, and other factors that shaped how KT occurred within a CSL model of CCE, corroborating existing research on the realities and challenges of engaging in KT within community and population health that falls outside of traditional academic research. This thesis also provides a unique juxtaposition of co-production and output tailoring within CSL and within research-based CCE by detailing an applied KT initiative that contributed to the larger CIHR-funded project (Chapter 3). The findings and implications of this work will be particularly helpful for trainees, future CCE participants, and municipal or institutional advocates of CCE.

4.3 Interpretation of the research findings

These findings are relevant to the ongoing discussion on the relationship between CCE and KT, and whether CCE is a KT strategy, or whether it requires purposeful KT activities to bring about its full potential to contribute positively to health systems. We learned that the activities that were laid out as part of the co-creative CCE model, such as initial scoping with potential KUs and community representatives, opportunities for contextualization and feedback, and purposeful knowledge sharing activities (e.g., presentations to final partners, community-oriented showcases) provided significant opportunity to produce and tailor knowledge outputs that were targeted towards addressing specific gaps in city and community work towards population health. Consistent, in-person engagement, and conversations between students, project, partners,

and instructors throughout the CS model were important for contextualizing the problem or question and provided opportunities for partners and instructors to give feedback to students about language, audience considerations, and project feasibility. This supports the significant body of literature out of which emerged co-production and iKT approaches that call for early, equal participation from KUs and community members in order to facilitate the translation of knowledge into practice because it more accurately reflects community needs (Drozdowska et al., 2025; Gagliardi et al., 2016; Harvey et al., 2015; Jull et al., 2017; Kothari & Armstrong, 2011).

For KT within community settings, scholars highlight trust- and relationship-building, establishing shared conceptual understanding of context and language, sensitivity to community needs, and a focus on capacity-building (Bowen & Martens, 2005; Davison, 2009; Lencucha et al., 2010), which likewise arose organically within the CS co-production process, and had impacts on the tailoring and sharing of knowledge outputs. CS also brought about non-tangible knowledge development, perspective shifts, and established networks that permitted sharing beyond presentations or community showcases, all of which is discussed both in literature on CCE and KT (Gagliardi et al., 2016; Kennedy et al., 2026; Levkoe & Kepkiewicz, 2020; Nguyen et al., 2020). Other studies have explored the idea that CCE facilitates analysis of issues through new lenses that arise when different groups collaborate, and when diverse perspectives are integrated (Levkoe & Kepkiewicz; Nguyen et al., 2020). Students in particular can bring key perspectives to municipal issues being “untethered to bureaucratic systems” (Karasik in Kennedy et al., 2026). Participants spoke highly of the partnerships and the potential of the knowledge generated from them but asserted that in order to share knowledge beyond projects or ensure it is

useful to community partners, there are key considerations about audience, messaging, scoping, and communication necessary to overcome barriers to KT that arise.

There was a clear disconnect between the production of tailored knowledge and its use by KUs within municipal departments or organizations. This aligns with the findings of other scholars who suggest KT must be actively integrated within CCE, particularly to move knowledge into practice and effect institutional or system change, and that KT frameworks can be helpful to guide these activities (Lencucha et al., 2010; Middleton & Whitmore, 2017). Elsabbagh and colleagues (2014), however, indicate that the complexity of real-world settings poses a barrier to KT even when researchers both engage with communities and KUs and use KT frameworks.

Indeed, a number of factors shaped how KT occurred within CCE that support existing literature on the messy, “real-world” challenges experienced in community-oriented research and KT. Place-based factors (e.g., shifts in political priorities), logistical factors (e.g., timeframes or incomplete scoping), relational factors (e.g., communication, protection of reputation), and systemic factors (e.g., partner capacity, institutional support for CCE) all contributed to slowed or halted knowledge sharing or use. The literature highlights the highly contextual and complex nature of CCE, which has implications on the KT activities within CCE, which is a key finding of my thesis research. Breakdowns in communication have been found to result in unclear partner expectations within CCE, and consequently partners’ ability to share or implement the knowledge (Akintobi et al., 2023), and changes in policy and public opinion have presented unexpected challenges for partnerships (H. Hall et al., 2022). Curwood and colleagues (2011) developed several self-assessment questions geared towards universities and academics to self-assess whether they are ready to take on a CCE partnership that emphasize the contextual complexity of CCE and the need for institutional support (e.g., *What type of data management*

infrastructure is in place?). Importantly, many of these same challenges arose while attempting to translate our findings into a KU-oriented summary report, which I explore later in the discussion.

