

# JIPE

**Journal of Innovation in Polytechnic Education**

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## Land Acknowledgment

Humber Polytechnic is located within the traditional and treaty lands of the Mississaugas of the Credit. Known as Adoobiigok [A-doe-bee-goke], the “Place of the Alders” in Michi Saagiig [Mi-Chee Saw-Geeg] language, the region is uniquely situated along Humber River Watershed, which historically provided an integral connection for Anishinaabe [Ah-nish-nah-bay], Haudenosaunee [Hoeden-no-shownee], and Wendat [Wine-Dot] peoples between the Ontario Lakeshore and the Lake Simcoe/Georgian Bay regions. Now home to people of numerous nations, Adoobiigok continues to provide a vital source of interconnection for all.

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# Table of Contents



Volume 6 Issue 1  
December 2024

This general issue  
is a compilation  
of submissions  
published online-first  
on [jipe.ca](http://jipe.ca) in 2024.

## Foreword

---

### vi Foreword

Emma Smith, PhD  
Humber Polytechnic

---

### vii Foreword

Sharon M. McIntyre, M.Ed., DSocSci  
New Cottage Industries & Co.

---

### viii Foreword

Mbasa Mwawembe, BA  
Mangochi Community Technical College, Malawi

## Original Research Papers

---

### 6 Understanding Hope From the Voices of Service Users and Providers Across Canada

Cristina Alexandra Guerrero, PhD, and Tina Lackner, M.Sc  
Humber College Institute of Technology & Advanced Learning

---

### 29 What Promotes and Inhibits Sharing of Learning Designs? Teachers' Perspectives

Verner Larsen, PhD, Lisbeth Lunde Frederiksen, PhD, and Thomas Iskov, PhD  
VIA University College

---

### 40 Sexual Education For Individuals With Special Needs: Understanding And Overcoming Current Obstacles

Anastasiia Melnikova, BSc  
Humber College Institute of Technology & Advanced Learning

---

### 55 Navigating Digital Transformation: Agile Leadership and Strategic Flexibility in Mid-Sized Manufacturing Firms

Mark Stoiko, DBA  
Humber College Institute of Technology & Advanced Learning

---

### 73 The Effectiveness of Occupational Health and Safety Practices in Public Technical Training Institutes

Sangay Tshewang, M.Ed<sup>a</sup> and Sonam Wangmo, M.Ed<sup>b</sup>  
<sup>a</sup>Technical Training Institute, Chumey, Bumthang, <sup>b</sup>Technical Training Institute, Thimphu

---

### 89 Student Perceptions Of Flexible Deadlines

Lynne N. Kennette, PhD, Michelle Rivers, MEd,  
Durham College

---

**102 Examining Confidence Accuracy, Observation Skills, And The Dunning Kruger Effect: A Simulation Study On Eyewitness Memory**

Megan J. Sheridan, Bailey A.M. Howard, Richelle H. Pang  
Humber College Institute of Technology & Advanced Learning

---

**109 Equity and Health in Youth Sports**

Nicoletta Tompros, Luigi Gianvecchio, Paolo D'Antonio, Jalal Kamadia, Anthony Moscuza, Jaydon Milne, Alex McLean, Matteo Chiodo, Brandon Westfall, Joshua Hamilton, John-Tino Chiappetta-Sacchetti, Tyrus Bath  
Humber College Institute of Technology & Advanced Learning

---

**121 Unveiling the Unforeseen: Researchers' learning from a collaboration examining learner agency in vocational education across Canada, Denmark and New Zealand**

Steve Henry, M.EnvEd<sup>a</sup>, Emma Smith, PhD<sup>b</sup>, Ginger Grant, PhD, Jan Hendrik Roodt, PhD<sup>a</sup>, Lisa Anketell, M.Ed<sup>b</sup>, Niels Bjerre Tange, PhD<sup>c</sup>, Thomas Iskov, PhD<sup>c</sup>  
<sup>a</sup>Otago Polytechnic, <sup>b</sup>Humber Polytechnic, <sup>c</sup>VIA University College

---

**Essays**

---

**1 Building An Interprofessional Practice Approach In a Polytechnic Institution Beginning With Health-Care Education and Embracing The Concept As An Operational Leadership Imperative**

Dr. Cory Ross  
George Brown College

---

**19 Decision Making in the Innovation Process: Data-Driven vs. Data-Informed**

Muge Abac, PhD  
Humber College Institute of Technology & Advanced Learning

---

**24 Designing and Implementing Health and Wellness Programs: Positioning Health and Wellness at the Forefront of a Polytechnic Institution**

Ross CP<sup>a</sup>, Raskin G<sup>b</sup>, Callahan-Nasser I<sup>c</sup>  
<sup>a</sup>George Brown College, <sup>b</sup>Ross University School of Medicine, <sup>c</sup>McGill University

---

**130 Humber Polytechnic's Applied Research Program: An Autoethnography Of Participants' Reflections And Experiences**

Mira Kapetanovic BA, BSc, MSc, EdD, Fatima Momin, LLM, Georges Livanos M.E.Sc., P.Eng., Kehinde O. Ladipo, PhD, Natasha K. Frank, MN, BScN, BSc, Meshanda Ellison BSCJ/PG CERT-ADR, Gurpreet Kaur M.Sc., Akshay Khosla, M.Sc., Susan MacGregor, MDEM, MBA, Priscilla Enetomhe, MSc.  
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# JIPE

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# Foreword

**Emma Smith, PhD**

Humber Polytechnic

Welcome to the 2024 General Issue! The *Journal of Innovation in Polytechnic Education (JIPE)* continues to be a vibrant platform for sharing creative, community-driven research that sparks renewing conversations. Nurtured in a polytechnic ecosystem centred on belonging and sustainability, our open-access journal showcases a wide range of projects from researchers working across disciplines. Supported by a dedicated team of reviewers and advisors, JIPE benefits from expert guidance and encouragement, helping to nurture the growth of impactful and meaningful scholarship.

This issue proudly celebrates student-led research! By publishing final projects and course presentations, JIPE has worked closely with students throughout the entire process, assisting them as they navigate the journey to publication. These contributions highlight the dedication of Humber students and the influence of their research in shaping the future of education. The exchange of innovative ideas, while deepening impacts, is essential to the knowledge-sharing priorities of our polytechnic community.

We are also appreciative of the thought-provoking submissions shared by researchers within Canada and across the world. These enriching works offer valuable perspectives and experiences on inquiry, collaboration and critique that foster the sustainability of the JIPE publication.

Knowledge mobilization is truly activated when we can connect and grow together.

In this issue, a collection of original research papers and essays is included for reader exploration. These works serve as an invitation for your dynamic research projects and reflections to be published. The JIPE team has developed an accessible and comprehensive process for submissions, supported by the journal's guiding principles, that welcomes collaboration and multi-method research approaches.

Looking forward to reading your contributions next year!

## Author Note

**Emma Smith, PhD**, is an Associate Dean in Innovative Learning at Humber Polytechnic. She received her PhD from Toronto Metropolitan University and York University's Communication and Culture program. Emma has lectured in the fields of research design and methodologies, gender studies, sociology, criminology, and professional development at the undergraduate level. Co-receiving the Research Excellence Award by the President of Humber College in August 2023, Emma is currently a Co-Investigator on a multi-method evaluation of the Toronto Police Service's Neighbourhood Community Officer Program.

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# Foreword

**Sharon M. McIntyre, M.Ed., DSocSci**

New Cottage Industries & Co.

Empathy is a foundational element in ethical and impactful research. When researchers approach their project’s subjects and participants with a genuine effort to understand their perspectives, needs, and lived experiences, they not only uphold the dignity of those involved but also enhance the quality and relevance of their findings. It involves a conscious effort to appreciate their circumstances and challenges, ensuring that their voices are respected and authentically represented. Trust is fostered by empathetic research, opening channels for authentic dialogue and ensuring new knowledge produced is rooted in real-world contexts.

The varied articles in this issue of the *Journal of Innovation in Polytechnic Education (JIPE)* reflect this principle. For example, the subjects and participants in these studies include service providers, teacher communities, individuals with special needs, and students facing deadlines—these articles highlight how applied research thrives when it centres human connections. By acknowledging the complexity and uniqueness of participants’ lives and needs, these projects deliver the types of insights that can bridge the gap between theoretical exploration and practical application.

As researchers, our responsibility extends beyond generating data; we must ensure our work contributes to solutions that resonate with those most impacted. This issue reminds us that empathy is not just an ethical obligation—it can be a catalyst for innovation and a means to foster more inclusive, sustainable outcomes. Let the studies featured here inspire us to prioritize empathy at every stage of our research endeavours, shaping a future where knowledge truly serves humanity.

## Author Note

**Dr. Sharon M. McIntyre**, president of New Cottage Industries & Co., is a researcher, educator and designer.

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# Foreword

**Mbasa Mwawembe, BA**

Mangochi Community Technical College, Malawi

As I reflect on my one-year tenure as a member of the editorial board of the *Journal of Innovation in Polytechnic Education*, I am filled with a sense of pride and accomplishment. It has been an honour to be part of a team that is dedicated to promoting excellence in polytechnic education through innovative research and practices.

As an editorial board member, I have had the privilege of reviewing manuscripts and working with authors to refine their work. I have been impressed by the quality and diversity of submissions, which reflect the creativity, innovation, and passion of educators and researchers in the field.

This journal has provided a platform for scholars and practitioners to share their experiences, insights, and research findings on innovative practices in polytechnic education. It has also facilitated collaboration and knowledge-sharing among stakeholders, including educators, researchers, policymakers, and industry partners.

As the editorial board, I am confident that the *Journal of Innovation in Polytechnic Education* will continue to thrive and evolve. I am grateful for the opportunity to have been part of this journey and look forward to seeing the journal's future contributions to the field.

## Author Note

As a visionary leader and innovator, **Mbasa Mwawembe** has transformed Mangochi Community Technical College in Malawi into a beacon of excellence in technical education. Under Mbasa's leadership, the college has achieved numerous milestones, earning recognition and accolades from local and international organizations.

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# Building An Interprofessional Practice Approach In a Polytechnic Institution Beginning With Health-Care Education and Embracing The Concept As An Operational Leadership Imperative

Dr. Cory Ross  
George Brown College

## Keywords

Interprofessional education and practice, innovation, modeling, collaboration

## Article History

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## Abstract

Polytechnic educational institutions have led the way in providing innovative and dynamic programming to students that meet industry needs. They serve as leaders of collaboration and agents of change not only in their respective programs but also in the way they conduct themselves as responsible businesses. This essay chronicles a series of decisions and events that have allowed one polytechnic higher education institution to adapt to changing times and embrace a new model of budget planning for the future. The ability for the polytechnic to change and move forward is truly remarkable. George Brown College has been able to incorporate crucial new ways of designing and creating budgets that assist the college workforce to feel connected and determined to effect its mission.

## Introduction

**Professor Hugh Barr, a pioneer in the development of interprofessional education (IPE),** listed in an early paper the key elements needed in order for interprofessional practice to flourish: “The interprofessional movement thrives where conditions are conducive; where openness and mutual support in the workplace characterise relations; where democratisation in universities liberalises learning; where the need for change to improve health and social care is addressed.” (Barr, 2015).

Back in 2007, George Brown College acknowledged the paradigm shift that was needed in order to produce the IPE experience for its students. As a group, the Faculty of Health Sciences and Community Services kept these drivers at the forefront of their design of new curricula or activities that showcase IPE. The key concepts of IPE were to be used as a filter to any suggestions that were received in order to enrich and promote the IPE experience for all students in the respective divisions. Once agreement was achieved about the curricular change or the insertion of the educational opportunity, sustainability of that change would be planned.

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\***Essays** The primary purpose of an essay is to advance a new idea, summarize a development, or initiate or engage in discussion. The subject matter is of general scholarly interest.

George Brown College, located in Toronto, is among the leaders in the interprofessional healthcare education movement in Canada. “Interprofessional Education (IPE) occurs when two or more professions learn with, from and about each other to improve collaboration and the quality of care” (CAIPE 2007). George Brown provides undergraduate and postgraduate training programs for health professionals, health service workers and other professionals spanning over 20 disciplines.

Policy planners, educators and practitioners in the healthcare community have long discussed the importance of increasing cooperation, collaboration and teamwork among healthcare professionals. As far back as the 1980’s, the World Health Organization advocated for ‘multi-professional’ education among undergraduate healthcare students to build “the skills necessary for solving the priority health problems of individuals and communities that are known to be particularly amenable to team-work. The emphasis was on learning how to interact with one another” (WHO, 1988). More recent research is demonstrating the important patient care outcomes arising from improvements to health care teamwork.

Much has been accomplished in the past two decades around the world to create, foster, support and evaluate interprofessional educational programs for pre-licensure healthcare students and licensed practitioners which aim to build the knowledge, skills and attitudes which underlie collaborative practice and teamwork (Sorbaro et al 2008). In Canada, the federal government has actively promoted and supported research and education programs across the country through its Interprofessional Education for Collaborative Patient-Centred Practice (IECPCP) Strategy (Health Canada) and more recently, in supporting the Canadian Interprofessional Health Collaborative (CIHC), the pan-Canadian network of interprofessional activity.

Within the Faculty of Community Services and Health Sciences at George Brown College, we have created and continue to evolve innovative and interactive opportunities to bring together students and faculty of different professions in order to share their perspectives while learning together in areas of common interest in the practice of healthcare. Our goal is to enable George Brown graduates to be job-ready as successful collaborators and team players in healthcare practice with the ultimate goal of improving patient outcomes.

Over the years, we have established four foundational interprofessional learning outcomes which will assist us in graduating well-rounded and better collaborators and healthcare team members. These involve developing: (i) a broader understanding and appreciation of the relationship between one’s own profession and the background, scope and roles of other healthcare professionals, (ii) team skills, (iii) collaborative skills as a member of a patient-centred healthcare team, and (iv) a broad appreciation for the organization and ethical issues of the healthcare system in which they will work. These outcomes have also served to build curriculum in other programs that are not directly associated with healthcare i.e., Business, Engineering, Arts and Design, Culinary and Hospitality.

To meet these interprofessional learning outcomes, we have developed over the years an exciting array of interprofessional education opportunities for students of all programs. (GBC, 2008). These IPE experiences range on a continuum from collaborative interactive learning with students of other professions in the classroom to applied collaborative practice with students of other professions in simulated and actual clinical situations. The latter includes our on-campus outpatient clinic, our simulated practice centre, our research centres, administrative and capstone projects. We have strategically partnered deeply with the sector, industry and the community.

The following is a short list of examples of the range of IPE experiences we have created through the years, providing opportunities for our students and faculty.

### **The Interprofessional Learning Clinic (GBC 2008)**

At George Brown’s Interprofessional Learning Clinic, the general public and members of the college community are offered a number of health and wellness services. All services are provided by student clinicians under the direct supervision of George Brown’s expert health sciences faculty, all of whom are registered professionals. These services include dental health, hearing and community health promotion.

The Health Promotion service provides students with a unique interprofessional applied learning experience in the practice of health promotion. Initiated in September 2007, the health promotion service supports the community clinical/field placement requirements from several programs, including

nursing, dental hygiene, lifestyle management, hearing instrument specialist, health information management and social service worker. In addition, we have partnered with the Fitzgerald Academy at St. Michael's Hospital to enable second-year medical students from University of Toronto to join our interprofessional student health promotion teams. This supervised field experience enables and supports student collaboration and interprofessional student learning, applied practice and scholarly research related to community-based health promotion. A series of grand rounds were created to help augment the experience of our entire student base. The grand rounds focused on interprofessional practice and care and served to reinforce the IPE curriculum delivered in the classroom.

### **Learning To Care Together (GBC 2010)**

Learning To Care Together (LTCT) involved a unique collaboration between George Brown College and Revera Inc., an operator of long-term care and retirement living residences across North America. Together, we created an innovative interprofessional education partnership including interprofessional field placements for our students at Revera's long-term care residences. This experience enabled interprofessional interaction between George Brown students and Revera's staff caregivers and exposed learners to positive examples of collaboration and resident-centred practice in long-term care. As well, we created a new interprofessional curriculum to be used both at the college and for professional development at Revera, in key areas related to the care of seniors. This program has endured the test of time and has been embedded into practice.

In order to create this program, the project received provincial funding over three years through the Interprofessional Health Education Innovation Fund, co-sponsored by the Ontario Ministry of Health and Long-Term Care and the Ministry of Training, Colleges and Universities. Eight modules were created from this initiative. Today, these modules are embedded in different program curricula and have been evaluated for their effectiveness and currency.

### **Course Work: (1) Collaboration – The Future of Health Care**

GSSC 1053 was our first formal interprofessional education course. Initially offered in Fall 2007, this 14-week, 42-hour course provides students from several programs with a broad understanding of how collaboration and teamwork are

key to Canada's healthcare system in the new millennium. Students in this course learn about the theories of teamwork and collaboration and put this into practice through a project which emphasizes teamwork.

### **(2) Health-Living the Connections**

This portfolio course provides an opportunity for the learner to experience firsthand being a client/patient in four of the health science programs offered at George Brown College. The programs selected were Dental Hygiene, Fitness and Lifestyle Management, Hearing Instrument Specialist and Orthotic/Prosthetic Technician. The learner participates in screening tests from each program and receives follow-up recommendations based on their personal needs. The learner is expected to implement the recommendations by utilizing resources available to them at the college. Through seminars led by program staff and students in their areas of expertise, reading of relevant articles, journaling and viewing health-related seminars, the student is exposed to the importance of health promotion, interprofessional education and collaboration.

### **Expansion of the Interprofessional Practice Model To Budget Planning At The College (Ross et al., 2011)**

For years, educators and practitioners in the healthcare community have discussed the importance of increasing cooperation, collaboration and teamwork among healthcare professionals. As far back as the 1980's, the World Health Organization advocated for "multi-professional" education among undergraduate healthcare students to build "the skills necessary for solving the priority health problems of individuals and communities that are known to be particularly amenable to team-work. The focus has been on styles of learning how to interact with one another" (WHO 1988).

Within the Division of Community Services and Health Sciences at George Brown College, we created innovative and interactive opportunities to bring together students and faculty of different professions in order to share their perspectives while learning together in areas of common interest in the art, science and philosophy of practicing their healing profession. Using this as an example, we have expanded the concepts and practices learnt from healthcare to the budget planning and creation of new programs. Instead of talking about patient-centred care, we now speak about a student-centred focus. Our goal is to enable

George Brown graduates to be job-ready by being successful collaborators and team-players in practice with the ultimate goal of improving the sectors they serve. The first pilot of the interprofessional approach to planning and in particular budget planning was incubated in the Division of Community Services and Health Sciences.

Recognizing that in the polytechnic post-secondary system there are always competing needs for resources, we acknowledged that planning needed to change. By using the fundamental principles that anchor interprofessional practice, we succeeded in embracing and modeling a new strategic business planning process utilizing the fundamental tenets of interprofessionalism. We recognized early on that we cannot create plans any longer in siloes. By using interprofessional practice at the forefront of our planning, we have discovered a powerful way of engaging our community. The result of this engagement has paid dividends in making budget planning more transparent and demystifying the process. The end result of the integrated budget planning process is a budget that reflects the voices of our talented workforce and the power of leveraging the expertise at our polytechnic. By incorporating Appreciative Inquiry as a guiding principle in how we communicate with one another, the conversations and ideas presented have led to some of the greatest innovations in our educational landscape. The definition of Appreciative Inquiry is: “the cooperative search for the best in people, their organizations, and the world around them. It involves systematic discover of what gives a system “life” when it is most effective and capable in economic, ecological, and human terms. Appreciative Inquiry involves the art and practice of asking questions that strengthen a system’s capacity to heighten positive potential. It mobilizes inquiry through crafting an “unconditional positive question” often involving throughout the literature, it is supported that “in order for collaboration to occur there must be a means of bringing together, valuing and aligning the diversity of experiences, strengths and ideas that will inevitably exist among all the relevant stakeholders” (Anderson et al, 2008).

The richness of thought leadership and exploration in the process has expressed a professional diversity of solutions to our constraints and resulted in a dynamic and robust business plan. This process has helped us regain connectedness in our educational institution that was lost during the pandemic.

## Conclusion

As polytechnic institutions grow and mature, the need for finding more innovative ways of operating is paramount. One of the monikers used at our college is “respect the past, embrace the future.” There was always a need for change; however with the pandemic, we accelerated our rate of change. This paper is a good example of how we, as a polytechnic organization, piloted, incubated and changed the way we function as a provider of education and a business.

Our polytechnic has committed to design its business practices and plans in a very transparent way utilizing the interprofessional paradigm. By bringing together the corporate centres with our academic divisions, we feel that our business plans have been enriched and have sequestered support college-wide. The end result of this change will be an polytechnic institution that grows and develops in a responsible and sustainable manner. This example of collaboration will serve us, our industry partners and our future students well as we aspire and transform our institution into a high-performing organization.