This thesis research also highlighted some key aspects specific to CSL that shape KT: the quality of student work, the responsibility of instructors and partners to support student learning while protecting both student and institutional reputations, balancing learning objectives, partner expectations, and course timelines, and the blurring of roles and responsibilities to produce, contextualize, and share knowledge. The literature on CSL confirms some of the same challenges, including inadequate communication, course structure-imposed timelines, misalignments between community partner missions and course objectives, and additional mentorship requirements from community partners that result in an additional burden (Cronley et al., 2015; McDonald & Dominguez, 2015). Many of the factors that have been identified as shaping how knowledge is produced and shared in CSL are underdeveloped in community- and population health-oriented partnerships, which is a key contribution of this thesis. Population and community health research can involve sensitive topics and are commonly shaped by changes in institutional or governmental policy (Fisher, 2021; Gostin, 2018; Lawrence et al., 2019). This research revealed that having projects address politicized topics, such as substance use and mental health or homelessness, requires additional thought about when, how, and by whom knowledge is shared. Several scholars have identified the potential for CSL to cause harm to communities, vulnerable populations, or to institutional reputations, and that without sufficient support, the relationships between institutions and community can be implicated by poor-quality student work, unpreparedness, or prejudiced attitudes (Bata et al., 2019; Blouin & Perry, 2009;

Langseth, 2000; Morgan, 2003). There is, however, a paucity of literature that examines how CSL could bring harm to students, such as student reputational harm or heightened stress.

This work provided greater insight into the unique roles of students, municipal and community partners, and course instructors. CCE challenges traditional research partnerships between academics and community, subverting conventions as to who possesses expertise, who produces knowledge, who is considered community, and who is considered campus (Kniffin et al., 2020; McDonald & Dominguez, 2015; Nelson & Stroink, 2020). Mauro and colleagues explored the idea of students existing in a liminal space between academia and community, (2024) which was present in CS as well, where students both researched and represented community by providing key insight into the population health issues they sought to address.

PSI instructors and municipal and community organization staff within CCE projects also have key contributions to KT through the re-packaging of knowledge outputs. The literature suggests that such community partners are a bridge between communities and universities, identifying key research goals and priorities on their behalf (Andrée et al., 2016), and are critical in CSL partnerships to ensure the protection of vulnerable populations (Blouin & Perry, 2009). However, in CS, the secondary synthesis of student work by community and city partners was also a critical task. Knowledge synthesis in the context of KT as defined by the CIHR refers to the identification, reviewing, appraisal, and interpretation of existing literature (Canadian Institutes of Health Research, 2007). However, research findings are just one type of knowledge that is used within decision making in health systems, taken along with existing organizational knowledge or individual personal experience or trusted sources (Chunharas, 2006). The instructors and project partners were attuned to these competing sources of knowledge and made decisions on what knowledge should be passed along to or within an organization or municipal

department. This may reduce the burden on practitioners and policy makers of needing to seek out, read, and appraise evidence, which Strauss and colleagues (2009) point out is a barrier to using knowledge in health decision making. This research also highlights that it can be a burden on individuals who take on intermediary, synthesizing tasks, and perhaps suggests a need to integrate additional time and support within CS or similar work.

4.4 Integrating the two chapters

Our larger research project, including my thesis, centered the collaboration between academic institutions, municipalities, and the community, with the intention of linking the findings from this research to address key local issues, just like CS projects. Our core data collection and analysis team (CC, KH, KK) consisted of the three groups present in a CS project: a student, an academic researcher, and a community/city partner-made-researcher. We consistently reflected on this unique “insider” perspective and what it meant to be studying CCE while engaging in CCE, which contributed to our deeper understanding of the interview and focus group data, and even the motivations behind CS and CCE broadly. Thus, this thesis allowed for a unique opportunity to compare my experiences with co-production and knowledge tailoring in the context of CCE with the experiences of my interview participants.

Several parallels can be drawn between the two processes of co-producing, tailoring, and sharing non-academic knowledge outputs, despite key differences between the types of CCE (service-learning versus research-oriented) and the outputs (project-based outputs versus synthesis of research findings). The goal of these knowledge outputs was to respond directly to a KU-identified need. However, in the case of CS, these needs were municipally identified CSWB priorities, whereas my work contributed to funding-body required KT activities. This invokes Jull and colleagues’ (2017) and Nguyen and colleagues’ (2020) distinction between CBPR and

iKT, with the former often being oriented towards social justice and capacity building, while goal of the latter is focused on making knowledge relevant and useful.

A second similarity was the way in which consistent engagement between the knowledge output “producers” (students) and the KUs contributed to tailoring of the knowledge output, such as my attention to language or the highlighting of certain key findings. In my case, I was engaging directly with the KUs that would use the findings directly for their own decision making, while with CS, sometimes the project partners were only intermediaries. Many of the same barriers that participants identified arose in my own work. I experienced difficulties navigating mismatches between different KU expectations for the reports and unanticipated work to make small tweaks to language or visuals, which was exacerbated by short timelines and limited capacity, which arose as barriers at all stages of the process. It was shaped by shifting timelines and project funding, requiring careful consideration of language and timing of communication.

These parallels suggest a ubiquitousness to the factors that shape the ability to collaboratively produce and translate knowledge, and therefore, the findings and implications of the thesis research may not only be relevant to local PSI or municipal decision makers, but beyond CS and beyond Ottawa and Thunder Bay.

4.5 Implications

There is no shortage of advice that has been presented to interest holders involved in the planning or conducting of CCE initiatives or KT, much of which I echo. Critically, KT within CCE is context-dependent, and shaped by relational, logistical, and place-based factors, which has been well-established in the literature (Chunharas, 2006; H. Hall et al., 2022; Kahlke & Taylor, 2018; Levkoe & Kepkiewicz, 2020; Mitton et al., 2007). There is no one-size-fits-all approach, and future research or development of CCE to make it better suited for KT should be

attuned to the specific needs of the partners in that collaboration and of the local community.

These implications and recommendations are not intended exclusively for CS, but for any CCE partnership.

To overcome logistical issues that prevent knowledge from being shared and used, institutions looking to undertake CCE could consider longer, multi-semester or multi-year projects that build in time for collaborative implementation (Israel et al., 2001; Tchoukaleyska et al., 2022). Using a collaborative scoping approach seems to be successful in driving tailored knowledge production, but greater emphasis should be placed on equal contribution and input from city and community partners in deciding the formatting and KT goals of a project (Kennedy et al., 2026; Kepkiewicz et al., 2018b; McDonald & Dominguez, 2015, 2015; Tchoukaleyska et al., 2022).

However, these recommendations are not sufficient to overcome more complex institutional challenges relating to funding and support of community-engaged work. This work serves as additional evidence for the ongoing call to invest in CCE on a larger scale (H. Hall et al., 2022; Levkoe et al., 2023; Sprague Martinez et al., 2023; Wilkins et al., 2023). Addressing issues of capacity will be critical, including establishing clear, delineated roles for all partners and communicated so that KT tasks do not become unanticipated burdens (Blouin & Perry, 2009; Gagliardi et al., 2016; Kothari et al., 2025; Tchoukaleyska et al., 2022), and investing in dedicated roles that work across institutional boundaries (H. Hall et al., 2022; Weerts & Sandmann, 2010). This thesis unveiled gaps in data collection and sharing across municipal, PSI, health, and community institutions. This alludes to broader barriers to sharing within multisector planning that is critical for a collective understanding of health and well-being and how to improve it (Azarm-Daigle et al., 2015; Harvey et al., 2015; Nykiforuk et al., 2025). In order to support CCE, there is a need to first build and expand upon data that represents Thunder Bay and