## Note on Contributor

**Dr. Cory Ross**, MSc, DC, DPH(cc), MBA, DSc, FRSPH, FRCP(Edin) is Provost, George Brown College. Bethune Laureate, Bethune Medical Development Association Canada [coryross@georgebrown.ca](mailto:coryross@georgebrown.ca)

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- The Centre for the Advancement of Interprofessional Education. <https://www.caipe.org/>

# Understanding Hope From the Voices of Service Users and Providers Across Canada

Cristina Alexandra Guerrero, PhD, and Tina Lackner, M.Sc

Humber College Institute of Technology & Advanced Learning

## Keywords

Hope; hope theory; phenomenological hermeneutics; service providers; service users; human services delivery

## Article History

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**\*Original Research Papers** are papers that report on original empirical research with a focus on teaching and learning. Papers may be qualitative or quantitative and include an Abstract, Introduction, Method, Results, Discussion, and Reference section, as well as any tables and/or figures.

## Abstract

Although Canada is home to the second largest non-profit and volunteer sector in the world, there is an absence of an overarching framework to guide human services (HS) delivery (Hall et. al., 2005; Rahmani, 2022). This paper documents the first phase of a three-year study that seeks to begin to bridge this gap by learning from both HS providers and users' narratives, specifically in relation to the topics of hope, self-compassion, and authentic collaboration.

The first phase of the research focused on the topic of hope via the following questions:

1. How do HS consumers and service providers meaningfully experience hope in the course of HS delivery within their lifeworlds?
2. How might these experiences inform a guiding framework for Canadian HS delivery?

A thematic analysis of surveys and interviews collected from six partner organizations across Canada revealed the following themes: 1) the importance of human connections; 2) the building and evolution of hope; and 3) the futurity of hope. These findings point out several implications for practice and research, including a need for human-centred training that focuses more on topics like sensitivity and compassion. Respondents, particularly the service providers, also spoke to the need for strategies and opportunities to take care of oneself physically, mentally, and spiritually. This call is especially prevalent in the wake of the COVID-19 pandemic and funding cuts across Canada. This study was funded by a three-year College and Community Social Innovation Fund (CCSIF) grant, which is managed by the Natural Sciences and Engineering Research Council of Canada (NSERC).

## Introduction

**Canada is home to the second largest non-profit and volunteer** sector in the world (Hall et. al., 2005; Rahmani, 2022). Economic activity in the non-profit sector accounted for 8.5% of Canada's gross domestic product in 2017. This amounts to a total of 169.2 billion dollars (Statistics Canada, 2019). Human services (HS) comprise almost two thirds of the workforce in this sector (Hall et. al., 2005). This workforce is also multidisciplinary, as it encompasses many fields and levels of commitment aimed at improving the quality of life of individuals, families and communities in and through service delivery participation (Healy & Lonne, 2010; Kincaid, 2009).

Although a core tenet of HS delivery is the provision of services that promote a higher quality of life among users, a gap remains when it comes to an overarching and cross-disciplinary guiding framework to root service provision principles across Canada (Fine & Myers, 2007). This research seeks to address this gap through three interrelated 1-year projects exploring the notions of hope, self-compassion, and authentic collaboration.

This report documents the first phase of the research, which specifically focused on the theme of hope. The research questions are as follows:

1. How do HS consumers and service providers meaningfully experience hope in the course of HS delivery within their lifeworlds?
2. How might these experiences inform a guiding framework for Canadian HS delivery?

## Literature Review

In his book *The pedagogy of hope* (1996), Brazilian educator Paulo Freire presents the notion of hope as a "natural, possible, and necessary" human characteristic that "begins as knowledge and with time, transforms into wisdom" (p.58). It is through this knowledge and wisdom that individuals can share and transmit hope, particularly in relation to life experiences that may seem bleak. Anderson (2006) also writes about the transmission of hope and asserts that it entails processes of becoming and being; it takes place as "transindividual affectivities which move between bodies" and "emerge[s] through processes of qualification...that are directed towards the future" (p. 741).

Bishop and Willis (2014) conceptualize hope in the everyday context as an ubiquitous component of people's lives. For them, hope is subjective and carries differing meanings depending on the person(s) addressing it and how they internalize their lived experiences. Hope could serve as a feeling of aspiration to draw upon when all else seems lost. Benzein, Norberg, and Saveman (2001) also view hope as an aspiration and add that it refers to the idea or desire that there are better days to come.

Luo, van Horen, Mellet and Zeelenberg (2022) acknowledge that definitions of hope in the academic literature are variable and without a general consensus, partially because of their interdisciplinarity and ubiquity. However, they also assert that there are some important considerations that may help shape a working definition of hope. Drawing from an analysis of over 100 peer-reviewed journal articles defining hope along with their own five studies involving a total of 1033 participants, Luo and colleagues conclude that there are some key divergences in its conceptualization. They share that hope is both a cognitive and emotional concept, and that it encompasses the notions of desire, possibility, coping, belief, and faith. As such, they put forth their definition of hope as the "belief that a positive future outcome is possible *combined* with a desire for that outcome" (p. 12).

This wide-encompassing understanding of hope illuminates people's aspirations, goals, and at times, agency towards a pathway into the future (Snyder et. al., 1991). Bruininks and Malle (2005) add the dimension of desire and understanding of possibility. They assert that there is a difference between positivity or optimism and hope; while people may be optimistic about an outcome that is possible, they may hope for an outcome that is not as likely but may be possible. This distinction points to different degrees of people's conceptualizations of what is possible and how they think about that possibility.

In the human services delivery field, it is crucial to understand the various conceptualizations and manifestations of hope, especially given the many fields, domains, and people that it impacts. This understanding can help inform human service providers with human-centred skill sets to assist their clients. While each person understands and experiences hope differently, it is also important to note that these understandings and

experiences are also contextual and fluid. In other words, each person's days carry with them different high and low points across time and space. Paying close attention to the experiences that both HS providers and users share can provide useful insights for the human services delivery field to develop more human-centred frameworks.

## Methodology

### Phenomenological hermeneutics

The commitment to paying close attention to the lived experiences of both HS delivery providers and consumers is theoretically grounded in phenomenological hermeneutics, which centres on the researcher's responsiveness to the participant(s) and the words that they share. Aslaigh and Cloyne (2021) draw from Gadamer (1976) and assert that this theoretical approach extends beyond connecting with participants to learn about their experiences. Phenomenological hermeneutics also serves as an avenue through which participant narratives illuminate the "unseen" as well as the "conditions in which understanding, perception, experience and knowing itself takes place" (p. 1610). In order to obtain what Heidegger (1962) terms a "clearing" of understanding, however, the researcher must acknowledge their own "horizon" of understanding the world and at the same time, become closely attuned to the sounds, words, and expressions as shared by participants (Gadamer, 2003).

### Data collection methods

Conducting qualitative research via a phenomenological hermeneutic approach necessitated data collection methods that utilized open-ended questions to facilitate participants' narratives. These narratives were crucial to providing the study with a rich data set that would illuminate both the participants' experiences and the researchers' understanding of the key principles necessary to establish a much-needed consumer-informed and compassion-based HS framework in Canada. As such, the study utilized in-depth interviews as well as online surveys guided by open-ended phenomenological questioning.

### Participant organizations

While eight organizations were originally enlisted as partners, circumstances related to COVID led two of them to withdraw from the study. In the end, six organizations were represented in the data collected for this phase of the research. These organizations were:

- Family Transition Place, Orangeville ON—a women's shelter committed to addressing gender-based violence and the promotion of healthy relationships
- Heartache2Hope, Oakville ON—a support centre for people who have lost a loved one to suicide
- Hope Resource Centre Association, Westlock AB—a support centre dedicated to building community as well as addressing domestic violence, abuse and trauma
- Southwest Nova Transition House Association—Juniper House, Southwestern NS—a shelter for women and children experiencing domestic abuse
- Wellspring Cancer Support Foundation, Toronto ON—cancer support programming and resources for people in the Toronto area
- Wellspring London and Region, London ON—cancer support programming for people in the London area

The diversity of services provided by these organizations mirrors the characteristically varied character of HS across Canada in terms of target population, types of resources and programming, and professions involved in providing services. The processes of collecting data from both service providers and users also facilitated a variety of perspectives to inform this study.

### Participant recruitment

Participants were recruited in a variety of ways and in conjunction with the partner organizations above. The Co-Principal Investigators worked with the organization's liaison to present at staff meetings and share postcards with the study information and website where prospective participants could learn more about the research and either complete a survey or schedule an interview. The liaisons at some of the organizations also personally assisted with recruitment efforts by emailing their listservs with the study details. Some of them also hosted full-day events so that interested persons could sign up for interviews with one of the Co-Principal Investigators. Across the two data collection methods for which there was complete data, 42 participants self-identified as service providers, and 67 participants self-identified as service users.

### Interviews

In-depth interviews with participants who self-identified as either service users or consumers were conducted between the winter and spring of 2022. The interviews were conducted either in person, on the phone, or virtually. The in-person and telephone interviews were audio-recorded

using a portable recorder. The virtual interviews were also recorded, but whether they were recorded as audio only or with the cameras on was contingent on the participant's preference and consent. All interviews were then transcribed onto Word documents and entered into Qualtrics. A total of 66 people representing the six partner organizations listed above participated via this data collection method, which entailed demographic questions for administrative purposes along with questions on experiences with hope before, during, and after participating in the program. Out of these, 20 self-identified as service providers and 46 self-identified as service users. To provide the study with details to inform a guiding framework for HS, participants were also asked for their perspectives on the organization's strengths and how it could further strengthen service delivery.

### **Online surveys**

A total of 43 surveys were collected between March 2021 and 2022. Out of these, 22 were completed by self-identified service providers, and 21 were completed by self-identified service users. The publicly available and web-based survey was created using Qualtrics and was made available both as a link that was shared with prospective participants and on the research website [shareyourstories.ca](http://shareyourstories.ca). Like the interviews, the survey began with demographic questions and then progressed to phenomenologically guided open-ended questions intended to facilitate participants' sharing of experiences via their typed responses in the provided text boxes. This design was intended to provide greater access to participants in relation to timing and format. This design has also been successfully applied in other research projects seeking to develop phenomenologically rich data using open-ended survey design (see for example, Nickerson-White, 2019, and Woods et. al, 2015).

### **Data Analysis**

As mentioned in the above section, all surveys were web-based and collected using Qualtrics, which was set up to organize the incoming data according to question. Each interview was transcribed verbatim onto a Word document and then uploaded to Qualtrics question by question for later analysis.

Given that the goal of the research was to understand the human phenomenon of hope through a phenomenological hermeneutic approach (Ajjawi & Higgs, 2007; Gadamer,

1975), the preliminary data analysis stage necessitated that the research team immerse itself as fully as possible into the data as a whole. This process involved several individual readings followed by a discussion of what elements of participants' experiences, words, and expressions stood out the most. This initial process was necessary for the research team in order to avoid inserting each person's own standpoints and instead, collectively work towards "a clearing" in understanding the participants' experiences (Heidegger, 1962; Sutton & Austin, 2015). In other words, this collective process assisted with attempting to "get underneath" what participants share in order to discern meaning (Larkin et. al., 2005; Oerther, 2020).

Academics engaging with phenomenological hermeneutics have noted a lack of clarity regarding procedures for analyzing data (Fleming et al., 2003, cited in Alsaigh & Coyne, 2021). This uncertainty also emerged in this study, as questions arose about how the research team would know if its members meaningfully engaged with participants' "horizons" as Gadamer advised. This uncertainty was also met with initial reticence to use a rigid procedure for data analysis, especially in light of the work of other academics like Moules et. al. (2015), who consider a pre-determined structure as contrary to the open-ended nature of phenomenological hermeneutics (Alsaigh & Coyne, 2021). However, given the vast amounts of data that required interpretation and dissemination, it was necessary to determine some sort of analytical structure.

As such, the research team drew from a framework used by phenomenological researchers Ajjawi and Higgs (2007), which involved a deep immersion of participants' words followed by connections to researcher understandings and the existing academic literature. This centrality of attention to the participants necessitated coding strategies based on participants' "horizons" and how they constructed their lived experiences through the stories they shared. For the first of these two cycles, in vivo coding was used. This coding strategy was intended to pay close attention to the verbatim terms, words, ideas, and expressions as shared by the participants (Onwuegbuzie, Frels, & Hwang, 2016; Saldaña, 2016). The second of these two cycles was focused coding, which facilitated the grouping of frequent in-vivo codes from the first cycle. This process facilitated a clear representation of the frequency of particular words and phrases shared by

participants, which in turn led to the three themes discussed in the Results section.

Because of this study's commitment to phenomenological hermeneutics and the centrality of participants' voices, the section that follows includes excerpts of what they shared without any editing for grammar or syntax. This is a means of preserving the participants' "horizons" in relation to their lived experiences. However, it must be noted that any specific names that were mentioned have been removed to maintain anonymity and confidentiality.

## Results

An analysis of the surveys and interviews revealed three interrelated themes: 1) the importance of human connections; 2) the building and evolution of hope; and 3) the futurity of hope. Each of these three themes are discussed in detail below.

### Theme 1: Importance of human connections

While the HS field is immense in Canada and around the world, much of the focus tends to be on the actual services provided rather than the ways in which they are provided. As one respondent indicated, oftentimes seeking services related to their health may feel "clinical" or "sterile, like getting evaluation at a hospital." She also shared how the human aspect of services, or rather, how service providers worked with consumers by "being inviting, warm, ... and empathetic" was crucial to her sense of hope. Such commentary illustrates the ways in which the genuine sense of *how* services are delivered are just as important as the types of services provided.

#### The initial contact

While the participants represented organizations offering different services, their responses to the question about their initial connection with said organizations revealed a desire for support. For some participants, their purpose for the initial contact was to obtain resources and information about the issues they were experiencing, such as breast cancer or domestic violence. One participant shared how she first wanted to use the organization's "library to educate" herself more about her issue before talking to someone else about it. For many others, however, the initial connection was informed by word-of-mouth from former service users or from practitioners with whom they had been

in contact. This process in itself served for some as a means of meeting other people who had experienced similar issues and with whom they could interact. One participant shared that she "just needed to touch base with people that were going through what I was going through." This statement is people-centred, and points to the potential impacts of interacting with others who could share their experiences and advice in ways that practitioners may not be able to. Another participant shared a multi-layered purpose for connecting with an organization for cancer support. She said that:

*My whole purpose in going there [to the organization] was hoping that they would help me get through the emotional and physical issues. And the other part I was hoping for was the socialization with people that were going through the same process. You know a lot of people say we understand or we know what you're going through, so [organization] with their social and group discussions helped me cope with the emotion I was going through.*

This data excerpt illustrates some of the ways in which HS can be dynamic, interactive, and self-determined. These processes move away from commonly-held assumptions of HS as a one-on-one and unidirectional operation in which the HS provider is the expert and the HS consumer is the recipient.

#### Ongoing support within the organization's programs

The nature of the programming within the partner organizations was also cited as a significant contributor to the participants' feelings of hope. As one participant noted, the use of art therapy at the organization helped her to shift her focus away from her cancer and to connect with both people and the art. When asked about her experiences of hope when receiving services, she indicated that:

*It's just like "oh wow!" I found before your hope went up and down with the medical treatment, that was the only thing drawn on but when I kinda look at the—for instance I started the art therapy program. I thought what was kinda good was that it wasn't really focused a lot on the cancer, like we weren't really talking a lot about that and more about social and things springing up and it was more positive focused, which I thought*

*was just really good for me at that time. To have some positive experience through art therapy.*

This experience also illustrates that setting a positive tone and providing service users with various tools such as art in addition to spoken communication can provide a sense of psychological safety and relief from stress, anxiety, and fear. These words also mirror Bilgin, Kirca, and Ozdogan's (2018) research on art therapy with cancer patients, which outlines how thoughtfully implemented art therapy can help support physical and psychological healing, creativity, and quality of life. This research also asserts that this type of service can only succeed if informed by the characteristics and needs of the clientele. Such a point is reflected in another service user's comments in reference to the question about how she came to feel hope when receiving services when she mentioned that:

*They're very direct and very individualistic. So there's nothing by rote. It's all very honest. Does that make sense? They don't beat around the bush. They know [name of service user] would do it this way and [name of other service user] would do it that way, and that's all fine and dandy...So you don't feel like you're talking to you know, just a mechanical "well yes, we have this program." Yeah, they bring it down to "what are your interests?"*

The COVID-19 pandemic also greatly figured into the experiences of several participants. One service provider noted that upon joining her organization she recognized a gap in service accessibility for people living outside a particular set of communities. As such, she created a plan for virtual services. She added:

*It would've been in Fall of 2019 and then the pandemic happened in like, March of 2020. So it meant for us what we had put in place as far as that strategic plan with the virtual services, became a reality very quickly, mobilized into early 2020 and so it thrust us into that and as a result we were able to do that massive outreach in communities because it was virtual now. And so it really connected people and gave people a place where they felt they belonged.*

The timeliness and comprehensive planning for virtual programming helped provide greater access to service

users. This quick pivot to online programming did not go unnoticed by service users. As one service user shared that despite the COVID shutdowns, the organization was "so quick to get on board with Zoom classes, Zoom meetings. There was always a phone call...Art therapy was done by zoom...They've been fantastic...And initially I was resistant to doing stuff by Zoom." Another service user who lived a 45-minute drive away from the organization indicated that the virtual format allowed her to benefit from "more programs out this way and sign up for everything." She also shared that the continued availability of different offerings led her to "have hope looking forward to the next program." The words of these two participants demonstrate that while the world is resuming to more fully in-person programming, maintaining an ongoing availability of virtual services can continue to benefit those who may not live in close proximity to the organization.

## **Theme 2: The building and evolution of hope**

As indicated in the discussion of the first theme, the human connections at first contact and thereafter contributed to the participants' feelings and experiences of hope, particularly if they were "at a difficult place". According to one survey respondent and service user who lost a loved one to suicide, "hope played a huge role" in helping her to "cry and not be judged...and understand why [she] was feeling the way [she] was." For her, hope was a foundation from which to build a "new normal."

Another service user indicated in his interview that the "escalating" "chaos" related to a "painful experience" made it difficult for him to feel any sense of hope at first. However, his cousin's wife's referral to a HS provider helped him to feel an initial sense of hope and build it from there:

*When I realized that [HS provider] did believe my story, and she was going to help me. I could tell, by the way she did her job that she could do it well, the second I knew, she was going to help me, oh it was insane. It was a good feeling...She saved my life.*

This service user also shared how his lack of hope impacted his relationships and interactions with others, and how the HS provider's support helped him with that as well:

*It was affecting all my life. My dad, he's going through cancer treatments, right now. So I have been making a trip to take him to those treatments and then helping out on his farm during like you know. So, I was neglecting a lot of other things I was doing. I was kind of falling into like, doing nothing and just like, being by myself kind of thing. And I was neglecting other people that didn't need my help...So, her kind of piecing together my life back together and get it under control made it, so I can.*

He also illuminated how personalized and knowledgeable HS delivery can help strengthen how HS users experience hope when he indicated that finding “a resolution for that specific situation” and knowing what decisions to make “based on that moment, and what we needed for that situation” was “extremely helpful”. This service user’s commentary highlights the powerful ways in which HS delivery can extend beyond the actual services in themselves and bring about a sense of hope that in turn helps people reclaim their lives, relationships, and aspirations for the future.

Another service user also reported the importance of recognizing the ebbs and flows of hope and the ways in which it figures into lived experiences. As she shared:

*It's really important to have hope and to accept that your hope changes as your life goes on. I guess whether you're ill or not ill, as you get older even if you weren't sick, you'll still be hoping that you know your partner didn't die or that your children still came to visit you. We're always hoping, I guess not everybody. I'm trying not to speak for everyone but I think most people have hope for something, whether it's a realistic hope or not. So you have to recognize your feelings, and this is stuff I learned through [Organization]. Recognize, “I feel really sad”, or “I have anxiety”. Feel it, but don't stay there.*

Such sentiments illustrate the various ways in which hope plays a role in people’s lives, and that it can sometimes be mobilized according to personal needs. These sentiments also echo Freire’s (1996) idea that hope is a core human experience that is felt and pined for, but with a sense of fluidity.

HS providers also shared their own powerful stories of feeling hope, even with the knowledge that some service

users were approaching the end of their lives. When asked to share an experience of hope while providing services, she recounted an episode that occurred during a retreat facilitated by her organization:

*There were 4 people that were very very sick, and I remember thinking to myself, “those guys aren't going to be here next year,” and in that moment of how beautiful it was that they were there with their spouses. They were having a sort of one last romantic getaway. They were connected with other people who knew the challenges of taking their loved ones to the bathroom or whatever it was, and I just thought “I am so grateful that I was able to provide this for them, that this is something they'll at least have.” And you know, 3 of them passed away within probably about a 7-month period after that.*

Such commentary on the quality of care and experience mirrors Anderson’s (2006) and Anttilla’s (2019) points that hope is not merely an individual set of feelings and experiences but rather a dynamic flow that moves between and among humans. In turn, this transpersonal movement “stirs and energizes individuals and communities” (Anttilla, 2019, p. 64). The HS provider above also brings in the idea of hope as an energizer when she recounts hearing a couple talking about their upcoming wedding and thinking “how brave that was to still be thinking of a wedding and going forward knowing that the, you know, but it was so impactful because it was just so joyful in that moment.”