Northern Ontario, and second to strengthen research networks, data management systems, and sharing agreements. Fostering cross-institutional relationship-building may support the creation of networks and agreements that facilitate KT. Finally, both PSIs and city and community departments and organizations may want to consider new methods evaluation of CCE initiatives to better understand KT and how to reduce the gap between evidence generation and its use (Buetti et al., 2026; Nelson & Stroink, 2020; Tchoukaleyska et al., 2022).

However, evaluation efforts must be done cautiously. PSIs seek indicators of success that are defined by institutional norms (Duffy, 2022), but Levkoe and Kepkiewicz (2020) found that participants in CCE envision evaluation of CCE that is “contextual, relational, and process-based,” that also helps understand whether CCE is successful in bringing about social change (p. 220). Although this thesis examined the movement of knowledge outputs from projects to partners for their use within city departments or community organizations, it is important to challenge this idea that knowledge must be produced for immediate, practical application alone. Within health research, there is a focus on the immediate implementation of findings, and KT research often centers the exploration of how knowledge can be moved quickly and efficiently into practice (Graham et al., 2006; Ziam et al., 2024). Participants in CCE projects had a clear intention of creating useful knowledge that could be relevant to municipal or community KUs, but there was also an underlying emphasis simply on innovation, idea generation, and gathering student and community perspectives on these key issues.

More broadly, all interest holders should reflect on the ultimate goals of collaborative partnerships like CCE, as well as the ensuing KT, and whether they reflect community needs or institutional ones. Cain and colleagues (2018) warn about the institutional push to make research public and the calls to work with community, suggesting that it can fall into the trap of becoming

a tool to demonstrate organizational accountability, but does not bring about positive impacts within the community. For example, students often did not engage directly with community members, but with city and community organization staff; in several cases, there was little direct consultation from the community themselves on what and how the issues must be addressed, and little sharing back with communities. Literature on CCE also identifies barriers that prevent working directly with community such as ethics and confidentiality, time investment, and accountability (Bata et al., 2019; Collins et al., 2018; Kennedy et al., 2026; Mauro et al., 2024), indicating it can be a challenge. However, by failing to engage these populations or share findings back with them, these projects fall short of the goals of CCE to build community capacity and knowledge that does not rely on being affiliated with an institution (Banner et al., 2019; Freire, 1970/2005; Levkoe & Kepkiewicz, 2020; Van de Ven, 2007). Several CCE scholars call for greater investment CCE that democratizes knowledge and that encourages knowledge sharing between individual actors within the academic systems and individual members of the community or social movement actors, rather than between academic and municipal institutions (Andrée et al., 2016; H. Hall et al., 2022; Levkoe et al., 2023; Mauro et al., 2024; Strand et al., 2003).

4.6 Strengths and limitations

An important strength of this study is its closeness to community organization and municipal decision making, including the presence of a community researcher on the team. This contributed to our ability to provide actionable, relevant recommendations directly to individuals who are seeking to build sustainable CCE partnerships in Ottawa and Thunder Bay. The KU-oriented reports allowed me to produce outputs that were tailored to the context and therefore were able to be used quickly to make decisions. For example, the Thunder Bay partner report has already

been used in a presentation to City Council and has contributed to ongoing discussions about institutional support of CCE through a dedicated coordinator position.

Another strength of this work was its flexibility and ability to respond to shifts in the research team structure, research priorities, and structure. The context-dependent nature and differences in decision-making culture, timelines, and what is considered useful evidence are aspects of community and population health research that often contributes to challenges in KT (Kothari & Armstrong, 2011; Mitton et al., 2007). Although we experienced many of these challenges, and exploratory, qualitative design allowed us to overcome them and maintain methodological rigor.

However, there are several key limitations. We experienced many similar challenges to our research participants that reflect the complexities of CCE, which brings together different parties with their own priorities, timelines, and approaches. For example, a mismatch between our research timeline and the institutional ethics review timeline contributed to setbacks with recruitment that did not allow us to capture as comprehensive a sample as we had hoped. The challenges faced in obtaining KU feedback in the development of the KU-oriented report may have contributed to a deliverable that did not fully reflect KU needs. This was largely a result of limited time and capacity, but also partially reflected a lack of clear scoping and shared KT goals.

Another limitation was the positioning of this thesis work within a larger research project. Our research team used these interviews and focus groups to collect data for two separate projects with different research questions. We quickly learned that CCE and KT are inextricable, which meant that in discussing aspects of the CCE engagement process to understand how it could bring about population health impacts, insight about KT processes arose as well. We needed to adjust questions during the interview process to avoid asking the same thing twice, and this made

the analysis more complicated. For example, instead of coding one section of the interview, I coded the whole interview and parsed through answers to non-related questions to capture important insights. Working with a design that was originally intended to address different research questions may have contributed to some of the challenges recruiting the most appropriate participants to answer the research question, which was indicated in the limitations section of Chapter 2.

Finally, I acknowledge some changes made to the initial proposed methodology that were done to better represent the data. Initially, we had proposed the use of Dobbins' (2002) framework of research dissemination and utilization to guide the analysis, in addition to the Guide to Knowledge Translation Planning at CIHR (Canadian Institutes of Health Research, 2012), and sought to examine just the sharing and uptake of knowledge outputs. However, I quickly realized that participants could not often answer these questions because of the identified disconnect between initial handoff of knowledge outputs and their use, a lack of monitoring of the knowledge as it moved into the system, and our failure to capture more downstream KUs. Additionally, insights about the KT process came up through questions about engagement and participant reflections on their experience with CCE as a whole, and that it's difficult to separate out dissemination and utilization from the Dobbins framework from the entire process of KT. Thus, I expanded the research questions to include a broader view of KT, including the production and tailoring of knowledge, and dropped the Dobbins framework. I did not change the interview guides but approached the data collection and coding attuned to how information about KT occurs at all steps.

4.7 Directions for future research

I have presented several areas of future research throughout this discussion, such as the role of students as boundary spanners or the relative value of structured evaluation for CCE initiatives. However, the following are additional gaps that research could address that could supplement the findings of this thesis.

First, a future study could examine how implementing an explicit KT model or framework within CCE initiatives such as CS might overcome the gap between knowledge production and knowledge use. For example, several frameworks have been developed around collaborative KT in community and population health, such as the co-KT Framework (Kitson et al., 2013), Wilson and colleagues' framework for additional activities for community-based research (CBR) to link research to action (2010), or mapping CCE onto broader KT models, such as the K* spectrum (Middleton & Whitmore, 2017).

However, prior to undertaking such a study, it would be critical to assess the partnering organization or department's priorities for KT. A community organization or municipal department whose priority is on capacity building or contributing to program delivery may not be as interested as one whose priority is adding to their organizational knowledge or sharing accessible knowledge deliverables with their community. There would also be a need to understand the types of knowledge that is both useful and valuable to communities. We identified a range of non-academic knowledge outputs, and even non-tangible knowledge that are generated from CCE, but we did not find out which types of knowledge contributed the most to community or municipal needs. Future research could address this gap by engaging downstream KUs to understand which types of outputs are the most useful. This would also allow us to better understand the role of municipal decision makers within CCE. We were limited in our data

collection on exactly how knowledge was used within municipal or community organization decision-making, and future research should seek to follow knowledge once it has been passed off to KUs.

Finally, it will be helpful to identify the practices used by instructors and project partners who consulted with or presented findings to the potential beneficiaries of the knowledge within the community. Not only is this a critical step in ensuring CCE is accountable to the communities that provide the knowledge in the first place, but would support students in undertaking KT initiatives and may encourage sharing *beyond* municipal and institutional partners.