Her comments also connect to Freire’s (1996) notion of hope, which points out that it does not exist as a single independent entity but rather as a connecting force that ebbs and flows according to material and social interactions. This point is especially evident when she answers the question about what it feels like to have hope when providing services:

*I think for me, again, it may sort of be tied to optimism, it's tied to support and connection and love really. Those are the things that—like knowing I have an amazing team, like for me on days when my energy plummets and I can't even get out of bed, I know that I just need to send a message to [colleague] and say “it's a really bad day, I can't stand for any length of time” and so she's like “whatever you need”. So I think*

*it comes from knowing I got your back, that feeling of connectedness and support—both ways for like my staff and volunteers.*

This service provider's detailed narrative emphasizes the various ways in which hope is experienced to varying degrees across various contexts. Her words also highlight how meaningful and supportive relationships can help to build a positive sense of hope when in times of need. These details provide useful insight in learning more about the roles of authentic relationships in the HS field, both for service providers and users.

### **Theme 3: The futurity of hope: Commitment to helping others also experience hope**

Across the surveys and interviews, both service providers and users expressed the importance of sharing hope with others. When asked about whether they feel hope in their line of work, a service provider shared the following about her job: "it gives me...I get more than I give. I think it's to do with connection, with people...trying to provide encouragement." Another service provider expressed a "pay it forward" type of thinking and shared how her own experiences with obtaining support when she had cancer motivated her to also help others (Atsumi, 2014). She mentioned that "what really inspired me was I just wanted to carry on doing something positive for people."

One interviewee who spoke about both her experiences as a service user and provider shared the following when asked about her feelings of hope:

*To give back with a full heart is to advocate for myself and for other people that are currently going through it...The value of it when someone else can read my story and say "OK, I'm not the only one"...Because like, just like the sharing of information and like, the dissemination, right? And even as you touch people's lives when you're volunteering. You know, it's a lot different than money.*

Her words point out how engaging, authentic, and human-centred services can inspire people to want to give back and help others in ways that monetary contributions cannot. Her words also emphasize reciprocal processes of affect and transition that offer "good relations" as well as a "renewed

feeling of possibility" for others (Anderson, 2006, p. 744; Atsumi, 2014). As she indicated, there is a great value when someone else can learn from her experiences with cancer and know that there are supports available to them that come from people who have also been through similar circumstances.

As one survey respondent noted, it is important to consider not only what job duties are carried out, but also *how* and *why* they are carried out. When asked about her feelings of hope when working with service users, she indicated that:

*I experience hope every time I work with one of my clients. If I wasn't hopeful that they could survive their circumstances, I would not be doing my job properly. I am always hopeful that they are willing to embrace change, that they are willing to explore and manage their trauma in healthy ways. I am hopeful that they can find and/or reach out to supports, and that they have the strength to be consistent and to make the best choices for themselves. If I didn't have hope in my clients, I wouldn't be able to encourage them through their journeys. And even if things don't turn out as planned right away, I always need to be hopeful that clients will one day accept the help, that they will break the cycle, and that they will do what's best for them.*

This survey response illustrates how service provision that is intentional has the potential to impact both in the short and long term. It also highlights the ways in which the varying roles of hope across time and space can help to empower service users long after they leave the organization's programs. As evidenced through the above quote, the everyday happenings in the HS field involves multiple interactions with a multitude of people experiencing different things. To quote the respondent, these interactions constitute the "journey" of HS delivery and use. While one interaction may comprise an intake session, another one may involve a deep exploration of the service user's trauma. To quote Anderson (2006), each of these interactions form "a transindividual *beginning again* that reanimates the present" (p. 745). At the same time, they also point to a more positive and hopeful future that calls attention to how hope can emerge and be nurtured through human relationships and interactions. These interactions and the words of the survey respondent also call attention to the phenomenology of *how* HS providers and users think, feel,

and enact hope not just during the course of HS delivery, but also in the aftermath.

## Discussion and Implications

### Implications for HS practice

As the participants' narratives tell, there are various implications of this research on future directions for practice in the HS field. Many of them shared their stories of how they came to be connected to the partner organization, but also emphasized that it was the ongoing human interactions that helped them to build and strengthen their feelings of hope. When asked about recommendations, participants also shared that training regarding interpersonal approach, language, and human-centred intervention strategies were key to these processes of building hope to "keep going" towards a more positive future. One interviewee observed that the HS domain involves the medical field, and suggests that:

*There must be more of an approach at the hospital level. There needs to be somebody there to catch you when you come wandering out of the breast clinic, for instance. The medical world needs to know that...it needs to be more than a small business card tucked in a binder.*

Such commentary can help inform how HS organizations and educational institutions take up the methodology and strategies involved in providing compassionate services. As one service user shared during an interview, this learning should also involve contemporary understandings about the structural inequalities that people from marginalized groups face. As he indicated, young people questioning their gender identity while living in conservative communities especially need "to not be judged." Another service user indicated in his survey response that there continues to be "criticism of DEI in general...reading some negative comments in our webinar chats, and in our feedback forms caused me to struggle with a loss of hope." Nonetheless, he indicated that he still believed that it was highly important to draw from his previous experiences helping "minorities struggling to fit in...and learning...about how orgs are working to be more inclusive of neurodivergent individuals." His points illustrate how an awareness of the different nuances of hope can impact both service users and providers. They also highlight the need for organizations to be keenly aware of their language, ideologies, and programming, along with

strategies for addressing potential public negativity. This awareness is especially key for organizations dealing with issues of diversity and anti-oppression, such as gender-based violence, racism, and disability.

It is important to acknowledge that understanding the needs of the service user base is not only efficient for service delivery but also a necessity for capturing its effectiveness according to consumers of that service (Patton, 1994). By providing partners with results revealing how service users recognize and experience the foundational elements of hope, service providers will have the opportunities to integrate these learnings into their service delivery practices and share this foundational knowledge with their stakeholders and other human service organizations. Strengthening service delivery in the HS sector, based on the evidence-informed utilization-focused realities of consumers, will positively impact levels of efficiency and effectiveness in ways that are meaningful to consumers.

At the same time, it is crucial to consider the high levels of social and emotional labour involved in human services, especially for the service providers. As one interviewee said, "being in, you know this line of work, you can come across people being aggressive, from traumas and life experiences that have shaped them to respond in a way that is not the easiest to take head on." However, she was also attuned to her own physical and emotional reactions to her work, and engaged in self-care by refocusing before taking her next step. She shared that:

*I needed to attend to my own inner experience at that time because so much of the work that we do in this field is that, if we are not feeling hopeful and you're not feeling like this is a hopeful situation, it definitely will colour and impact the kind of services we provide.*

Another service provider also shared insight into the ways in which working at a small organization in a high-needs area and with small amounts of funding can lead to various types of physical, mental, and emotional stress. She indicated that losing out on a major grant led her to "think of innovative ways to keep us, you know, operational. So I contracted staff, I removed the benefits, holiday pay, sick days, all that stuff...and we can get our work done." Such challenges in the non-profit human services sector are

not new in Canada, as evidenced by Elson (2016). Phillips (2016) indicates that:

*fiscal restraint and by neoliberalism that favoured smaller government, market-based instruments, and stricter accountability, government funding for nonprofits was reduced dramatically and operating grants were replaced by fee-for-service contracts, leading to enormous instability, increased competition, and greatly expanded administrative loads (p. 3).*

It is important to consider that while hope is a major element in how service providers operationalize their job responsibilities, the systemic circumstances surrounding their work can become overwhelming. The comments above highlight how the intense nature of HS labour within a fiscally constrained context can potentially create situations of despair and hopelessness, decrease the effectiveness of HS delivery, and in turn, decrease the levels of hope extended to service users.

### **Implications for HS research**

The double-method approach to this study illustrates how providing people with choice can increase accessibility for those who are interested in sharing their stories. The surveys allowed participants to interact with the phenomenological questioning on their own schedule and take their time with reading, processing, and then answering the questions. The researchers do acknowledge, however, that this approach is not as interactive as the interviews, and that answering the open-ended questions could be challenging for participants who may find it difficult to type out their stories in one sitting. The interviews did provide real-time opportunities for participants to share their “horizons” related to hope in the course of HS delivery using the words, expressions, pauses, and gestures as they saw fit. Such human-centred data gathering remains true to the goals of phenomenological hermeneutics, which is for the research to be: (1) oriented towards the phenomenon of hope as lived by the individual participant (van Manen, 1990); (2) provide for the possibility of a participant’s unique experiences as situated from their horizon of understanding (Hoiseh & Keitsch, 2015); and (3) encouraging to a diverse range of insights (Creswell, 2013) into how the phenomenon is experienced and is meaningfully understood for what it is by them.

This research documents co-created experiences based on the lives of the HS users and providers. They are the ones who theorize and share their experiences. The information gleaned from their stories will provide the results necessary to illustrate what shapes experiences of hope in the course of HS delivery. Once established, HS organizations and the providers working within will have an evidence-based and practical framework that is reflective of lived experiences, rather than that of an academic theory or specialist with a different lived reality.

In the long term, this research will also impact how HS delivery and programming are taken up within the contemporary professional peer-reviewed literature base. Although HS is an established generalist and interdisciplinary field of study, there continues to be a gap in the research when it comes to better understanding the roles of hope. The results of this phase of the research in the academic literature will begin to bridge that gap and spur contemporary discussions about the necessity of consumer-informed and consumer-centred HS delivery that intentionally seeks to integrate the building of hope. This first phase of the research also provides a foundation for the remaining two phases, which will address self-compassion and authentic collaboration. The research questions for phase II are: How do HS consumers and service providers meaningfully experience self-compassion during HS delivery? And how is hope implicated in HS consumer and service provider lived experiences of self-compassion during HS delivery? Indeed, some of the results from the first phase of this study have begun to point to the notions of self-compassion. To draw from data presented in earlier parts of this paper, multiple service providers shared that the human services industry can also be emotionally laborious, and that there is a need to “attend to [one’s] own inner experience” and to “think of innovative ways to keep... operational.” Such insights are valuable for beginning the creation of a framework that considers the humanity of both service providers and their capacity to effectively support service users. The joint attention to the roles of both service providers and service users will be especially pertinent to phase III, which will focus on the questions: How do HS consumers and service providers meaningfully experience authentic collaboration during HS delivery? And how is hope implicated in HS consumer and service provider lived experiences of authentic collaboration during HS delivery? And how is self-compassion implicated in HS consumer and

service provider lived experiences of authentic collaboration in the course of HS delivery? Taken together, this research seeks to provide the evidence necessary for establishing consumer-informed guiding principles for the construction of a human-centred HS delivery framework. Recommendations for implementing this framework in the Canadian non-profit and volunteer sector will provide a pragmatic outline necessary for organizations to refine HS provision in ways that are characteristically responsive and consumer-informed.

## Conclusion

The shift to more human-centred services offers an array of opportunities for the development of hope among HS users. Among these opportunities are more meaningful human interactions, the development of community, and a renewed sense of positivity, and in some cases, coping towards the future. The participants' narratives also emphasize that HS can only be impactful if they are delivered with intention, empathy, and deep knowledge about the issues they seek to address. They also emphasize a commitment to share their experiences with other service users as a way of "paying things forward" and helping them feel supported. Accessibility to services through elements like ease of access to HS personnel and virtual programming was also noted as an important factor in helping HS users feel and build a sense of hope.

It is also important to note the challenges that come with HS work. As one interviewee mentioned, HS delivery often involves working with vulnerable populations who have experienced trauma and stress. In turn, this ongoing contact coupled with heavy workloads and limited resources can negatively impact the well-being as well as the effectiveness of the HS providers. Such challenges are also noted in the academic literature and are important to consider in HS programming and planning (Jones, 2000; Siril et. al., 2020).

In conducting this research through a phenomenological hermeneutic approach, the results offer a human-centred and HS-user-focused lens to HS delivery. The results also suggest that the building of hope in HS delivery requires continuous relationship building and meaningful interaction. Taken together, the voices of both HS providers and users co-construct a deep, complex, and meaningful "horizon" about hope that can inform future program planning in the field.

## Conflict of Interest

There are no conflicts of interest to declare.

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# Decision Making in the Innovation Process: Data-Driven vs. Data-Informed

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## Keywords

Data-driven decision-making, data-informed decision-making, innovation, qualitative data, quantitative data

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## Abstract

There has been a growing trend in the use of data-related buzzwords, and “data-driven decision-making” is one of them. This buzzword is often confused with “data-informed decision-making,” emphasizing the need to understand the role of data for effective decision-making. The article explains this misconception through tables and insights from experts like Geoffrey Moore, Tendayi Viki and Alexander Osterwalder. It emphasizes the need for a balanced approach, using both qualitative and quantitative data, and suggests starting with qualitative insights before moving to quantitative analysis. Ultimately, it stresses the importance of aligning organizational structures to leverage data effectively for innovation.

## Introduction

**There has been a growing trend in the use of** data-related buzzwords, and “data-driven decision-making” is one of them. This buzzword is often confused with “data-informed decision-making,” emphasizing the need to understand the role of data for effective decision-making.

This article aims to clarify the difference between data-driven and data-informed decision-making approaches and the role of data in the innovation process.

## Data-Driven Decision-Making Approach

Data-driven decision-making involves utilizing facts, metrics, and data to reach a confident decision (Nelson, 2022).

Even though quantitative data is essential in the decision-making process, a drawback of the data-driven approach is its tendency to ignore the bigger picture. Some organizations over-emphasize data-driven decisions, which are heavily influenced by statistical analysis and empirical evidence, minimizing the role of intuition, creativity, experience, and personal insights, which are still qualitative data.

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\*Essays advance a new idea, summarize a development, or initiate or engage in discussion. They may be narrower in scope than the above categories, but the subject matter should be of general scholarly interest.

## Data-Informed Decision-Making Approach

Instead of solely focusing on quantitative data to make decisions, data-informed decision-making involves research, creativity, experience, and personal insights alongside data (Schildkamp et al. 2019).

Maintaining a human element in decision-making is crucial, as well as avoiding complete dependence on quantitative data alone to reach a decision.

**Table 1: Differences Between Data-Informed and Data-Driven Decision-Making Approaches**

Factors	Data-Informed Decision Making	Data-Driven Decision Making
<b>Approach</b>	Data is used to inform decision-makers, but it cannot dictate them, and it is also one of the several elements considered in the decision-making process.	Data is the primary driver of decision-makers in this approach. Decisions are heavily influenced by statistical analysis and empirical evidence.
<b>Flexibility</b>	It's more flexible because it includes other elements, such as experience, intuition, and expert judgment, alongside statistical analysis and empirical evidence.	This approach potentially limits flexibility in the decision-making process. Decision-making relies heavily on quantitative data.
<b>Human Element</b>	Acknowledges the importance of experience and intuition alongside data.	Data can be prioritized over human judgment, potentially underestimating the importance of qualitative insights.

**Source:** Table created by the author

**Table 2: Similarities Between Data-Informed and Data-Driven Decision-Making Approaches**

Factors	Shared Aspects
<b>Goal Oriented</b>	Both are aligned with the overall organizational goals, ensuring that decisions contribute to achieving desired outcomes.
<b>Reliance on Data</b>	Both heavily rely on the use of data (qualitative and quantitative) to inform decision-making processes.
<b>Iterative Approach</b>	Both support an iterative decision-making process where feedback from previous decisions is used to refine and improve future decisions.

**Source:** Table created by the author

As you can see from the tables above, data-informed decision-making incorporates data as one of several factors in the decision-making process, allowing for flexibility by considering experience, intuition, and expert judgment. It recognizes the importance of the human element alongside data, acknowledging the value of qualitative insights. On the other hand, data-driven decision-making places a stronger emphasis on data as the primary driver, potentially limiting flexibility and prioritizing empirical evidence over human judgment.

Despite these differences, both approaches are goal-oriented, aligning with overall organizational goals to ensure decisions contribute to desired outcomes. Additionally, they share common ground in relying heavily on data, employing an iterative approach that leverages feedback from previous decisions for continuous improvement.

## Clarifying the Role of Data in The Innovation Process

It is important to be clear about whether decisions should be data-driven or data-informed in the innovation process.

As can be seen from the above definitions, decision-making should be informed by data rather than solely driven by it, as there are other crucial elements involved in the innovation process, and quantitative data is simply one of them.

When gathering insights regarding the role of data in the innovation process, Geoffrey Moore, an American organizational theorist, management consultant and author known for his work *Crossing the Chasm* (1991), provided me with a valuable explanation. According to Moore's perspective, in the life cycle of disruptive innovation, data can help drive better decision-making in the mid-term to advanced stages of innovation. That's because each round of innovation can build on prior experience, be that with customers, suppliers, competitors, or product performance. Conversely, earlier in the life cycle of disruptive innovation, the more one needs to rely on intuition, experimentation, anecdotal evidence, and an iterative approach that expects to "fast fail" its way to a viable outcome.

Tendayi Viki, corporate innovation expert and author of *Pirates in The Navy* (2022), *The Corporate Startup* (2019) and *The Lean Product Lifecycle* (2018), helped me understand how customers use data in their innovation process. Based on insights I gained from him, innovation teams conduct experiments to test their business ideas and utilize the

findings to make data-informed decisions. It is always a mix of using data and creativity to design value propositions and business models based on learnings.

During the "Why Innovators and Product Managers Should Talk" webinar (2023), I asked Alexander Osterwalder, who is a Swiss business theorist, author, speaker, consultant, and entrepreneur known for his work on business modelling and the development of the Business Model Canvas (2010), about the role of data in the innovation process. Osterwalder prefers to call it evidence-based decision-making, wherein people show whether some of their assumptions are true or not. According to him, there are two buckets you need to look at in the innovation process. He shared: "One is 'strategic fit,' and the other is 'evidence that supports the idea.' In the first one, you interpret if the idea fits with the organization's vision and where the organization wants to go. In this stage, it has nothing to do with data. However, there's the other part where the organization funds the team's progress. In this stage, the organization supports the team to the next stage only when the team presents compelling evidence confirming the validity of certain hypotheses."

As a result, different types of data play different roles in the innovation process. While organizations may not often consider creativity, experience, personal insights, and intuition as data, they play an essential role in building qualitative data. It's important to remember that data is not limited to numerical figures alone.

**Table 3: Differences Between Quantitative Data and Qualitative Data in the Innovation Process**

Factors	Quantitative Data	Qualitative Data
<b>Nature of Data</b>	Numerical information that can be measured and quantified	Non-numerical information that cannot be measured
<b>Nature of Insights</b>	Offers statistical patterns and numerical trends, enabling the identification of broad patterns and the measurement of variables at scale.	Provides rich, contextual insights into the motivations, perceptions, and behaviours of individuals. Useful for exploring new ideas and understanding user experiences.
<b>Data Presentation</b>	Through charts, graphs, tables and numerical	Through words, images or themes

Table Continued on next page...

Factors	Quantitative Data	Qualitative Data
<b>Idea Generation</b>	Applied later in the process for idea validation and prioritization.	Often used in the early stages of innovation for brainstorming and generating new ideas.
<b>Data Integration</b>	Can be complemented by qualitative insights to enhance the interpretation and context of numerical results.	Often integrated with quantitative data to provide a comprehensive understanding of the innovation landscape, combining depth with breadth.

**Source:** Table created by the author

As can be seen from [Table 3](#), quantitative and qualitative data each possess distinct characteristics and applications within the innovation process. Quantitative data, represented numerically, guides later stages for validation and prioritization. It provides statistical patterns and broad trends through charts and graphs. Qualitative data, non-numerical and narrative-driven, is vital in the early stages for brainstorming and understanding user experiences. Integrating both types offers a comprehensive understanding of the innovation landscape, balancing depth and breadth of insights for more impactful solutions.

## Value of Mixed-Method Approach in the Innovation Process

In light of my research and the insights I have gained from experts, the role of data can be examined in two stages in the innovation process. In the earlier phases of the innovation process, reliance on creativity, experience, personal insights, and intuition is crucial for achieving the next step.

In the advanced stages of the innovation process, more quantitative data can help drive better decision-making. At this point, data becomes a strategic advantage and empowers organizations to make more informed and precise decisions.

It should be noted that without the right organizational structures, processes, and governance frameworks in place, it is impossible to collect and analyze data from across the enterprise and deliver insights where they are most needed. A [survey](#) by Ernst and Young (EY) (2015) highlights that 81% of companies agree that data should be at the heart of all decision-making. Still, only 31% of companies have significantly restructured their operations to help do this.

As a result, instead of relying heavily on statistical analysis and empirical evidence or experience and intuition, a mixed-method approach should be used for making effective

decisions. In the innovation process, it's essential to start with a qualitative approach first and then continue with a quantitative approach. It shouldn't be forgotten that there may still be a need to use a qualitative approach after the collection of quantitative data. This cycle should continue iteratively until one reaches a confident decision.

“It is a capital mistake to theorize before you have all the evidence. It biases the judgment.”

—1st Sherlock Holmes story – Study in Scarlet (1888)  
by Sir Arthur Conan Doyle

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# Designing and Implementing Health and Wellness Programs: Positioning Health and Wellness at the Forefront of a Polytechnic Institution

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## Abstract

The past 20 years has seen a renaissance of activity with respect to workplace wellness. The concept of providing a health and wellness program for employees has grown to include employee assistance aid. Within the polytechnic community, the health and wellness programs have expanded to the student body as well. If you consider the fact that a polytechnic has a population of some small cities, then the case for support of providing services is well founded. Due to the mix of international and domestic student populations, the wellness programming has taken on a new mosaic of services. The attention to cultural sensitivities and competencies needs to be addressed and incorporated when contemplating any services and programming to be delivered to the polytechnic community. Most recently, with the increase of mental health issues amongst staff and students, it is time to implement a strong interdisciplinary approach to wellness and mental health.

## Introduction

*“It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of light, it was the sea son of darkness, it was the spring of hope, it was the winter of despair.”* (Dickens, 1859).

**There has been a newfound acknowledgement over the past 20** years that employers have a duty to provide a healthy workplace to its employees. This overarching mandate is further expanded across campuses of higher learning to the student population as well. Across Canada, polytechnics are responding with a number of health and wellness initiatives in order to facilitate the transformation of a healthy workplace and provide services that will affect positively the overall health of all its constituents. According to the Rand Corporation, out of concern for the impact of chronic disease on employee health and well-being, the cost of health care coverage and competitiveness, employers are adapting health

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\***Essays** advance a new idea, summarize a development, or initiate or engage in discussion. They may be narrower in scope than the above categories, but the subject matter should be of general scholarly interest.

promotion and disease prevention strategies commonly referred to as workplace wellness programs” (Mattke et al., 2013). Student associations at polytechnics have followed suit with their own wellness initiatives catered to the student body.

The modern polytechnic institution is a service-based institution that most of us, directly or through family and acquaintances, will interact with at some point in our lives. Polytechnics are the deliverers of high-quality education, applied research and work integrated linkages to industry and the sectors they serve. In many cases, they are the intersecting point among domestic student education, international students and global outreach. Essentially, it can be said that these aforementioned polytechnics act as a ready-made model of society as a result of its demographically diverse composition and its embodiment of the various facets of individuals’ daily lives. While they can serve various purposes, these educational institutions are a place where individuals conduct their daily activities; it is a place for eating, learning, socializing, and in some cases, living. The diversity of the constituents at a polytechnic allows program development to derive knowledge from a wide range of individuals in order to create a culture of wellness that accurately represents all individuals. Polytechnics have an advantage in addressing diverse competencies in program development due to the community’s differences in age, gender, race, ethnicity, education level and so on. These institutions of higher learning are equipped with the necessary conditions for program development and implementation honoring diversity sensitivity. The multifaceted nature of polytechnics, coupled with their representation of diverse populations, make these institutions the optimal environment for modeling and developing new health and wellness programs.

The polytechnic has its origins in the trades training world. It was a place where people went to train in the skilled trades. As post-secondary education grew and evolved, polytechnics began transforming themselves into institutions that created certificates, diplomas, advanced diplomas and Bachelor’s degrees (Polytechnics Canada, 2024). These institutions of post-secondary education became the places of cutting-edge education and applied research. Along with those changes came the influx of students domestically and internationally. Today, they continue to be so, and although

they exist in a time of constrained resources, polytechnics continue to be central to the landscape of building community and differentiating provinces and ultimately Canada.

With the growth of students and staff at each polytechnic, the focus has now turned to providing a wellness model that focuses on the workplace and the classroom. The concept of wellness has changed over time and is somewhat more elusive and open to interpretation but just as important. Wellness is used to describe a state of individual health that is holistic and dynamic. Health can be holistic in the sense that it transcends the physical, and includes mental, emotional, and social dimensions. It is also dynamic in that it can respond to stressors, crises and adapt to change. Health status was always a priority in educational settings; however, with the post-pandemic rise of globalization and the increase in international students, polytechnics have been refocusing their efforts in the provision of health and wellness services for their constituents.

The mosaic of student body has undergone a transformation in our polytechnics. Using the wellness lens as a predictor of the health status of a population, we note that we must change the way we deliver services in our institutions when it comes to health and wellness. At one time thought of as the absence of disease, the concept of wellness is increasingly being seen as the outcome of processes that enhance optimal structure, function and interaction between human beings and their environment. The factors affecting the health status of students and employees have changed and become much more complex. Factors such as mental health, nature of work, spaces at work and the mosaic of the student population and interplay must now be considered.

The impact on the entire polytechnic community is always considered first and foremost when contemplating the kinds of services and aid to be offered to the polytechnic community. The causes of poor health and the co-relationship to the determinants of health are essential considerations in order to design fully functional wellness plans. The delivery of service must be easily accessible and broad based enough to allow for constituent participation and possible referral. The wellness programming must be fluid enough to adapt to ongoing issues and able to pivot to unexpected circumstances. One example was the pivoting of vaccination clinics for a mass immunization program

to deal with COVID. A second example is allowing for the provision of services that are recognizable to the diverse multicultural composition of our current student population (examples: offering of traditional Chinese medicine and acupuncture for Asian descent students, Ayurveda medicine for Indian students). These two source countries as well as regional neighboring countries constitute over 70 percent of the international student applications for polytechnics. In a recent paper authored by Moon (2023), “The Coexistence of Western Medicine And Korean Traditional Medicine In Korea,” it has been noted that, “Eastern medicine does not evaluate an illness purely based on the symptoms the person is showing, but rather on complex patterns of disharmony in the body” (Ma et al.2020). This difference in the way a condition is treated would pose a problem for the insurance agencies who are underwriting the treatment protocols of its members. Therefore, the access to familiar recognizable treatments of staff and students from different countries other than the western world would be hard for the polytechnic to implement. This is a real limitation in the pursuit of employee and student wellness.

There is no doubt about it—Canadian polytechnics excel at delivering state-of-the-art, timely education. But do they deliver compassionate care? How do polytechnics model and exemplify these concepts of wellness? In spite of the fact that some wellness initiatives, such as smoking cessation, have been done in polytechnics and that similar good initiatives have been done well, polytechnics cannot predict the future of health and wellness programming. We will require the kind of leadership position in wellness programming that is flexible and dynamic. What is the reason for this? One reason is that polytechnics are primarily concerned with the extremely large task of delivering just-in-time counselling and aid. Nevertheless, the polytechnic is the ideal place for organizational wellness programs to be modelled. It has been noted in the literature that the key facilitators of wellness in the workplace are:

- Broad outreach and clear messaging from organizational leaders.
- Making wellness activities convenient and accessible for all employees.
- Making wellness an organizational priority among senior leaders.
- Leveraging existing resources and building relationships with health plans to expand offerings at little to no cost.

- Approaching wellness with a continuous quality improvement attitude and solicit feedback from employees to improve programs. (Mattke et al, 2013).

In a post-pandemic time, employees are struggling with stress, burnout, and loneliness like never before (Workhuman, 2023). Research has found that fewer than one in four employees say their organization cares about their wellbeing—nearly half the number who said the same before the COVID-19 pandemic. This is probably true for the student body as well.

One effective and easily implementable tool for helping the polytechnic community as a whole is employee recognition (Workhuman, 2023). In previous research, Gallup and Workhuman established an extensive connection between employee recognition and wellbeing, finding that employees who receive the right amount of recognition for their work experience lower burnout, improved daily emotions, and stronger relationships with their co-workers. (Workhuman 2023). The same principle intuitively can be applied to students. If individuals feel connected and respected in the workplace/school, this can have a positive influence on daily mental health and well-being.

Organizational wellness programs are multidimensional. They encompass a multifaceted approach to enhancing the wellness of all members of the organization. They might include programming such as diet, lifestyle, stress management, ergonomics, counselling and more. Ideally, this should be more than just a “cafeteria style” offering of the most popular initiatives that might interest staff and students. They should be part of an overarching plan that seeks to create an institutional ethos that embraces wellness and health promotion at its core. Polytechnics will need to deal with mental health issues and serious infectious diseases and virology in the future. The polytechnic is a perfect place to trial best practices and promising practices in wellness and health models. Due to their size and relationship to industry, the polytechnics are an ideal place to serve as a test case for the refinement of population wellness strategies. The post-secondary education sector will need to leverage its institutional sophistication and applied learning talents to further refine and roll out focused health and wellness programming for its constituents. The auditing and collection of data with respect to efficacy and effectiveness of its targeted

approaches will be crucial in understanding what is working and having an impact. The complexity of the design will depend on a comprehensive approach. The approach will include areas of focus such as physical activity, healthy nutrition, stress management, clinical preventative screenings, sleep health, social connectedness, and substance management (Johns Hopkins Bloomberg School of Public Health, 2015). Collectively addressing these aspects of health and wellness, along with others that are identified by collaborative parties, promotes a holistic approach to well-being among individuals. It is important to note that developing a culture of wellness, implementing health and wellness programs, and establishing organizational well-being are all interconnected and can simultaneously promote or hinder one another. Establishing a culture of health emphasizes the importance of integrating employee health into the institution's mission and purpose, which, in turn, helps to develop effective health and wellness programs.

Canadian polytechnics should embrace the concept of organizational wellness as being vital to its mission. Recently, more educational institutions are paying attention to the health of their students and employees. Institutions have made significant strides in developing a wellness strategy and model. Specific components of wellness programs have been launched.

An organization is a collection of individuals within a set of institutional objectives, operating procedures, recurrent tasks, policies, and a managerial structure. This organization itself has certain relationships, a position in society, a culture and a certain spirit or zeitgeist that pervades it. An organizational wellness strategy must fully integrate the various facets of health, in alignment with the nature of the organization and the programmatic methods for achieving increased wellness across the organization.

What are the benefits for Canadian polytechnics? For one, a wellness-based culture produces more, is more efficient, and, in a way, it is sustainable and builds for the future. Employees who enjoy greater health, more job satisfaction, and are immersed in a wellness-based organization can naturally give more of what they have to offer in their skills, energy and actual output. This output is directly linked to the customer service given to the student body. In 2023, polytechnics have been a model for overall workplace

wellness. These institutions of higher learning that serve as an example of the power, speed and effectiveness of collective consciousness and reinforcement of a top priority (health of a community) must now evolve into a new organizational focus. As polytechnics sharpen their focus on the holistic lens of health, the results for staff, students and the community will, without a doubt, be positive. Sustainable health practices will be achievable.

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# What Promotes and Inhibits Sharing of Learning Designs? Teachers' Perspectives

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Learning designs, sharing practices, pedagogical autonomy, teacher organization, practice architectures, knowledge exchange

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\***Original Research Papers** are papers that report on original empirical research with a focus on teaching and learning. Papers may be qualitative or quantitative and include an Abstract, Introduction, Method, Results, Discussion, and Reference section, as well as any tables and/or figures.

## Abstract

This article contributes to the research on learning design by examining the collaborative practices among teachers in professional education. The focus extends beyond classroom activities to encompass the sharing and exchange of diverse knowledge, experience and teaching materials. By drawing from experience at a Danish university college, the article emphasizes the need to move beyond the limitations of highly regulated top-down teaching formats. Through the exploration of four selected empirical cases, it highlights the qualifying aspects of sharing practices as perceived by teachers. The article sheds light on the significance of sharing from the teacher's viewpoint. It underscores the importance of pedagogical autonomy and the discretion of individual teachers supported by a sharing culture where educators are expected to make their materials available to others but also benefit from the resources of others in the community. By combining top-down/bottom-up strategies with degrees of formality, the article shows how both strategies can take place in sharing practices in the same organization and still generate pedagogical autonomy as long as a low degree of formality is maintained.

## Introduction

### Empirical context and theoretical background

In recent years, there has been a growing interest in higher education for the development, sharing and reuse of learning designs. The background often revolves around economics and efficiency, claiming that more teachers can utilize such designs and thereby save preparation time (Goodyear, 2005). From 2017 to 2020, we conducted an extensive follow-up research project at a Danish university college where the management initiated a strategic development task regarding the development of learning designs (Iskov et al., 2020). The top-down process was initially perceived by the teachers as authoritative. They feared that some teachers were designated to work out standardized teaching designs which other teachers were supposed to replicate for their teaching. Many teachers were concerned that it would lower the quality of teaching if it was not tailored to the current students and the teacher (Iskov et al., 2020). Many felt that their

pedagogical autonomy was threatened. In previous studies, the concept of pedagogical autonomy has proven to be crucial. Pedagogical autonomy refers to the space of the educator's individual agency in choosing goals, content and methods. The space metaphor, however, indicates that there is a limit to what the teacher can change in a learning design that he/she is reusing (Larsen et al., 2023; Iskov et al., 2020; Dohn & Hansen, 2016). Especially in continental and Nordic pedagogical traditions, pedagogical autonomy is highly valued as the individual teacher is believed to know best what a specific student needs (Westbury, Hopman & Riquarts, 1999).

The widespread concept of the reflective practitioner is also closely linked to the concept of pedagogical autonomy, as the teaching must always be adapted to the current context and qualified through ongoing reflection regarding contextual variations (Schön, 1991; Wackerhausen, 2008; Hedegaard & Krogh-Jespersen, 2011).

Therefore, we have connected to research in the field that focuses on the aspect of context sensitivity for qualified reuse of learning designs. Concepts such as *translation* (Czarniawska & Sevón, 1996; Røvik, 2011), *transfer* (Tessmer & Richey, 1997; Laurillard, 2008) and *transformation* (Davinia et al., 2006) are also prominent in this regard. When it comes to the reuse of designs made by others outside the close circle of the teachers who developed the design, Wills and Pegler's (2016) contribution to 'zones of proximity' is important, but the issue is generally poorly illuminated in research. Thus, considerations of rationality and efficiency potentially collide with the teacher's own need to be able to change and adapt designs to the given context and maintain teaching autonomy. However, we do not know enough about the extent to which teachers—in their efforts to maintain pedagogical autonomy—reject others' designs and thereby miss out on knowledge or whether they manage to exchange useful experiences in other ways.

In a more recent follow-up research project on which this article is based, we have therefore moved away from the idea of designs as products created by some and reused by others. Instead, we have delved deeper into the processes considered beneficial for lesson planning when both knowledge, experiences and teaching materials are shared among teachers. We have, therefore, refrained from committing to a design concept and have instead chosen

to examine what sharing can entail. We understand sharing broadly as a concept which can encompass various forms of exchange among one or more teachers. With a focus on the teacher's perspective, we have posed the following research question: What characterizes sharing practices that teachers consider qualifying for their teaching, and which conditions promote or hinder such practices? The purpose of the article is thus to contribute to learning design research by focusing on sharing processes which have so far been underexplored.

As mentioned earlier, we align ourselves with that part of design research that focuses on concepts of translation, reuse and context sensitivity. In our prior work (Iskov et al., 2020) and in our review of relevant literature, we have emphasized the concept of 'learning design' over 'instructional design.' Instructional designs often portray a linear view of teaching and learning with distinct units (Wiley, 2002), whereas learning designs emphasize the notion that practice emerges in relation to planning (Dohn et al., 2019, p. 4).

## Methodology

In the above-mentioned research question, we use the term *sharing practices*, thereby adopting the practice-theoretical perspective that we have used as the basis for analyzing the empirical material to get as close as possible to what 'sharing' entails. The practice-theoretical perspective has its origins in T. Schatzki and the practice turn in contemporary theory (Schatzki, 2001). Practice theory constitutes a human and social scientific tradition which, in this context, is represented by Aspors et al. (2022) and Kemmis et al. (2014). These authors interpret the concept of practice as the unity of sayings, doings and relating, but the three kinds of practice are always intertwined with the current sites: the structures, relations and conditions that constitute the local context and its practice architecture. This includes various arrangements (culturally discursive, materially economic, and socio-political) that, through semantic, physical and social spaces, are constitutive of practice, practice traditions, and landscapes (Kemmis, 2014a, p. 6).

This practice-theoretical framework suggests that the empirical work generates close and detailed descriptions of practices where field observations and in-depth interviews are particularly relevant, focusing on sayings, doings, and relating. Therefore, the project is designed as a qualitative multiple-case study where cases have been selected for

maximum variation in terms of educational disciplines and organizational forms. The case study contributes with knowledge of general interest based on the particular phenomenon's existence and quality—not its prevalence (Flyvbjerg in Brinkmann & Tanggaard, 2010).

The selection of cases was based on initial conversations with lecturers from different programmes who gave suggestions for some practice contexts where the sharing of plans and teaching is initiated by the lecturers themselves and not primarily controlled from the outside or from above. Based on these indications, we made agreements with the respective individuals for observations and interviews concerning these practice contexts. Empirical studies

were then conducted in four different educational cases: The Bachelor of Administration programme, the Teacher Education programme, the Nursing Education programme, and the Health Administrative Coordinator programme. One observation and one in-depth interview were conducted in three out of the four cases. In the Nursing Education programme, only one in-depth interview was conducted.

Based on data from the observations and interviews, the analysis has involved identifying the various 'practice elements' (sayings, doings, and relatings) regarding the different practice architectures (the culturally discursive, materially economic, and social-political structures).

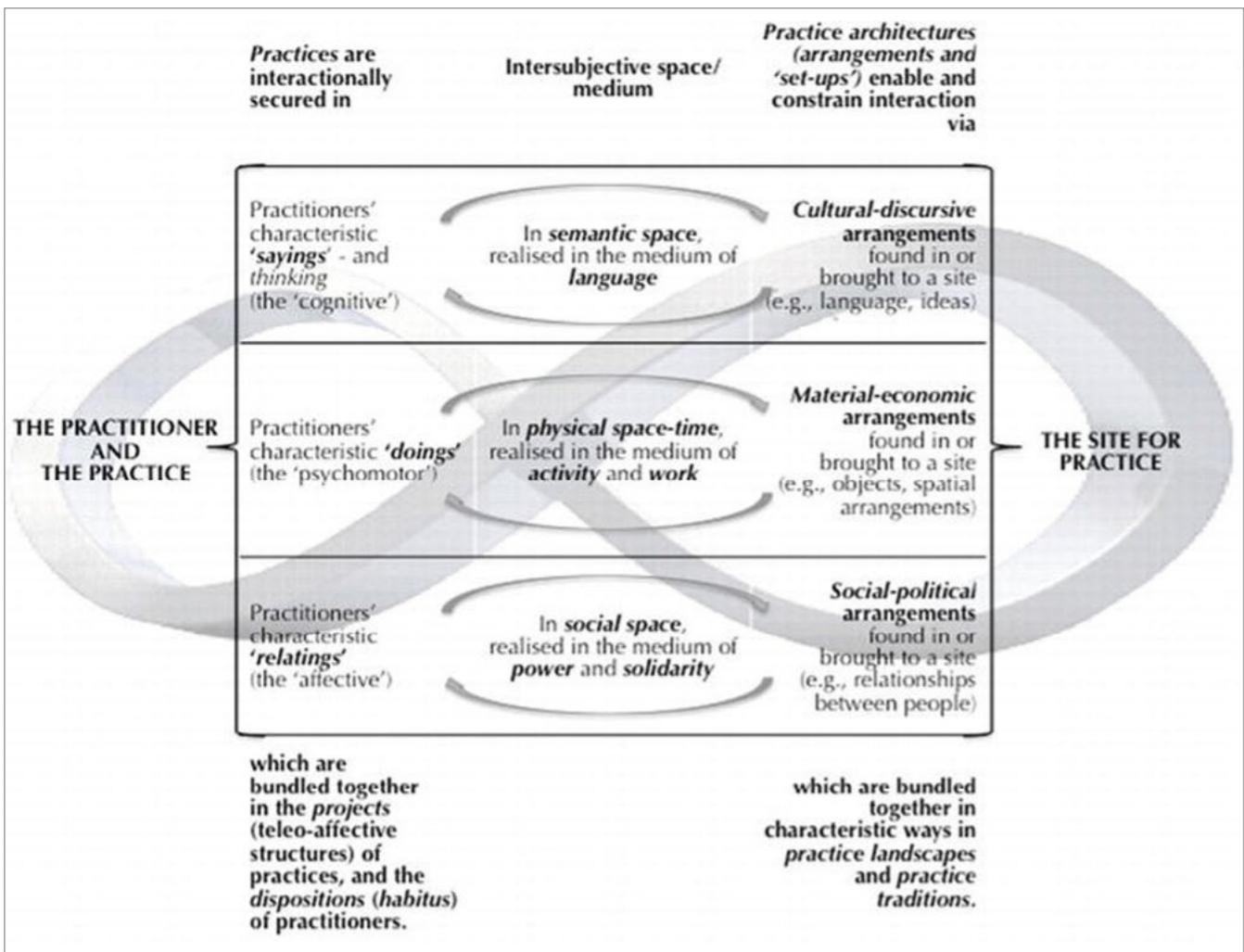


Figure 1. The theory of practice and practice architectures (Kemmis, 2014a, p. 57).

The data analysis process is generally abductive and divided into three steps. First, we did an inductive coding of the

data material from observations and interviews. From this, significant themes were extracted and described, and we

carried out this analysis for each individual case. Then, we carried out a transversal thematic analysis (Braun & Clarke, 2006), where common features from the four cases were identified. Enacting Kemmis' three-part model, we had an analytical framework by which we could analytically identify and divide the cross-cutting themes and process them theoretically. Finally, we made a third and final step: a summary analysis of what characterizes practice architectures for sharing learning designs in the relevant educational contexts. Results from the three analytical steps are presented in the following sections.

## **Results—cases**

### **Asymmetric relations**

In the case concerning the Health Administrative Coordinator (HAC), the relationship between two teachers becomes crucial for the sharing process. This occurs between an experienced teacher (Ex) and a newly hired, inexperienced teacher (Ix). They meet for Ix to be introduced to a teaching programme on the subject of Disease and Health, which Ex has previously managed and has a plan for.