4.8 Final conclusions

This thesis contributed to the ongoing conversation about the relationship between CCE and KT by providing a detailed description of the activities and processes of a co-productive, service-learning model of CCE that contribute to the production and tailoring of knowledge outputs. It identified that CCE is already well positioned to, and purposefully seeks to, bring about meaningful KT, however its potential to support municipal and community work towards community safety and well-being hinges on collaborators being able to understand of what knowledge is needed by decision-makers, how to share it such that it is well-received and useful, and the ability to do so. Numerous barriers at the stages of production, tailoring, and sharing of this knowledge must be addressed in order to allow CCE to reach its full potential, and it may be important to consider the key constraints of a service-learning model when planning to undertake CCE in the first place. However, involving students, including graduate trainees, in co-production and knowledge output tailoring supports their development of key tangible skills and health systems knowledge while harnessing their unique and diverse insight into key issues, so if well-supported, can be a valuable model. Finally, this thesis contributed to a larger CIHR-funded

study, both through the production of KU-oriented research summary reports, but also its findings may be relevant to understanding the population health impacts of CCE, which relies on meaningful KT.

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Thesis appendices

Appendix 1: Bruyère Health Research Institute ethics approval letter (original)



Contact the Research Ethics Office: REB@bruyere.org
Visit the REB Website: <https://www.bruyere.org/en/researchethicsboard>

BRUYÈRE RESEARCH ETHICS BOARD – APPROVAL LETTER

Date: 4 May 2023

Investigator Name(s): Dr. Claire Kendall

REB Number: M16-23-009

Study Title: *The Population Health Impact of Community-Campus Engagement*

Review Type: ☐ Full Board Review ☒ Delegated Review ☐ Administrative Review

Date of Approval: 4 May 2023

Approval Expiry Date: 4 May 2024

Dear Dr. Kendall,

Thank you for submitting the above noted study to the Bruyère Research Ethics Board for review. The study has been reviewed by the REB and approval has been granted. This study is approved until the expiration date noted above.

The following documents are approved:

Document Name/Title	Document Version Date
BREB	March 24, 2023
Budget	April 4, 2023
Informed Consent Script – EN	April 4, 2023
Informed Consent Script – FR	April 4, 2023
Informed Consent Form – EN	April 4, 2023
Informed Consent Form – FR	April 4, 2023
Interview Confirmation – EN & FR	April 4, 2023
Invitation to Participate – EN & FR	April 4, 2023
Interview Guide – EN & FR	April 4, 2023
Invitation Email – EN & FR	April 4, 2023

No changes to, or deviations from, the approved documents should be initiated prior to submitting an appropriate amendment and obtaining written approval from the Research Ethics Board, except when necessary to eliminate immediate hazard(s) to study participants.

An Annual Renewal must be submitted a minimum of 30 days prior to the date of study expiration if the study will continue beyond the expiration date.



Contact the Research Ethics Office: REB@bruyere.org

Visit the REB Website: <https://www.bruyere.org/en/researchethicsboard>

If the study is completed by the expiry date noted above, a Study Closure report must be submitted to the REB.

Sincerely on behalf of the board,



Kristi Wilde,
Research Ethics Manager

Signing for:
Gordon DuVal, SJD
Chair, Bruyère Research Ethics Board

The Bruyère REB complies with the membership requirements and operates in compliance with the Tri-Council Policy Statement 2: Ethical Conduct for Research Involving Humans; the International Conference on Harmonization – Good Clinical Practice: Consolidated Guideline; the provisions of the Personal Health Information Protection Act 2004, and Part C Division 5 of the *Food and Drug Regulations* or with the definition in the *Clinical Trials for Medical Devices and Drugs Relating to COVID-19 Regulations*.