Ex indicates that Ix can change whatever she wants in the material Ex has prepared (such as PowerPoint presentations, etc.). However, according to Ex, it seems to be the immaterial elements of sharing that become the most significant in this practice, namely translation work. This involves the explanation of the programme regulations' intentions and their transformation into a lesson plan. Ix insists on making her own changes and adaptations to Ex's PowerPoint presentations. Ix thus emphasizes her need for pedagogical autonomy along with a need to draw as much as possible from the existing materials and experiences. Sharing is both about inheriting and translating, and to copy the overall structure but still retain the freedom to translate specific teaching materials can be seen as a kind of dual sharing strategy. Ex is willing to give Ix as much pedagogical autonomy as possible, but limited time constraints make Ex concerned that she might unintentionally become controlling of the sharing process. For Ex, it becomes about "helping her get started on a subject" (interview with Ex). Thus, a dilemma arises due to the asymmetric relationship between the two teachers, which involves the balance between receiving assistance without being controlled.

### **Symmetric relations and common values**

The relational aspect also emerges in the case of the Teacher

Education programme (TEP), where the sharing process takes place between experienced teachers in a math team. According to the informant, the team takes responsibility for planning the academic year. Most teachers in the team have long experience of teaching all the subject's content. They work with a common template for a worksheet developed by the team itself. The template includes a description of each teaching session within a theme. The teachers share experiences and articles. They develop tasks, subject knowledge, methods and worksheets for the students on content, form and organization. Through this work, symmetrical relations emerge in the team by shared professional and pedagogical values, teaching attitudes and subject understanding over time. They consider themselves equal in terms of knowledge and experience. Although there is joint planning down to details, they experience significant pedagogical autonomy, which allows each of them to make their teaching context sensitive.

### **Strategies for sharing practices**

In the Bachelor of Administration programme (BAP), various forms of governance and different degrees of formalization come to the fore. The informant himself uses the term "informal sharing practices" several times to describe their practice, which arises spontaneously, intuitively and from the bottom up as well as individually or within teams. This often happens by "dropping by a colleague's office" or by disturbing one's office mate to get ideas or critical feedback. The teachers also email each other for inspiration and assistance. Informal sharing takes place through equal dialogues and constructive criticism, which takes place without being checked and without regard to whether time has been allocated specifically. It primarily involves bottom-up processes, a pleasure-driven sharing culture prompted by the teachers themselves to create continuity and coherence for the students and to qualify and develop teaching.

However, more top-down controlled sharing practices are also described. An example is the introduction of the hybrid teaching model. The management initiated this design idea and appointed some teachers who should develop a catalogue of ideas and examples to be posted on a shared website and discussed at staff meetings without it taking on the character of a format dictating what to do. Although the strategy was top-down, the process was weakly regulated, leaving room for pedagogical autonomy for the teachers.

## Professional and everyday language

In the fourth case from the Nursing Education programme (NEP), characteristics are highlighted regarding what the informants refer to as “culture.” This applies to both subject teams and interdisciplinary teams. In the subject team, there is a strong focus on discussing the subject matter, developing common cases and determining progression throughout the educational programme. Additionally, they share specific teaching materials. There is a difference in language use depending on whether it is the subject group or the interdisciplinary group. In the subject groups, they use professional language: “After all, we use professional terms.” Pedagogical issues are mostly embedded in the professional language or expressed by everyday language:

“So, we don’t sit and think directly about educational theories, but we do that indirectly anyway. We do that indirectly because we are talking about how we can activate the students. For example, the students have difficulties understanding the structure of the heart; how can we help them with that?” (interview with NEP-teacher)

Besides developing a pedagogical language through this process, they see the formation of teams as a larger community about teaching where there is nothing called “my teaching.” When new people come into the organization, it is quite typical to give access to everything, “I mean, here’s all my material and you can use it or not” (interview with NEP-teacher).

## Results—Cross-cutting themes

In the following, we present results from the second step of the analysis where we process several cross-cutting themes within each of the three categories in Kemmi’s model. Dialogue and language are important and closely related themes that help constitute the semantic space. Physical framework and temporal resources emerge as elements that denote the material-economic space and important in the social-political space are themes such as organizational embedding and power relations, including symmetrical and asymmetrical relations.

### Dialogue and language

The teachers in our study consider the opportunity for dialogue crucial to understanding, translating and interpreting each other’s plans and teaching materials and

to further developing teaching. Thus, dialogic interaction has become a culturally discursive support structure for a practice where teachers can exchange and come to an understanding. The teachers feel the need for conversation and engagement in dialogue with those they receive material from in order to translate and reuse it:

“... personally, I rarely think that it is from the slides themselves that I can read the big pedagogical things beyond a thread of communication [...]. I really like to share my things. I think that being able to share something, if there’s just something someone can use or just that you can start a dialogue and get some feedback on it, then I think we qualify each other” (interview with BAP-teacher).

Thus, it appears that sharing practices, regardless of governance rationale or degree of formality, seem to be driven by dialogue, which also contains an element of equality. It becomes quite apparent that dialogue is qualifying for sharing practices and for the experience of pedagogical autonomy. This resonates with other research on pedagogical autonomy, which is considered a prerequisite for teachers to perform what we have previously referred to as context-sensitive teaching (Imsen, 2020). According to Bakhtin, dialogue facilitates construction processes in relation to already experienced and constructed knowledge. Through dialogue, one can become conscious of oneself through others. Dialogue personalizes content and constitutes meaning (Dysthe, 1995; 2003). However, dialogue also requires a common language, as previously mentioned. In both the TEP- and the NEP-case, the subject-oriented teams have developed a professional subject-specialized language where the pedagogical considerations are partly merged with the professional jargon and partly expressed in everyday language.

### Material and time resources

Generally, the four cases produce relatively little data about the importance of material-economical arrangements for sharing learning designs. However, some interesting accounts are made by the informants, especially about time resources.

Generally, when it comes to material and physical arrangements, the informants seem quite content with most kinds of facilities. There are suitable rooms for meetings

with the necessary equipment, boards, and screens, as well as access to LMS platforms, etc. Regarding the way teachers are located and distributed physically, they do not find it extremely important that team members have a workplace in the same room. They can communicate online or visit each other when needed. Some informants find the informal spaces, such as the canteen or coffee rooms, just as important for sharing as more formal spaces.

When it comes to time, there seem to be two different kinds of time as a resource in sharing practices. One kind is the one you offer voluntarily, which is not registered or allocated anywhere:

“If I come and ask something, unless you are really busy, you usually make time to help. Or at least that if you can’t right now and it’s a bigger thing, then you typically want to be able to say, ‘Well, do you have time to spend half an hour with me at some point to just talk about this?’” (interview BAP-teacher).

The second type is the time allocated and scheduled for teamwork. Some informants find that there is a lack of time specifically marked for sharing activities. Most commonly, the time for sharing should be taken from general preparation. However, other informants do not find formally allocated time the most important thing:

“I don’t think it’s the framework conditions but rather the benevolence among colleagues that supports sharing, so to speak. Because if it’s those small, short sharings that don’t require a lot of preparation, but maybe just a short sparring session, then it’s more a question of having colleagues who are willing to do it, and maybe thereby be a little interrupted in their own work—knowing that they can also interrupt me another time.” (interview BAP-teacher)

So, when sharing and exchange are self-directed and grow from below, there is a great willingness to spend time helping others knowing that you will get repaid another time.

### **Organizational embedding, power relations and pedagogical autonomy**

In this section, we highlight several cross-cutting themes that predominantly refer to the category of social-political arrangements of Kemmi’s model. As the title indicates, they

especially have to do with power relations, symmetrical and asymmetrical, in relation to pedagogical autonomy.

The organization and allocation of resources for collaboration and the power structures that follow facilitate different *action spaces* for sharing. This is particularly evident in the case of the Bachelor of Administration programme, where the informant states that “it’s clearly the informal sharing culture that takes up the most space,” but at the same time, formal processes and organization of collaboration are also referred to in the case. It seems that the two can co-exist. This theme is also found in the other cases, though not that explicitly, but it points to a general question of how sharing activities are initiated and controlled.

The overall theme of organizational embedment, therefore, comprises some sub-themes that we will now further elaborate. One of these themes is power relations, which particularly emerged in two cases in our so-called asymmetric and symmetric relations (Tanggaard, 2005).

The asymmetrical relationship typically occurs between one inexperienced/newcomer and an experienced colleague or a novice entering an established teaching team. However, there is a difference in power relations in the two situations. With the former, a kind of mentor-novice relationship is formed where the experienced teacher must guide/help an inexperienced one to understand and apply LDs. However, this is a close relationship based on trust, which is double-sided as far as pedagogical autonomy is concerned. On the one hand, the novice is dependent on the experienced colleague and needs relatively detailed guidance. On the other hand, the novice must also build her own understanding of an LD and thus wrestle herself free from the experienced to achieve satisfactory pedagogical autonomy.

We also find asymmetric connections between newcomers and especially subject-oriented teams. It requires a kind of socialization process for newcomers to become members of such a professional community (Lave and Wenger, 1998). An experienced team member thinks that such communities can seem dominating for newcomers, even if it is not the intention:

“And maybe some team communities have been a little too well-meaning in helping, you know, ‘we used to do this and this and this.’ But it wasn’t meant as such, but

more as, hey, do it like everyone else does it the first time, and later you can start to develop, but the person (newcomer, ed.) actually perceived it fairly...: 'why do I need all that material now? And why should I, because I won't use it', you know. It's like having something imposed on you. And I think that can inhibit you" (interview with an NEP-teacher).

The socialization aspect is also double-sided. On the one hand, you reap by becoming part of a team, but the team and its thinking, norms and routines can also seem overwhelming and limiting, so the team can be perceived as an external force that will push you more than it is beneficial. When, on the other hand, you have been integrated into the team, the relationship gradually becomes symmetrical. So, becoming a member of the team and complying with its practice traditions, norms and rules is not experienced as a limitation but as a resource that actually strengthens autonomy:

"There is a lot of pedagogical autonomy. It may well be that we have jointly formulated some things: that this is how we thought they should do [...] but for me, it is not a template that ties my hands and feet." (interview TEP)

The point is that once you are part of a community, especially the subject-oriented ones, sharing can take place completely unhindered among the members. This way, subject-oriented teams become a clear structuring element in the overall practice architecture that often enables sharing practices in which teaching has become a kind of collective ownership. However, such communities can close in on themselves and thus limit possible outsiders' access to them. At first, it could indicate greater pedagogical autonomy for the outsider, but being outside and thus cut off from the team resources is not the kind of pedagogical autonomy that teachers aspire to.

## Results—Practice architectures of sharing learning designs

With this last analytical step, we shed light on what characterizes the practice architectures for sharing learning designs, whereby we further conceptualize what promotes and inhibits the sharing of learning designs, which is the main question of the article.

From the cross-cutting thematic analysis in the previous section, some special dynamics emerge between certain elements in the organizational embedding of sharing

practices. A special relationship crystallizes between what we term top-down versus bottom-up management rationales combined with a concept of formality. Top-down or bottom-up are management rationales that indicate whether sharing practices are initiated from above or below and whether they have explicit goals and defined resources (Daradkah et al., 2018). As previously mentioned, bottom-up and top-down processes can take place side by side in the same organization.

The concept of formality is not dichotomous like the management rationales, but it is a continuum between lower and higher degrees of formality (high formality/low formality) (Eckert et al., 2013). The degree of formality deals with how explicit and detailed norms and values are exercised. It is the combinations of management rationales and degree of formality that constitute a special practice architecture regarding sharing practices:

- Top-down controlled sharing practices with a high degree of formality are initiated from above with centrally formulated goals. Sharing practices are highly regulated, ultimately with standardized learning designs in mind with limited autonomy for the teachers. Not found in data.
- Top-down controlled sharing practices with a low degree of formality are where only the overall goals for LD are determined from above, but where teachers develop the details of the LD and thus the degree of pedagogical autonomy. Found in BAP (catalogue for hybrid teaching).
- Bottom-up sharing practices with a high degree of formality are developed over time, where self-governing teams gradually form their own norms for sharing and thus become a community of sharing, etc. Found in TEP and NEP-cases.
- Bottom-up sharing practices with a low degree of formality grow from below. They are characterized by spontaneity, loose organization, a certain degree of randomness, but also a common understanding that it should be just that way.

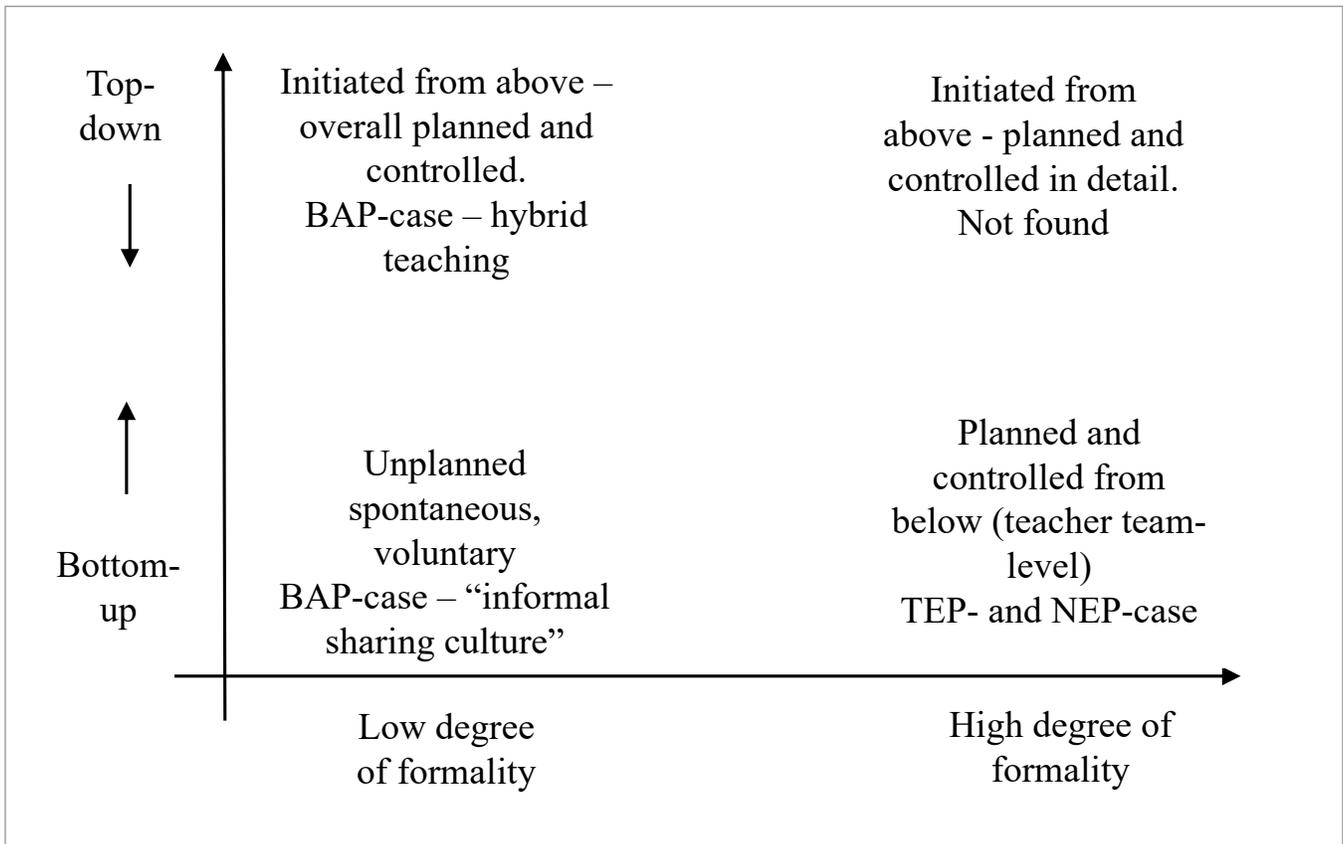


Figure 2. Top-down/bottom-up strategies combined with degrees of formality

Top-down and bottom-up strategies combined with different degrees of formality thus constitute a significant part of the practice architectures for sharing processes.

The question is what characterizes the shifts between the three intersubjective spaces according to Kemmis' model depending on whether sharing is top-down- or bottom-up-driven: Obviously, the dynamics in the spaces are different with the two strategies. Goals and means are, to a greater extent, explicit and planned in top-downs rather than in bottom-ups. The latter is more ruled by implicit norms, values and routines in teaching teams, but also by spontaneous initiatives.

Most of the cases show that discursive cultural arrangements which support dialogue have been built around sharing practices. This applies to both top-down and bottom-up processes, but only as long as the top-down-initiated sharing practices exhibit a low degree of formality. Here, dialogue in teacher teams will still be able to take place on the premises of the team and thus be supported by discursive cultural arrangements. Therefore, possible changes in top-down

sharing strategies towards a higher degree of formalization will challenge the practice architecture, especially the discursive-cultural arrangements as well as the socio-political ones. A detailed structuring from above will hamper dialogue in team communities and reduce the experience of pedagogical autonomy. This could also happen if cuts in time resources are implemented over time and thus reduce the opportunities for team dialogues. Ironically, the development of LD will then necessarily have to be regulated top-down. Again, this might threaten the pedagogical autonomy of the teacher teams as well as individually, but as mentioned, the combination of top-down and a high degree of formalization is not found in any of the cases.

### Conclusion and perspectives

This article has focused on the question of what promotes and inhibits sharing practices from teachers' point of view. The studies have shown that it is crucial for teachers to develop sharing practices that can open up pedagogical autonomy both for teams and for the individual. Based on four cases, we derived relevant themes such as symmetric vs. asymmetric relationships between teachers, strategies

for sharing practice and language use. Subsequently, we carried out a cross-sectional analysis enacting Kemmis' model by which we extracted the common themes for the three intersubjective spaces. Finally, we summarized the characteristic features of the practice architectures that either support or inhibit sharing practices.

Practice architectures that matter most to sharing are especially those of subject-oriented teams. Here, sharing is fundamentally facilitated by a high degree of equal dialogue with colleagues and by a common understanding of a professional language. Having to follow the team's rules is typically not seen as a limitation of pedagogical autonomy but as a support for filling out one's space for pedagogical agency.

However, this implies that everyone is a full member of a team, whereby symmetrical relationships are established between the teachers. If one is outside the professional community, this can be experienced as dominant, and the relationship becomes asymmetric and inhibitory for empowering sharing. However, asymmetric relationships can be qualifying for sharing, for example, between an experienced and an inexperienced teacher with the purpose of quickly preparing for a new teaching situation. Here, the need for pedagogical autonomy takes a back seat in favour of being led.

Whether pedagogical autonomy is experienced at the team level or individual level is related to some socio-political arrangements that include top-down and bottom-up forms of regulation. To capture the sharing practices' complex interplay of power relations, pedagogical autonomy and management strategies, we have developed a map that combines management strategies with degrees of formality in the development and sharing of learning designs. Management strategies imply the spaces where the initiation and control of processes are carried out, while formality implies how detail-oriented the management is. Various combinations are possible (see Figure 2). An important point is that pedagogical autonomy can be well maintained in top-down controlled sharing practices if there is a low degree of formality, i.e. an overall regulation. Another important point is that top-down and bottom-up strategies can co-exist in the same organization (BAP case). A well-balanced top-down management can, therefore, promote sharing and development processes alongside a bottom-up culture.

However, it should be noted that several of the bottom-up processes from the cases may go beyond the learning design concept, as they also deal with smaller parts of teaching than what can be described as "design."

Physical, material, and temporal arrangements do not seem to play a crucial role in the quality of sharing practices. Informal, spontaneous and intuitive exchanges in corridors and cafeterias, also across physical and material designs, are considered as valuable as the planned ones. A hindering factor seems to be the lack of specifically allocated time for sharing processes.

A question may be whether it is always beneficial and effective for teachers to engage in dialogic-sharing practices. If the top-down management becomes too controlling—which, however, was not found in this study—it must be expected that this will inhibit the team-based dialogue. If a team's rules become too rigid and controlling, one can imagine that individual teachers' ideas for learning design development will be suppressed. In that case, it can ultimately damage the quality of learning designs and teaching. This problem is only hinted at in one of the cases, but it could probably be more widespread. Overall, however, our studies indicate that it is a good idea to let teacher teams be responsible for developing learning designs as the teachers seem to commit themselves strongly to the team's norms and values about teaching but still experience individual pedagogical autonomy. The extent to which our findings are generalizable to other teaching organizations will thus depend mostly on the sharing readiness in teacher teams rather than on the type of educational programme.

## Conflict of Interest

There are no conflicts of interest to declare.

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# Sexual Education For Individuals With Special Needs: Understanding And Overcoming Current Obstacles

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neurodiverse population, sexual education, qualitative research, observation, questionnaire

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**\*Original Research Papers** are papers that report on original empirical research with a focus on teaching and learning. Papers may be qualitative or quantitative and include an Abstract, Introduction, Method, Results, Discussion, and Reference section, as well as any tables and/or figures.

## Abstract

Sexual education has often been a highly debatable, underrated, and undervalued topic. Efforts to address this neglect have yielded significant progress. It is now integrated into numerous countries' educational systems curricula and has been actively promoted. However, progress in this realm has primarily favoured the neurotypical population, leaving the topic of sexuality and individuals with disabilities greatly undervalued and underrepresented. Additionally, existing policy frameworks frequently overlook the unique needs of individuals with disabilities, resulting in uneven delivery and quality of sexual education and programs.

Despite ongoing efforts, numerous obstacles persist, impeding equal access and distribution of sexual education and resources for individuals with special needs. These challenges raise important questions: Do these challenges differ depending on an individual's cultural background, gender identity or age? What sex education programs are currently available for the neurodiverse population? How can the existing barriers be effectively addressed?

This study aims to answer the following research question: *“What are the barriers preventing equal access to sexual education or resources for individuals with special needs? How can these barriers be overcome?”* Utilizing a qualitative approach, the study will involve direct observation of sexual education training for students with special needs, complemented by an online self-paced questionnaire featuring qualitative questions.

In this research study, the term “people with special needs” encompasses individuals with different abilities across a range of conditions and severity levels, including those experiencing movement impairments and other challenges that necessitate special assistance. However, the challenges, barriers, and solutions discussed in the current study predominantly pertain to those with the most severe developmental, cognitive, and physical conditions.

## Introduction

**Sexuality is an inherent facet of human existence, encompassing both** physiological and spiritual dimensions (Hole et al., 2022; Pownall et al., 2012). Nevertheless, it is crucial to acknowledge that discussions surrounding sexuality remain significantly sensitive, often closely linked to existing societal stigmas and taboos (Gokgoz et al., 2021; Hole et al., 2022; Lam et al., 2022; Schaafsma et al., 2014; Young et al., 2012). Individuals with special needs have the same sexual desires as those without disabilities (Lam et al., 2022; Young et al., 2012). However, primary caregivers, guardians, and frontline staff members tend to avoid the presence of this sphere of life for individuals with disability (Gokgoz et al., 2021). Hence, more focus and improvement are necessary in the field of sexual education and existing sexuality destigmatization for individuals with disabilities.

## Sex Education

The period of young adulthood is crucial for forming one's identity, establishing meaningful social connections, and exploring one's sexuality (Bahner, 2018). According to Schaafsma et al. (2014), it is crucial to provide sex education before individuals with intellectual disabilities engage in sexual activity. This approach aims to equip them with the knowledge and skills essential for making informed decisions that positively affect their sexual health (Michielsen & Brockschmidt, 2021). Sex education should extend beyond the mere transmission of knowledge related to human physiology, the reproductive system, or preventing sexually transmitted infections (STIs) (Schaafsma et al., 2014). Ideally, the scope of sex education should cover and support individuals' understanding of the basics of emotional involvement, sexuality, partnership and intimate relationship aspects (Frawley & Wilson, 2016; McDaniels & Fleming, 2016).

## Stigma Surrounding the Sexuality of Individuals with Special Needs

People have the right to experience their sexuality and gain pleasurable sexual experiences (Pownall et al., 2012; Schaafsma et al., 2014). Individuals with intellectual disabilities (ID) share the exact fundamental sexual needs and desires of those without disabilities (McDaniels & Fleming, 2016; Michielsen & Brockschmidt, 2021). In a research study done in 2018, Hole et al. state that over 80% of the participants with intellectual disabilities had been involved in some form of sexual relationship. It is essential to recognize

and affirm these needs, acknowledging that individuals with intellectual disabilities also have the right to experience and develop fulfilling sexual relationships (Young et al., 2012).

The perception of people with intellectual disabilities as either "holy innocent" or "oversexed" contributes to challenges in addressing their sexual desires and needs (Young et al., 2012). The term "holy innocent" usually refers to an existing stereotype that individuals with special needs are entirely devoid of any sexual experiences (Young et al., 2012). While "oversexed" perception means that individuals with special abilities experience and illustrate heightened or uncontrollable sexual desires, often portraying them as hypersexual or deviant (Young et al., 2012). The presence of these assumptions may result in overlooking or downplaying individuals' sexuality.

It is noteworthy to mention that the absence of sexual activity among individuals with disabilities should never be a justification for withholding sex education (Schaafsma et al., 2014). Even if individuals are not currently sexually active, providing sex education remains crucial (Michielsen & Brockschmidt, 2021). It helps navigate their sex-related concerns, as well as protect them from vulnerability and predisposition to being targets of sexual abuse (McCarthy et al., 2022; Schaafsma et al., 2015).

## Current Educational Programs

### **Comprehensive Sex Education (CSE)**

Comprehensive sexuality education (CSE) is one of the most up-to-date sexual education programs available (Davies et al., 2023). It has demonstrated numerous positive outcomes for individuals due to its integration of psychological, social and physiological facets of relationships (Curtiss & Stoffers, 2023; Hayashi et al., 2011). For example, CSE has been associated with decreases in child sex abuse and violence within dating and intimate partner relationships (Curtiss & Stoffers, 2023). Additionally, it improves healthy relationship development and enhances social and emotional learning among individuals with special needs (Davies et al., 2023). A comprehensive sexuality education approach establishes appropriate intimate partner relationships and connections while contributing to the increased overall well-being of individuals with disabilities (Davies et al., 2023). The multifaceted benefits of CSE support the positive impact of its role as a valuable tool in the education system (Curtiss & Stoffers, 2023).

## **Reactive Method**

Predominantly, available sexual education programs are provided reactively. It means they address an individual's challenging and problematic behaviour after it happens (Curtiss & Stoffers, 2023). The method is a consequence strategy to the existing behaviour and challenges. However, a proactive strategy, implementing prevention-focused methods to educate individuals about appropriate sexual expression beforehand, is a more beneficial option (Curtiss & Stoffers, 2023). There is a need to shift the focus towards proactive education that equips individuals with the knowledge and skills to navigate their sexuality responsibly (Lafferty et al., 2012). According to Lafferty et al. (2012), the proactive approach reduces the likelihood of harmful behaviour, fosters a more informed and empowered approach to sexual expression, and creates a supportive environment that minimizes the occurrence of problematic behaviours.

## **Gender-Based Education**

Sex education for females with intellectual disabilities often tends to be more concentrated on self-protection skills rather than addressing a comprehensive range of topics (Lam et al., 2022). For males, the available education focuses on educating appropriate social distancing and social interactions with opposite-sex or same-sex individuals (Lam et al., 2022). These gender-based divisions neglect the diverse range of needs that individuals may encounter, highlighting and supporting the existing gender-based stereotypes and stigmas (Schaafsma et al., 2015; Young et al., 2012).

## **Heteronormative Sexual Perspectives**

Primarily, existing sexual education programs for individuals with disabilities focus on heteronormative gender identities (McCarthy et al., 2022). Hole et al. (2022) state that primary caregivers for individuals diagnosed with intellectual disability tend to interpret the homosexual behaviours of their offspring as "experimentation" rather than identifying them as expressions of LGBTQI+ identity. This heteronormative approach excludes the presence of the LGBTQI+ community, eliminates sexual diversity, and prevents individuals from gaining knowledge about diverse sexual communities and gender identities (McCarthy et al., 2022).

## **Hypothesis**

The hypothesis asserts that a number of factors may directly affect the equal access and delivery of sex education for

people with special needs. They include but are not limited to the stigma surrounding the sexuality of people with disabilities, parental avoidance and fears of sex topics, or inadequate existing training. However, there is still insufficient data, and more research has to be done to get a more in-depth understanding of specific individuals' experiences and unique perspectives that are not covered in the current literature review findings.

## **Method Observation**

The initial step of this qualitative research method is observation. In this study, the researcher attends a sex education training organized by the Community Integration through Co-operative Education (CICE) program for people with special needs and the Consent Peer Education Program (CPEP) at Humber College. This training, facilitated by the Sexual Violence Prevention and Education Programs Coordinator, is called "Bringing in the Bystander Training Session." It covers topics such as sexual violence, consent, victim-blaming, and effective bystander intervention strategies. The researcher aims to examine how staff have adapted training content to meet the unique needs of students with special needs and evaluate the delivery of the current sex education program at Humber. The focus includes assessing staff interactions with students, addressing questions, and identifying barriers to effective sexual education for students with special needs.

## **Questionnaire**

After the actual observation phase is done, an online questionnaire with open-ended qualitative questions is used to gather data. This questionnaire is sent to consent peer educators (CPEs), primary caregivers, and behaviour instructors with experience in delivering sexual education or resources to individuals with limited abilities. Similar to the approach used by Pownall (2012), the questionnaire starts with general topics on sexual education and gradually introduces more sensitive and personal topics (Appendix B). The thematic analysis of the gathered data examines, arranges, and portrays the common themes across the gathered data while highlighting the primary areas that guide the rest of the research process (Nowell et al., 2017). Additionally, the coding process is implemented in the research study. The coding involves separating the collected information into categories and subcategories to reveal significant patterns between participants' responses (Cascio

et al., 2019). As a result of all participants' responses, consecutive thematic analysis and the implications of the coding process, the researcher aims to gain an in-depth understanding of the chosen research sphere and conclude the exclusive foundational conclusions.

## Results

### Part 1: Observation Phase

During the observation, the first notable difference was the lower number of students in the classroom, totalling 33 students, 24 male and 9 female. This number is approximately 30% less than during training for students without special needs. Additionally, the number of facilitators during the training was three times higher than usual, with six staff members, including two workshop instructors and four supporting staff members. The training duration was almost 0.50 hours shorter (1.25 hours) than the usual workshop (1.90 hours). However, it is notable that the training was not oversimplified, and all the essential terms and concepts were thoroughly described. Interestingly, the training facilitators switched from a lecture-style workshop to a discussion-based and high student-participation training option. From the primary researcher's perspective, an increased number of facilitators and supporting staff members, coupled with fewer students in the classroom, enabled the professional to approach students seeking clarifications on the material. The heightened direct interaction between professionals and students resulted in more person-centred information delivery.

### Accessibility Integration

The training setup was designed for maximum accessibility. The room featured six tables, each seating five or six students, equipped with TV screens and whiteboards. Facilitators primarily used a large TV screen, with all TV screens displaying the same content, accommodating students with visual challenges. Attendees also received hard copies of the training material, allowing individuals with hearing impairments to follow along and participate. Students used the whiteboards for small group activities, ensuring that all answers were written and orally presented, promoting inclusive participation.

### Part 2: Questionnaire Phase

During the questionnaire, all of the participants collectively advocated and reinforced the importance of sexual education for individuals with special needs, seeing the empowering

nature of this knowledge, enabling self-advocacy and informed decision-making. The diverse viewpoints highlight the necessity for a comprehensive and customized approach to sexual education that considers the distinct needs and obstacles encountered by individuals with disabilities.

### Area of Struggle and Existing Barriers

#### Accessible Information

Caregivers, sexual prevention professionals, and educational therapists face challenges in creating engaging, relevant, and accessible sexual education for people with special needs. They lack resources for workshops and meaningful conversations in this area, leading to a sense of inadequate support and societal stigma. Tailoring information to diverse needs is crucial, but the scarcity of resources makes designing workshops difficult. Enhanced resources and support are urgently needed to address the complex challenges of providing comprehensive sexual education to individuals with special needs.

#### Cultural Considerations and Reluctance

Cultural and religious awareness presents an added layer of complexity in sexual education for individuals with special needs. Families may feel uncomfortable or resistant, complicating the educational process. For instance, discouraging certain behaviours like public self-touching can be challenging for caregivers (Appendix B, Figure 4). Some cultures view sex as taboo, making discussions on consent difficult, as highlighted by Consent Peer Educator 1 (Appendix B, Figure 5). The perspective on masturbation varies across cultures and religions, posing barriers for professionals. Managing these situations requires a delicate balance and respect for diverse beliefs and values, adding complexity for educators and therapists in this field.

#### Comprehension Level

Participants also highlight individual comprehension levels as a significant barrier in sexual education for individuals with special needs. The caregiver expresses concerns about presenting information that matches her daughter's level of comprehension, balancing accuracy with understandability (Appendix B, Figure 5). Similarly, the clinical instructor emphasizes the importance of using clear and simple language to enable individuals to engage with the material and participate in discussions effectively (Appendix B, Figure 4).

### **Individual's Age**

Age emerges as a notable barrier in sexual education for individuals with special needs, as highlighted by frontline professionals (Appendix B, Figure 5). The behaviour analyst recounts challenges in explaining certain behaviours in young children, such as pelvic pressing, which can be misunderstood by parents due to the child's age (Appendix B, Figure 5). Additionally, the educational therapist emphasizes the importance of considering age in cognitive development and attention span, requiring tailored teaching methods for younger learners (Appendix B, Figure 5). Consent Peer Educator 1 notes that some individuals struggle to engage with services due to discomfort discussing sex and intimacy related to their age (Appendix B, Figure 5). Tailoring instructional approaches to accommodate age-specific needs is crucial for effective learning outcomes and overcoming comprehension barriers.

### **Individual's Gender Identity**

Gaining trust, establishing relatability, and addressing existing gender-oriented issues proved challenging, especially considering the educator identified with a different gender (Appendix B, Figure 4). Negotiating these challenges became complex, emphasizing the need for sensitivity and effective strategies when dealing with gender dynamics, especially in a field as sensitive as sexual education. Within the questionnaire, the behavioural therapist shared their experience working directly with a 14-year-old non-verbal boy with a disability, specifically focusing on creating a teaching program on masturbation (Appendix B, Figure 4). The therapist encounters challenges in determining the optimal teaching model, struggling to balance providing guidance and fostering the boy's independence. This struggle highlights the nature of teaching sensitive topics, requiring careful consideration of individual needs, communication abilities, and the final goal of promoting autonomy. These experiences underscore the intricate challenges faced by professionals in the realm of sexual education, particularly when navigating gender diversity and individualized teaching strategies. The need for tailored approaches, empathy, and ongoing reflection is evident in addressing the unique needs of individuals with special abilities in sexual education practices.

## **Discussion**

The participants' responses underscored the critical importance of providing sexual education and resources for

individuals with special needs, highlighting the significance of this often underrated and neglected area. The emphasis on teaching how to identify and avoid dangerous circumstances resonates as a means to lessen the vulnerability of this population to abuse or exploitation. The literature review and data support this concern since it is noted by Schaafsma et al. (2015) that this population is almost three times more likely to be the target of sexual abuse. The participants underline the role of sexual education in fostering healthy relationships that address physical, mental, and emotional needs.

The participants suggested some of the possible improvements that can be made to enhance the existing educational courses and models. This includes developing online self-paced programs and small group settings to meet diverse needs. Integrating visual aids and interactive elements to enhance engagement and comprehension. Models or body replicas can be particularly useful for visual learners and those who may struggle with verbal explanations, providing a tangible way to understand their bodies and navigate various situations. Additionally, integrating disability-specific content into sexual education holds immense value, as highlighted by Davies et al. (2023) and echoed by a clinical instructor who emphasizes the importance of educating individuals with disabilities from a young age. This approach aims to provide accurate, relatable, and relevant sexual information, promoting acceptance and respect for diverse abilities. Moreover, involving experts in sexual education, as suggested by a behavioural analyst, can greatly benefit workshops and educational sessions (Appendix B, Figure 6). These experts bring specialized knowledge and ensure that frontline specialists, educators, and healthcare professionals are equipped to support individuals with disabilities regarding sexual health and education.

Establishing a supportive and inclusive learning environment has emerged as another crucial strategy in facilitating effective sex education for individuals with special needs (Appendix B, Figure 6). Individuals with disabilities should have access to ongoing support and acceptance by the neurotypical population. Finally, parent-oriented workshops and education, coupled with collaboration and support from parents, are seen as indispensable components in providing comprehensive sexual education for neurodiverse individuals. By facilitating open and transparent communication

channels, educators can gain valuable insights into parents' preferences and concerns and create programs following appropriate limits.

## Impact

As a researcher, reflecting on the study's potential impact on the obstacles of sexual education and resources for people with diverse needs is an opportunity to envision tangible changes in society. My hope is to reach a wide audience, from educators in various settings and healthcare professionals to caregivers and individuals with disabilities themselves. By illuminating the challenges faced in sexual education and the scarcity of resources for this population, the goal is to spark meaningful conversations and drive advocacy efforts for improved access to inclusive sexual education. Ultimately, the current research is driven by a desire to create positive change by promoting equitable access to sexual education and resources for individuals with diverse needs.

## Conclusion

The findings from this research study underscore the significant challenges encountered by individuals with disabilities in accessing sufficient sexual education and resources. The data was collected from individuals who provide frontline care and behavioural treatment or are primary caregivers to individuals with special needs. Identifying specific factors influencing the availability and quality of such resources is crucial for understanding and addressing barriers in this area. However, the study suggests that further research is needed to fully grasp these issues and recognize additional concerns that may have been overlooked.

The obstacles identified through the primary research phases likely encompass a range of factors, including cultural considerations and implications, an individual's gender identity, comprehension level, age, and the scarcity of resources to gain, create, and distribute accessible and engaging information for this population. By recognizing these barriers, healthcare providers, sexual educators, and primary caregivers can work towards developing strategies to improve access to sexual education and resources for people with disabilities.

Finally, ongoing research and promotion of this integral sphere can help to uncover new insights and identify emerging challenges that may impact the sexual health and

well-being of individuals with disabilities. Tackling the existing taboos and neglect surrounding sexuality and disability can lead society to foster a more supportive, inclusive, and unbiased environment. In such an environment, every individual feels empowered to seek out the information and resources integral to making educated decisions concerning their sexual well-being and sexual activities.

## Limitations

Due to the established timeline for the primary research, the objective was to recruit six participants representing caregivers, sexual education professionals, and frontline staff members, such as behavioural therapists. This multi-perspective approach was selected to ensure diverse data collection and capture various viewpoints, given the different levels of engagement with individuals with special needs. Although the minimum number of participants was met, there was no equal distribution of representatives. As a result, there was one caregiver, three frontline staff members, and three sexual education professionals. Moreover, the nature of the questionnaire, which was self-paced, meant that there was no direct control or guidance from the primary researcher. This aspect added complexity to the data collection process, making it more challenging and less straightforward. Another significant limitation of the study is the vague population scope. It could be more accurate to target a specific population, such as individuals with Down Syndrome, Autism Spectrum Disorder (ASD) or a particular movement impairment. The current research employs broad terms like "people with special needs" or "individuals with disabilities." This research aimed to understand the challenges and barriers faced by the overall neurodiverse population. However, for future research, selecting a more precise population cohort would yield more accurate data regarding the specific obstacles associated with each diagnosis.

## Conflict of Interest

No conflict of interest or financial interest exists in the current study.

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## Appendices

### Appendix A: Letter of Invitation and Informed Consent Form

#### Invitation

My name is Anastasiia Melnikova. I am a fourth-year student in the Bachelor of Behaviour Science Program at Humber College. I am currently conducting research for my undergraduate thesis, where I am the primary researcher.

This study aims to answer the question: *What are the barriers preventing equal access to sexual education or resources for individuals with special needs? How can these barriers be overcome?* I am answering this research question through the chosen research method of a questionnaire. Your participation and contribution are crucial in highlighting this topic, providing valuable insights into the ongoing dialogue on inclusive sexual education and its promotion. As part of your participation, you will be asked a series of questions about your experiences, perspectives, and insights regarding the existing obstacles in accessing or delivering sexual health education or resources. The procedure of this study will include an approximately 20-30-minute questionnaire. The link for the questionnaire will be sent to a participant via email. The questionnaires are to be completed by 11:59 pm on March 1st, 2024.

#### Research Approval

My thesis topic has been approved by the Research Ethics Board at Humber College for Student Research. It is my own research, not the research of Humber College. The thesis study is supervised by Humber College Professor Deborah Vincent.

#### Confidentiality and Informed Consent

The research findings are shared amongst 4th year Bachelor of Behavioural Science students and faculty at Humber College. The completed thesis may be uploaded to a research library for the Bachelor of Behavioural Science Program. Additionally, any participant is free to withdraw at any point from the study prior to the data analysis. No identifying information is included in data analysis unless stated otherwise. All of the information you share in this study will be kept confidential. It is stored on the researcher's personal computer and is password-protected. All identifying information is deleted at the end of the study. I believe there are no risks in participating in this study than the risks you may experience in everyday life. The findings from this research may be used for future research with the approval of the research participant.

#### Contact Information

If you have any questions or want more information, you can email the primary student researcher, Anastasiia Melnikova, at the following email: [anastasiia.melnikova@humber.ca](mailto:anastasiia.melnikova@humber.ca). If you wish to take your questions beyond the primary researcher, you may contact the faculty supervisor of this study, Deborah Vincent, at [deborah.vincent@humber.ca](mailto:deborah.vincent@humber.ca).

#### Participation Certification

I agree to participate in this study. I have made this decision after reviewing the invitation, confidentiality and informed consent. I acknowledge that I can ask for further information about the study and my participation in it. I understand that I can withdraw my participation at any time if I change my mind prior to the completion of the data analysis, which is approximately two weeks after the questionnaire completion deadline.

Date: \_\_\_\_\_

Participant Name: \_\_\_\_\_

Participant Signature: \_\_\_\_\_

## Appendix B: Quantitative Questionnaire & Participants Answers

1. What is your relation to an individual with special needs? Can you tell me your experience providing sexual resources or education to an individual with special needs?