Appendix 2: University of Ottawa ethics approval letter

22/04/2025

Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherche

University of Ottawa

Office of Research Ethics and Integrity

Lettre d'approbation administrative | Letter of administrative approval

Numéro de dossier / Ethics File Number	H-07-23-9478
Titre du projet / Project Title	The Population Health Impact of Community-Campus Engagement
Type de projet / Project Type	Recherche de professeur / Professor's research project
CÉR primaire / Primary REB	Soins continus Bruyère / Bruyère Continuing Care
Statut du projet / Project Status	Renouvelé / Renewed
Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy)	13/07/2023
Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)	04/05/2026

Équipe de recherche / Research Team

Chercheur / Researcher	Affiliation	Role
Claire KENDALL	Département de médecine familiale / Department of Family Medicine	Chercheur Principal / Principal Investigator
Sydney PERSAUD	Département de médecine familiale / Department of Family Medicine	Coordonnateur de recherche / Research Coordinator
Michael FITZGERALD	Bruyère Research Institute	Co-chercheur / Co-investigator
Cynthia LARCHE	Northern Ontario School of Medicine University	Assistant de recherche / Research Assistant
Helle MOELLER	lakehead university	Co-chercheur principal / Co-principal investigator
Karen KERK	City of Thunder Bay	Collaborateur / Collaborator
David BUETTI	Faculté d'éducation / Faculty of Education	Coordonnateur de recherche / Research Coordinator
Erin CAMERON	Northern Ontario School of Medicine	Co-chercheur principal / Co-principal investigator
Chloe CHAMBERS	Département d'épidémiologie et santé publique / Department of Epidemiology and Public Health	Étudiant-chercheur / Student-researcher
Katie HEMSWORTH	Northern Ontario School of Medicine	Autre / Other

Conditions spéciales ou commentaires / Special conditions or comments:

Bruyère REB Number: M16-23-009

550, rue Cumberland, pièce 154 550 Cumberland Street, Room 154
Ottawa (Ontario) K1N 6N5 Canada Ottawa, Ontario K1N 6N5 Canada

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Université d'Ottawa

Bureau d'éthique et d'intégrité de la recherche

University of Ottawa

Office of Research Ethics and Integrity

L'Université d'Ottawa a signé une Entente, conforme aux exigences de la plus récente version de l'EPTC et tout autre règlement ou législation applicable, permettant au CER ci-haut nommé d'être désigné comme CER primaire pour les projets de recherche où

1) les activités principales de recherche sont menées sous l'autorité ou sous les auspices de l'établissement lié au CER primaire et

2) Une partie du projet est également réalisé sous l'autorité ou sous les auspices de l'Université d'Ottawa.

Cette lettre confirme que l'Université d'Ottawa a autorisé que le CER primaire soit le CER officiel pour l'évaluation et la supervision de ce projet de recherche. Ceci n'est pas une approbation éthique.

Afin de nous aider à garder votre dossier à jour, veuillez soumettre une copie de toutes demandes de modification, renouvellement d'approbation éthique etc. soumis à et approuvé par le CER primaire dès qu'elles sont disponibles.

Cette approbation administrative est valide pour la durée indiquée ci-haut et est sujette aux conditions énumérées dans la section intitulée « Conditions spéciales ou commentaires ».

The University of Ottawa has signed an Agreement, compliant with current TCPS guidelines and any other applicable guidelines or legislation regarding multisite review, allowing the REB named above to serve as Board of Record (BoR) for research projects where

1) the main research activities are conducted within the auspices or jurisdiction of the BoR's institution and

2) parts of the project are also conducted under the jurisdiction or auspices of the University of Ottawa.

This letter confirms that the University of Ottawa has authorized the REB named above to serve as Board of Record for the review and oversight of this research project. This is not an REB approval.

In order to help us keep your file up to date, please submit a copy of all amendment requests, project renewals or any other changes submitted to and approved by the BoR, as they become available.

Administrative approval is valid for the period indicated above and is subject to the conditions listed in the section entitled «Special conditions or comments».

Catherine PAQUET

Directeur / Director

Pour/For **Daniel LAGAREC** Président(e) du/ Chair of the **Comité d'éthique de la recherche en sciences de la santé et sciences / Health Sciences and Sciences Research Ethics Board**

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