**Table 1 Participants' Answers to Question 1**

Participant ID	Participant Response
Participant 1 (Caregiver)	Mom, It is hard to explain and uncomfortable because I don't know if I am explaining it as I should.
Participant 2 (Sexual Violence Prevention and Education Coordinator)	My experience is related to providing education through my work at Humber. I work to provide sexual health and consent resources for everyone on campus. This has allowed me to work with students and persons of varying needs and experience. Some of these students would either self-identify or be identified as people with special needs.
Participant 3 (Consent Peer Educator 1)	In the past, I have worked as a Consent Peer Educator at Humber College. In this position, I provided educational resources to individuals with various needs and abilities. I have also worked with children and adults with special needs in the city of Brampton in a recreational capacity.
Participant 4 (Consent Peer Educator 2)	Consent youth leader
Participant 5 (Behavioural Analyst, BA)	<p>Been working with individuals with special needs for about four years through applied behavioural analysis services. I have had many experiences teaching sexual education and resources to clients who were as young as 8 and as old as 26. I have used visuals and social stories to support their understanding of safe places to experience masturbation and to teach them how their bodies are changing through puberty. I have also worked closely with families to support their children within the home setting for self-touch and appropriate nudity.</p> <p>It has not been easy, the resources out there are very slim, and most of the time, I end up working with families on their specific goals for sex ed and applying my knowledge and experience to that specific goal. Most research is focused on "problem behaviour that relates to sexual behaviour" but never healthy sexual behaviours or replacement behaviours.</p>
Participant 6 (Educational Therapist, ET)	I was an educational therapist for students with intellectual and developmental disabilities. Through this position, I facilitated learning in life skills and elementary/high-school curriculums. I provided sexual education and resources to students and families when there were conflicts or gaps noticed in their behaviour. For instance, if a student were exposing themselves at school or not respecting other students' boundaries, we would have a conversation about consent and sexual health and provide their families with resources regarding the topics discussed.
Participant 7 (Clinical Instructor, CICE)	I am a Clinical Instructor who has been in the CICE classroom at Humber as a clinical placement.

2. Could you give your perspective on the importance of providing sexual education and resources for individuals with special needs?

**Table 2 Participants' Answers to Question 2**

Participant ID	Participant Response
Participant 1 (Caregiver)	Individuals with special needs must get sexual education in order to make educated choices about their bodies and relationships as they age. By teaching people with disabilities how to identify and avoid dangerous circumstances, sexual education may lessen the likelihood that they will be victims of abuse or exploitation. Sexual education helps children establish healthy relationships by addressing their physical, mental, and emotional needs.
Participant 2 (Sexual Violence Prevention and Education Coordinator)	It is extremely important that we provide sexual health education and resources to folks with special needs. Our society often infantilizes people with disabilities or special needs because their functioning may look different from what is seen as "normal." But we know that sexual health, consent awareness, and sexual violence awareness are important areas of education for all individuals. People with disabilities experience higher rates of sexual violence due to people taking advantage of them, but I also think our system of education has failed to teach people, including people with special needs, what is right and wrong or what is consensual or not consensual.
Participant 3 (Consent Peer Educator 1)	It is important to provide sexual education to individuals with special needs to reduce stigma. Often, we do not consider the sexual health and education of individuals with physical disabilities, but we must educate individuals in ways that accommodate their physical and mental capacity.
Participant 4 (Consent Peer Educator 2)	I feel the area of sexual education for individuals with special needs is neglected. Due to this neglect, many individuals feel unsure or intimidated about how to proceed and open those lines of communication. I think additional training and resources would benefit those individuals with special needs as well as those who work with the individuals.
Participant 5 (Behavioural Analyst, BA)	<p>I believe this is one of the most important skills to teach this group of individuals, mainly for safety purposes. Working with an already vulnerable population, these are the things you worry about for them. I worry about them being taken advantage of or not understanding when the space is safe to do sexual activities.</p> <p>I think that just as other typical functioning humans, they deserve to experience healthy sexual activities as well as understand their own bodies as they change and grow throughout their lives.</p> <p>It is just as important as other life-functioning skills and will not only keep them safe but also those they have relationships with. We want to ensure they build healthy relationships with others, and healthy sexual behaviours play into those types of relationships as they grow.</p>
Participant 6 (Educational Therapist, ET)	Sexual education is important for individuals with special needs because it is empowering to learn about your own body, relationships, and health. This knowledge allows people with special needs to advocate for themselves and know when to seek support. Additionally, it is important to provide sexual education that is representative and specific to people with special needs.
Participant 7 (Clinical Instructor, CICE)	I also believe that it is so important for them to learn about providing consent when they might be involved in sexual activities.

- Did you get a chance to complete a sexual health education program or any form of training prior to delivering sex-related information to an individual with special abilities? If yes, could you specify? If not, do you believe it could potentially benefit you by providing sexual education or resources and in what way?

**Table 3 Participants' Answers to Question 3**

Participant ID	Participant Response
Participant 1 (Caregiver)	I did not get a chance to complete a program, but I would love to get the opportunity to try. I think completing a program would give me better information to connect with and understand how to explain to my child with special needs. Raising a child with special needs is a lot more challenging and also different than raising an average child. I would like to hope and believe I can find tools and guidance on how to break down information so that she will understand sexual education and safety.
Participant 2 (Sexual Violence Prevention and Education Coordinator)	My work is more related to sexual violence prevention, which sexual health is part of, so I have taken courses on sexual violence prevention and support. I also pursued knowledge through books like "Come As You Are" by Emily Nagoski and other readings. I have also completed and facilitated the "It Takes All of Us" asynchronous module and "Bringing In the Bystander" sexual violence prevention training. Other than these, research, reading, and attending workshops by sex educators have been important and helpful things that have supported my ability to teach about sexual health. More training would be very useful, especially training about providing sexual health and sex education to people with special needs.
Participant 3 (Consent Peer Educator 1)	Yes, prior to working as a consent peer educator, I completed training on the Accessibility for Ontarians with Disabilities Act (AODA) and general training on consent and sexual assault. This training allowed me to deliver education about consent to individuals of all abilities.
Participant 4 (Consent Peer Educator 2)	The training I received was very broad and was not catered to individuals with special abilities. Having additional training that is more specific would be beneficial, even just for interacting with others and finding out how they would handle various situations.
Participant 5 (Behavioural Analyst, BA)	I have not. I did get direct support from Supervisors who have gone to sexual education workshops for those on the spectrum but was unable to attend one myself.  This is something I have been looking into and hope to get more educated on and even specialize in.  I think 100% it would benefit me to get proper training in sexual health education to ensure I am always learning and growing to be able to provide effective treatment and support to those I work with. This is something that should be mandatory for those in the field to ensure we are thinking about these skills for our clients and to ensure our families are supported during the process.
Participant 6 (Educational Therapist, ET)	Unfortunately, I did not, and I had to find my own resources to learn about sex-related information for those with special needs. I believe that it could have benefited me in that I would have been able to answer more questions from students. I also wish that I had more knowledge on specialized sexual health as an educational therapist, for example, what barriers individuals with Autism Spectrum Disorder might face in sexual relationships.
Participant 7 (Clinical Instructor, CICE)	No, because I do not deliver the education directly (we are guests in the CICE classroom at Humber College, and we do a presentation of a community health promotion project to the CICE students), but I do believe that this is very important.

4. Were there any areas you struggled with while delivering sex-related information to an individual with special abilities? If so, please elaborate.

**Table 4 Participants' Answers to Question 4**

<b>Participant ID</b>	<b>Participant Response</b>
Participant 1 (Caregiver)	As children get older, they tend to explore their bodies and touch or look at themselves in public areas where others will make weird looks and harsh remarks. I had to explain to my child not to touch herself in public areas and to do things in private. At times, she does it in public, so I have to run and tell her again. I don't think she understands why she cannot do these things.
Participant 2 (Sexual Violence Prevention and Education Coordinator)	Making sure the information is what folks are looking for. People with special needs, just like anyone, are at different points in their learning journey about sexual health and their own bodies. Making sure to understand what information is relevant and helpful during an educational session is important.
Participant 3 (Consent Peer Educator 1)	None that I can recall at the moment.
Participant 4 (Consent Peer Educator 2)	In my experience, I struggled when male-specific issues came up. It was difficult for me to speak with the individual and gain their trust when they were dealing with specific male issues. However, I found this was also dependent on the specific individuals involved. My experience comes from working with youth from diverse backgrounds. Therefore, there were
Participant 5 (Behavioural Analyst, BA)	<p>Yes, I think the biggest struggle for me was teaching a young boy (14) how to masturbate. This was something he was unable to do, and he would experience erections without a way to relieve himself.</p> <p>He was also non-verbal, and it was challenging to select the best way to teach him. Do we use visuals? Do we do a social story? It was challenging to also select modelling or allow him to figure it out himself.</p> <p>It was great working with the family as they were very open and willing to teach these skills to their child, but it was challenging as we didn't want him to accidentally harm himself while trying to masturbate. This was something that came with many layers, teaching him how to do the action, where it was appropriate to do the action and what elements of his environment had to be present in order for him to be able to complete the action.</p> <p>Another side challenge would be cultural and religious awareness. Many families are not comfortable or accepting of these challenges their child goes through, which makes it more challenging. For example, of course, we do not want the client touching himself in public, but if we suppress the behaviour in one place, we have to teach a replacement behaviour, and that is always hard to navigate.</p>
Participant 6 (Educational Therapist, ET)	I struggled to make the information accessible and engaging. I did not know how to present the concept of consent to younger students, and I wish that I had created better learning activities in class.
Participant 7 (Clinical Instructor, CICE)	Sometimes, related to the individual comprehending the information being provided. It is important to use simple, clear language and to observe the individuals and engage them in discussion to make sure that they understand the presentation materials and invite them to ask questions.

5. Can you identify any barriers that challenge your delivery of sex information? (Tip: some of the examples can include but are not limited to the age or gender of an individual, your level of knowledge in the sex sphere, personal perspectives, or your/ individual's cultural background).

**Table 5 Participants' Answers to Question 5**

<b>Participant ID</b>	<b>Participant Response</b>
Participant 1 (Caregiver)	As a parent, I accept the possibility of knowledge gaps and the fear that the information I present may not completely match my daughter's current level of comprehension. Given her developing understanding, I am aware of the need to find a middle ground between providing correct information and making sure it is understandable for her age and level of development.
Participant 2 (Sexual Violence Prevention and Education Coordinator)	Cultural background and home experience are often barriers if parents or guardians have not opened up the conversation with their child. Often, parents will also infantilize their child, so they may not begin the conversation about sexual health, which means you may have to break down barriers of stigmas, confusion, perspectives and more before getting to the simplest of ideas. This is the case with anyone, but it can be exacerbated with people with special needs because people may think they won't understand or should not be having sex.
Participant 3 (Consent Peer Educator 1)	Some individuals were not receptive to sex education, as they were not mature enough to learn. Some individuals lacked comfort when discussing sex and intimacy and had trouble engaging with our services due to their age. Another barrier may be culture, as some individuals did not discuss sex in their culture and found it very challenging to discuss consent. Sex was viewed as "taboo" in their culture/religion, which sometimes made it difficult to convey information as an educator.
Participant 4 (Consent Peer Educator 2)	I think the environment and relationship you have with the individual, as well as the relationships the individual has with others, plays a big part in the delivery. I think unclear responsibilities also play a role and can become a barrier when it comes to the delivery of sex information.
Participant 5 (Behavioural Analyst, BA)	<p>The barriers I have experienced would be the age of the child as well as the cultural or religious values that the family has for their child.</p> <p>For example, one child I worked with was only about five years old, but she was engaging in pelvic pressing. The family had a hard time understanding why she was doing this, as she was so young. So age can sometimes throw parents off, and they may not understand the sensory implications of a child or that children can experience self-gratification at a young age.</p> <p>Another family had cultural implications where the mom actually was upset we provided her son (8) private time in the washroom as she just wanted us to stop him only. I had mentioned to her that replacement behaviour is always thought of as we do not want the behaviour to worsen in other places or create a negative experience for the child who is trying to express themselves.</p> <p>I also felt that those with very strict religious beliefs have a hard time accepting the fact that masturbation is natural to the human experience. This was something that parents often did not want their children to do, which made it hard to teach appropriate sexual behaviours.</p>

<b>Participant ID</b>	<b>Participant Response</b>
Participant 6 (Educational Therapist, ET)	The age of individuals was a barrier in my position, as students ranged in age from 8 to 16 years old. I found it difficult to educate very young students about consent and found myself continuously repeating lessons about setting and respecting other people's boundaries. This was also my first patient-facing role, so I had a huge learning curve to overcome in how I communicate with younger children. I had limited experience with individuals with special needs prior to this role and had to seek mentorship from staff members and learn from external resources.
Participant 7 (Clinical Instructor, CICE)	I believe that some challenges include the individual's comfort level on the topic. The individual may not be ready or want to take part in sexual health discussions. Culture may impact the individual as sexual health discussions are not done in some cultures, or sexual activities may not be allowed until after the person is married.

6. From your perspective, what are some strategies that can be used to overcome barriers to providing sex education for individuals with special needs? (Tip: some of the examples can include but are not limited to developing disability-specific sexual content, extending the accessibility of teaching programs, or completing ongoing sexual training programs).

**Table 6 Participants' Answers to Question 6**

<b>Participant ID</b>	<b>Participant Response</b>
Participant 1 (Caregiver)	It is crucial to have a nurturing and unbiased atmosphere where individuals of all abilities may receive inclusive and pertinent sex education that fosters comprehension, independence, and overall welfare.
Participant 2 (Sexual Violence Prevention and Education Coordinator)	Asking questions, having safe environments to provide education, working in small groups to be able to answer more questions, starting from the ground up and not being afraid to get complex, providing different methods of delivery and other accessibility, patience, and content that progresses at the pace of the individual or group.
Participant 3 (Consent Peer Educator 1)	Creating online and self-paced programs can be used to overcome barriers to providing sexual education. By creating online courses, individuals are able to complete their education at their own pace and in a format that works for them. For instance, individuals who are hard of hearing could read the subtitles on a video rather than attend an in-person seminar that doesn't have an interpreter.
Participant 4 (Consent Peer Educator 2)	Communication overall between the individual as well as those around them. The more information that is known, the better. I would want to know from their parents' perspective what they have told them and what topics they would be comfortable allowing others to talk about. I would want to make sure that I understood the boundaries of what we are allowed to talk about and what we are not allowed to talk about. Additionally, I think more programs should be available and made more accessible not only for those who would facilitate the teachings but also for families.

Participant ID	Participant Response
Participant 5 (Behavioural Analyst, BA)	<p>Some strategies that I think would overcome these barriers would be sexual education that caters to those on the spectrum. To have experts teach and host workshops to educate those in the field.</p> <p>I also think models or body replicas could support those who are visual learners and those who may not have the cognitive ability to follow visuals or verbal explanations. Something to demonstrate to the client how their body works and what to do in certain situations.</p> <p>I also think parent-specific workshops would be extremely beneficial. I think that parents are a huge part of the teaching process, and in order to teach clients effectively, we need their families to also understand the importance and to ease their anxious minds regarding the whole topic. Sexual education is still taboo among typical functioning people, so I think educating families would support and ease their minds to then be able to better support their children. Those on the spectrum or with disabilities in general deserve access to sexual education just as the rest of the population, and this should be a priority in the field.</p>
Participant 6 (Educational Therapist, ET)	<p>I believe that an effective strategy should include developing a training program that is specific to individuals with disabilities. This training program should be mandated for all staff who work in primary, secondary, and post-secondary educational facilities. I also believe that a program like this should be mandatory for all healthcare providers, mental health counsellors, and social workers. This top-down approach will hopefully result in more accessible sexual health education that addresses people with special needs.</p>
Participant 7 (Clinical Instructor, CICE)	<p>I believe that it is important to develop disability-specific content and that this information is provided to these individuals at a younger age (i.e. as part of the sexual health curriculum in schools) or ensure that healthcare providers engage in discussions with these individuals as they mature to ensure that they are educated on their bodies, sexual health etc. I think that the CICE program at Humber is providing great information on sexual health to those students who attend the program, and similar programs that provide this much-needed information would be of great benefit to individuals with disabilities.</p>

# Navigating Digital Transformation: Agile Leadership and Strategic Flexibility in Mid-Sized Manufacturing Firms

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## Keywords

Agile leadership, Data analytics, Digital Transformation, Dynamic capability, Manufacturing, Mid-sized firm, Strategic Flexibility, Technology integration, Value creation, Workforce transformation

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\***Original Research Papers** are papers that report on original empirical research with a focus on teaching and learning. Papers may be qualitative or quantitative and include an Abstract, Introduction, Method, Results, Discussion, and Reference section, as well as any tables and/or figures.

## Abstract

This study explores the strategies employed by mid-sized manufacturing firms to leverage digital technologies and harness the vast amounts of data associated with them. It examines the impact of digital transformation on various aspects of firms' operations, including product development, manufacturing processes, product sophistication, and value chain integration. Through an analysis of typical stages in the digital transformation journey, the research aims to assess the significance of agile leadership and strategic flexibility in facilitating this transformation. Findings indicate that agile leadership plays a pivotal role in driving successful digital transformation initiatives. Additionally, strategic flexibility, fostered through workforce transformation and dynamic capability, emerges as a crucial factor in enabling digital transformation. The study highlights the importance of swift leadership responses and adaptable strategies in ensuring the success of digital transformation endeavours.

Furthermore, the study reveals a distinction between mature and less mature digital businesses in their approach to technology integration. Mature digital businesses prioritize the seamless integration of digital technologies, such as social, mobile, analytics, and cloud, to transform their operational frameworks. Conversely, less mature digital businesses tend to focus on addressing isolated business challenges through individual digital technologies.

## Introduction

**In recent years, a surge in companies adopting digital transformation** strategies has been witnessed, marking a significant shift in how businesses create value. This adoption is driven by the recognition of potential advantages such as enhanced efficiency and alignment with customer needs in products and services. Moreover, digital transformation promises a reduction in innovation cycles, faster time-to-market, and the creation of interconnected digital ecosystems. Notably, it facilitates cross-industry collaboration, fostering a more integrated business landscape (Correani, et al., 2020).

CEOs across various industries are increasingly concerned about the impact of the digital revolution on their organizations. However, the dominance of established manufacturing firms, traditionally reliant on vertical integration and technological prowess, has not been significantly challenged (Rossini, et al., 2021). Yet, for these firms to harness the benefits of digital technologies and data, a strategic reevaluation is imperative. While the adoption of new digital technologies is essential, success hinges on the effective utilization of these tools, redefined operational processes, and the creation of novel value propositions (Fachrunnisa, et al., 2020).

Despite the prolonged discourse on digital transformation, a comprehensive approach to digitally transforming business models remains elusive. Key questions regarding the phases, instruments, and enablers of this transformation persist (Egger & Park, 2018). The amalgamation of digital transformation and business model innovation is pivotal in delineating the path toward practical application and understanding the transformative potential of digital technologies in business operations.

The term “digital transformation,” often used interchangeably with “digitization,” has gained prominence, particularly among practitioners. It underscores the profound impact of digital technologies on businesses, encompassing the digitization of sales and communication channels, as well as products and services. Consequently, companies are compelled to revamp their organizational structures and executive roles to adapt to these evolving trends (Haffke, et al., 2016).

Digital innovation necessitates fundamental shifts in strategy, processes, and products, prompting organizations to reconsider their operational paradigms. A well-defined digital transformation strategy encompasses vision, planning, and implementation, catalyzing organizational change (Berghaus & Black, 2016). However, navigating digital transformation is complex, involving multiple stakeholders and diverse areas within the organization. Establishing a shared understanding of digital transformation priorities is crucial for successful execution and organizational alignment (Haffke, et al., 2016).

The integration of digital technologies, internet capabilities, and social media platforms empowers enterprises to enhance innovation and expand market reach globally (Fachrunnisa, et al., 2020). Executives are leveraging analytics, mobility,

and social media alongside traditional technologies like ERP systems to redefine customer relationships and internal processes. Effective leadership is pivotal in synergizing digital initiatives with organizational transformation (Battistoni, et al., 2023).

Despite the potential benefits, the failure rate of digital transformation projects remains alarmingly high, with over two-thirds reportedly unsuccessful (Correani et al., 2020). Effective strategy implementation emerges as a critical factor in mitigating failures, underscoring the importance of execution over formulation. General Electric’s (GE) struggle to execute its digital transformation strategy serves as a poignant example, highlighting the significance of robust implementation processes. In contrast, CNHi’s successful digital transformation journey, supported by Microsoft, serves as a beacon of effective strategy implementation (Correani, et al., 2020).

This case study exemplifies the synergy between strategy formulation and implementation, underscoring the pivotal role of consistency in driving successful digital transformation initiatives. Drawing insights from CNHi’s experience alongside Microsoft, this research study aims to delineate a model for effective digital transformation strategies.

In essence, as businesses navigate the complexities of digital transformation, a holistic approach encompassing strategy formulation, robust implementation, and organizational alignment is imperative to realize its transformative potential and drive sustainable growth.

## Research Project Scope

The current operational processes within mid-sized manufacturers are facing inefficiencies exacerbated by technical challenges stemming from a lack of knowledge and resources. Consequently, there is a pressing need for operational transformation across manufacturing, engineering, and the supply chain to ensure the enterprise’s sustained success amidst the current pandemic and beyond (Rossini, et al., 2021).

This research project aims to delineate a comprehensive digital transformation model that interconnects various operational facets, including manufacturing, engineering, and the supply chain. The study is supported by the research grant obtained from NSERC, specifically allocated to investigate

the disruptive changes catalyzed by the pandemic and devise strategies to navigate these challenges effectively.

Digitalization heralds the advent of the fourth industrial revolution, following the eras of steam engines, electricity, and computerization (Bjorkdahl, 2020). While efficiency gains are a common pursuit, the focus must shift towards leveraging digitalization to unlock new value propositions for manufacturing firms.

Key objectives of the research project include:

- Identifying practices, capabilities, and strategies to create and capture value through digitalization.
- Understanding that the adoption of digital technologies is a prerequisite for digital transformation, but success hinges on their effective utilization, data management, and innovative value creation.
- Emphasizing the need for novel approaches in sensing, shaping, and seizing digitalization opportunities.
- Highlighting the risks associated with inadequate control over digitalization endeavours, underscoring the importance of aligning practices, strategies, and organizational structures.
- Recognizing the transformative potential of digitalization across the firm's products and inbound and outbound activities.
- Acknowledging that transitioning from analog to digital formats not only enhances internal efficiency but also adds value for customers.

The anticipated outcomes of digitalization encompass streamlined product development processes, cost-effective

manufacturing operations, the delivery of highly refined products and services, and the integration of value chains for enhanced competitiveness (see Figure 1).

## Research Objectives

The first category of research objectives is business operations and processes.

1. **Enhancing Digital Processes:** Investigate solutions to digitize manufacturing processes for improved information accessibility and communication, enhancing both B2B and B2C experiences. This involves identifying technologies and strategies to streamline internal operations and optimize customer interactions (Erbay & Yildirim, 2022).
2. **ERP System Evaluation:** Provide comprehensive research to facilitate decision-making regarding an Enterprise Resource Planning (ERP) system that is cost-effective and timely to implement. This involves assessing the organization's requirements, evaluating available ERP solutions, and recommending a suitable system aligned with the company's objectives and budget constraints.
3. **Software Tools Implementation:** Assist in researching and implementing new software tools to manage various aspects of the business, including safety protocols, training programs, supply chain management, and database solutions. This involves identifying suitable software solutions, customizing them to meet specific business needs, and ensuring seamless integration with existing systems.

The second category of research objectives relates to customer interface.

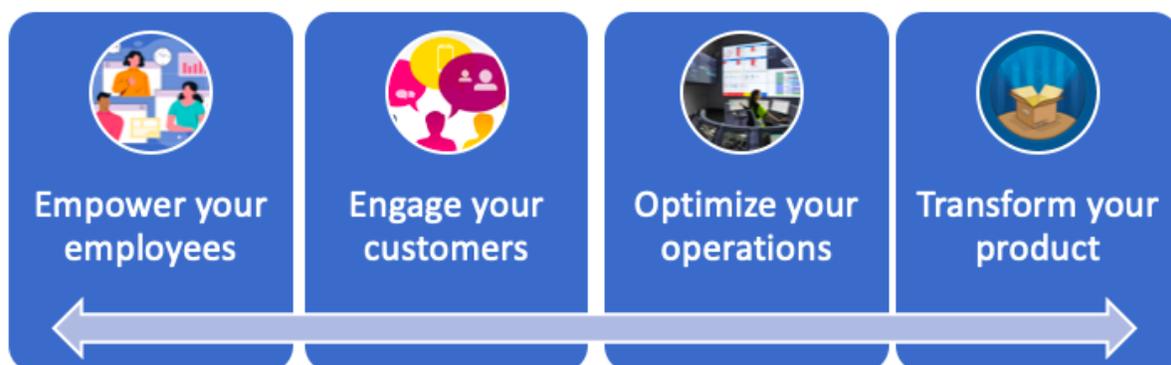


Figure 1: Digital Transformation, Systems of Intelligence

4. **CRM System Optimization:** Explore solutions to enhance the Customer Relationship Management (CRM) system, focusing on better management of marketing strategies and organic lead generation. This includes evaluating existing CRM platforms and proposing enhancements or alternative systems to improve customer engagement and sales effectiveness.
5. **Digital Visibility and Engagement:** Examine strategies to increase the company's visibility and enhance customer engagement through digital channels such as social media, Search Engine Optimization (SEO), and Google Analytics. This includes developing tailored digital marketing strategies and leveraging analytics tools to optimize online presence and customer interactions.

## Product Development

The digitalization of product development reduces the need for physical trial products and simplifies design processes through advanced computer-based tools and Artificial Intelligence (AI) applications (Erbay & Yildirim, 2022). Leading manufacturing firms have leveraged AI since 2017 to enhance the effectiveness, efficiency, and cost-effectiveness of product development processes.

## Manufacturing

Digitalization enables intelligent manufacturing processes, leading to increased throughput, improved quality, reduced variance, and minimized breakdowns (Jones, et al., 2021). Advanced computer visualization systems, powered by machine learning algorithms, facilitate defect detection and reduce the need for manual quality checks. Additionally, digital twins optimize production settings and enable predictive maintenance, enhancing operational efficiency.

## Highly Developed Products and Services

Integration of digital technologies enables firms to gather data on products and applications, facilitating the provision of innovative services and direct sales to end-users (Favoretto, et al., 2022). Digitalization enhances communication between firms and customers, amplifies revenue streams, and drives strategic service innovations.

## Integrated Value Chains

Digitalization fosters the integration of value chains, improving coordination, visualization, and planning of critical processes (Bjorkdahl, 2020). Leading firms leverage digital interfaces and AI-powered procurement channels to optimize material

control and reduce inventories. Digitalization enables transparent tracking of activities across the value chain, enhancing operational control and efficiency.

## Deliverables

1. **SWOT and PESTEL Analysis:** Conduct research and analysis using SWOT and PESTEL frameworks to identify internal strengths and weaknesses, as well as external opportunities and threats faced by the manufacturer.
2. **Supply Chain Evaluation:** Assess current supply chain issues and system effectiveness, providing recommendations for improvement or implementation of new systems to enhance efficiency and decision-making.
3. **Expanded Social Media Presence:** Establish additional social media platforms to expand the company's reach and engage with potential customers, increasing brand visibility and awareness.
4. **SEO Enhancement and Content Calendar:** Improve SEO ranking through optimization strategies and implement a content calendar to ensure consistent and relevant content distribution across digital channels.

## Technical Requirements

Ensure access to necessary information from online sources and key individuals within the manufacturer's organization to facilitate research and analysis effectively. Utilize both online research tools and direct communication channels to gather essential data and insights for the project.

## SWOT and PESTEL Analysis SWOT Analysis

The SWOT Analysis serves as a comprehensive tool to evaluate the internal strengths and weaknesses, as well as external opportunities and threats, influencing decision-making within a company. An examination of these factors provides valuable insights into the current business landscape at the B2B manufacturer studied, a Canadian manufacturer with three hundred employees. The analysis was arrived at following interviews with the executive team, a review of the communications available about the enterprise, and a study of the industry sector.

**Table 1: SWOT Analysis**

<b>Strengths</b>	<b>Weaknesses</b>	<b>Opportunities</b>	<b>Threats</b>
Effective communication enhances outreach and customer engagement	Holds a strong competitive position as a leading manufacturer.	Enhance user experience and engagement among bilingual audiences.	Failure to digitize processes results in customer attrition
Active website and social media presence improve visibility and accessibility to customers.	Enjoys a favourable reputation bolstered by leadership and a track record of excellence.	Organizing and tailoring content fosters increased engagement, customer retention, and satisfaction.	Irrelevant content across digital platforms risks alienating customers
Holds a strong competitive position as a leading manufacturer.	Effective market research initiatives yield diverse product offerings, industry insights, and a robust distributor network.	Introduction of new products aligned with evolving customer needs presents opportunities for market expansion and revenue growth.	Shifts in labour force dynamics pose operational challenges
Enjoys a favourable reputation bolstered by leadership and a track record of excellence.	Boasts commendable safety ratings evidenced by decreasing injury rates, reinforcing commitment to employee welfare.	Growing demand for eco-friendly options presents avenues for product diversification and market capture.	Exposure to foreign exchange fluctuations in global markets
Effective market research initiatives yield diverse product offerings, industry insights, and a robust distributor network.		Anticipated rise in demand for bearing products offers prospects for revenue expansion and market dominance.	Intensifying competition necessitates proactive strategies
Boasts commendable safety ratings evidenced by decreasing injury rates, reinforcing commitment to employee welfare.			

**PESTEL Analysis**

The PESTEL Analysis evaluates macro-environmental factors impacting company performance, encompassing Political, Economic, Social, Technological, Environmental, and Legal

dimensions. This analysis was arrived at following interviews with the executive team of the Canadian manufacturer studied, a review of the communications available about the enterprise, and a study of the industry sector.

**Table 2: PESTEL Analysis**

<b>Political Factors</b>	<b>Economic Factors</b>	<b>Social Factors</b>	<b>Technological Factors</b>	<b>Environmental Factors</b>	<b>Legal Factors</b>
COVID-19 Restrictions	Foreign Exchange Fluctuations	B2B Focus	AI and Machine Learning Adoption	Energy Efficiency Demand	Climate Change Regulations
Trade Tariffs	Interest Rate Changes	Regional Sales Concentration	E-commerce Growth	Renewable Energy Adoption	Trade Law Changes

*Table continued to next page...*

Political Factors	Economic Factors	Social Factors	Technological Factors	Environmental Factors	Legal Factors
Fiscal Policy Changes	Pandemic Impact	Emerging Market Opportunities	Electric Vehicle Demand		
	Supply Chain Disruption		Digital Currency Trends		

### Summary of PESTEL Analysis

The PESTEL Analysis highlights the interplay of government policies, economic trends, societal shifts, technological advancements, environmental concerns, and legal frameworks shaping company operations and strategic decisions.

Government incentives aimed at promoting environmentally friendly digital initiatives present cost-saving opportunities for the company. Additionally, digital strategies require organizational buy-in and customer acceptance to ensure effective implementation and adoption. Moreover, COVID-19 serves as a catalyst for accelerating digital transformations within the company, emphasizing the imperative of agility and resilience in the face of external disruptions.

### Stakeholder Analysis

Stakeholders for the manufacturer encompass a diverse range of entities with vested interests in the company's operations and outcomes (see Figure 2).

#### Manage Closely

**Partners:** Investors and shareholders who have financially invested in the firm play a critical role in decision-making processes and expect returns on their investments (Dosi, et al., 2020). Ensuring transparent communication and fostering trust with partners is essential for maintaining long-term relationships and securing continued investment.

**Suppliers:** Suppliers contribute significantly to the availability and quality of products, making them vital stakeholders in the manufacturer's value chain (Blackhurst, et al., 2018). Establishing strong supplier relationships and ensuring timely communication are essential for maintaining operational efficiency and reliability.

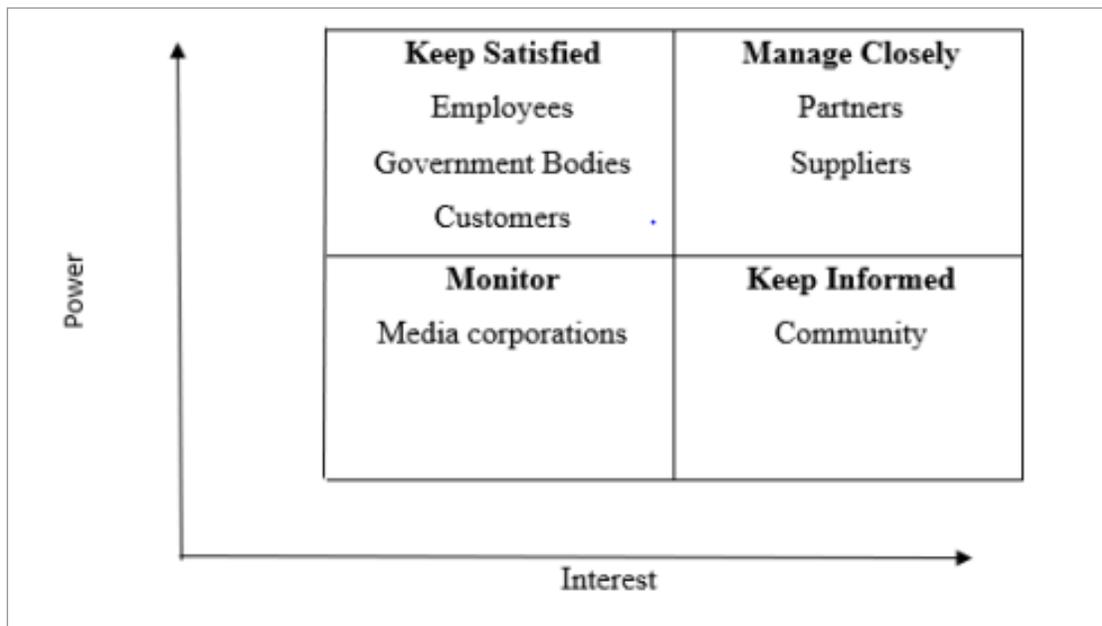


Figure 2: Stakeholders

## Keep Satisfied

**Employees:** The success of the manufacturer relies heavily on the dedication and contributions of its workforce (Deery & Jago, 2015). Providing a supportive work environment, opportunities for skill development, and fair compensation are crucial for employee satisfaction and retention.

**Government Bodies:** Compliance with legal and regulatory requirements is imperative for the manufacturer to operate ethically and avoid penalties (Czarnitzki, et al., 2019). Building positive relationships with government agencies through adherence to regulations and proactive engagement helps mitigate risks and ensures continued business operations.

**Customers:** Meeting customer needs and expectations is paramount for sustaining business growth and profitability. Engaging with customers to gather feedback, address concerns, and deliver value-added solutions fosters loyalty and long-term relationships (Favoretto, et al., 2022).

## Keep Informed

**Community:** The local community surrounding the manufacturer's operations expects responsible corporate behaviour and environmental stewardship. Maintaining open communication channels and actively participating in community initiatives help build trust and goodwill.

## Monitor

**Media and News Networks:** Media coverage and public perception can significantly impact the manufacturer's reputation and brand image. Monitoring media channels and proactively addressing any negative publicity or misinformation is essential for safeguarding the company's reputation.

**Board of Directors:** The board of directors, executive team, and investors hold a vested interest in the success of the digital transformation project. The project's outcomes, including increased productivity and profitability, directly influence shareholder value and corporate governance (Jones, et al., 2021).

**Employees:** Employees are key stakeholders in the digital transformation project, as the recommendations aim to streamline processes and enhance productivity (Harel, 2021). Empowering employees with the necessary skills and

resources to adapt to digital changes fosters a culture of innovation and continuous improvement.

**Clients:** Clients rely on the manufacturer's products and services, making them crucial stakeholders in the project's success. Delivering high-quality products efficiently and enhancing customer service through digital solutions strengthens client relationships and drives business growth.

## Technology Considerations

**Digital Factory:** A digital factory integrates physical machines, data, and human interactions to optimize manufacturing processes. Leveraging digital technologies such as cloud computing, IoT, and big data analytics enables real-time monitoring, predictive maintenance, and data-driven decision-making.

**Smart Manufacturing:** Smart manufacturing encompasses sensor technology, cloud computing, and advanced analytics to improve operational efficiency and agility. Monitoring production flows, managing processes remotely, and implementing predictive maintenance enhance productivity and responsiveness to market demands.

**Digital Transformation Strategy:** Despite formulating a digital transformation strategy, companies often struggle with effective implementation and value creation (Schallmo, et al., 2017). Strategic alignment of value propositions, value chains, value appropriation mechanisms, and stakeholder relationships is essential for successful digital transformations (Bharadwaj, et al., 2013).

**Microsoft Partnership:** Microsoft plays a significant role in facilitating digital transformation initiatives through strategic partnerships and technological solutions (Saldanha, et al., 2020). Collaborating with Microsoft enables firms to leverage data-driven insights, AI capabilities, and digital platforms to drive innovation and competitive advantage.

## Case Study: CNHi

CNHi's collaboration with Microsoft exemplifies successful digital transformation in the manufacturing sector. By leveraging AI and digital platforms, CNHi enhanced automation, connectivity, and value-added services in agricultural machinery, demonstrating the transformative potential of digital technologies.

The research aims to explore how the manufacturer can leverage digital technologies to create and capture value, enhance operational efficiency, and drive innovation (Bharadwaj et al., 2013). By engaging stakeholders, implementing advanced technologies, and aligning strategic objectives, the manufacturer can navigate digital transformation challenges and seize opportunities for sustainable growth (Schallmo, et al., 2017).

### The Need for Digital Transformation

In the contemporary business landscape, major external forces are propelling the imperative for digital transformation (Verhoef, et al., 2021). The advent of the World Wide Web and subsequent technological advancements, including broadband internet, smartphones, cloud computing, and emerging technologies like artificial intelligence (AI) and blockchain, have catalyzed the evolution of e-commerce (Statista, 2021). Moreover, the proliferation of big data has revolutionized the way businesses operate and interact with customers (Verhoef, et al., 2021). As digital technologies continue to disrupt traditional business models, firms face increasing pressure to adapt and transform digitally to remain competitive (Matt, et al., 2015) (see Figure 3).

The outcomes of digitalization are classified as efficient product development, cost-effective manufacturing, highly developed products, and integrated value chains.

### Understanding Digitalization

Digitalization entails the extensive utilization of digital technologies and their integration into the firm's products and operations. This transformative process fundamentally alters how firms create and capture value, driving efficiencies and innovation across various business functions.

Digitalization has revolutionized the product development process, diminishing the reliance on physical prototypes and artifacts. Advanced computer-based design and visualization tools, coupled with numerical computation programs, have streamlined product design processes, making them more efficient and interactive (see Figure 4).

Furthermore, the integration of digital technologies has led to the complexity of products, necessitating rigorous testing procedures. AI and machine learning algorithms enable faster and more effective testing of software, enhancing product quality and accelerating time-to-market. For instance, telecommunications giant Ericsson utilizes AI to optimize the complex filters in its 5G network, a task previously requiring extensive specialist training (Jones, et al., 2021).

### Manufacturing

Digitalization is reshaping manufacturing processes, driving improvements in throughput, quality, and efficiency (Battistoni, et al., 2023). Advanced computer visualization

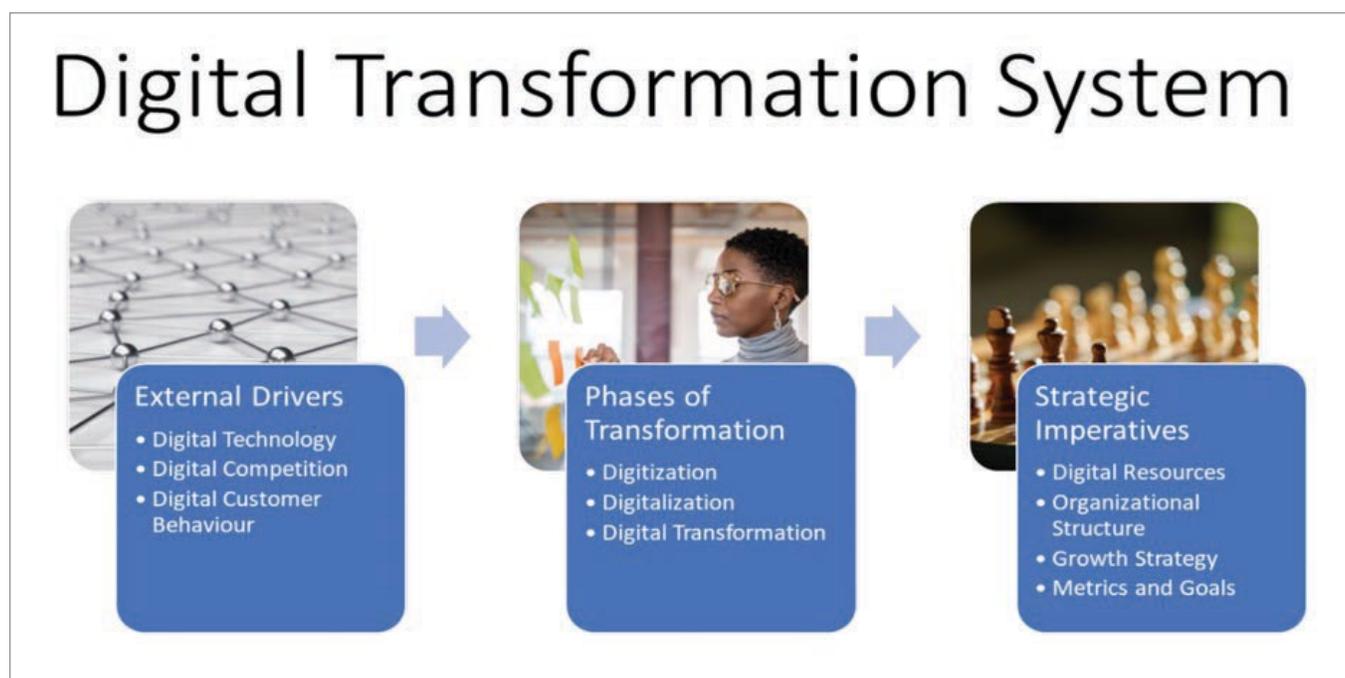


Figure 3: Digital Transformation System (Matt, et al., 2015)

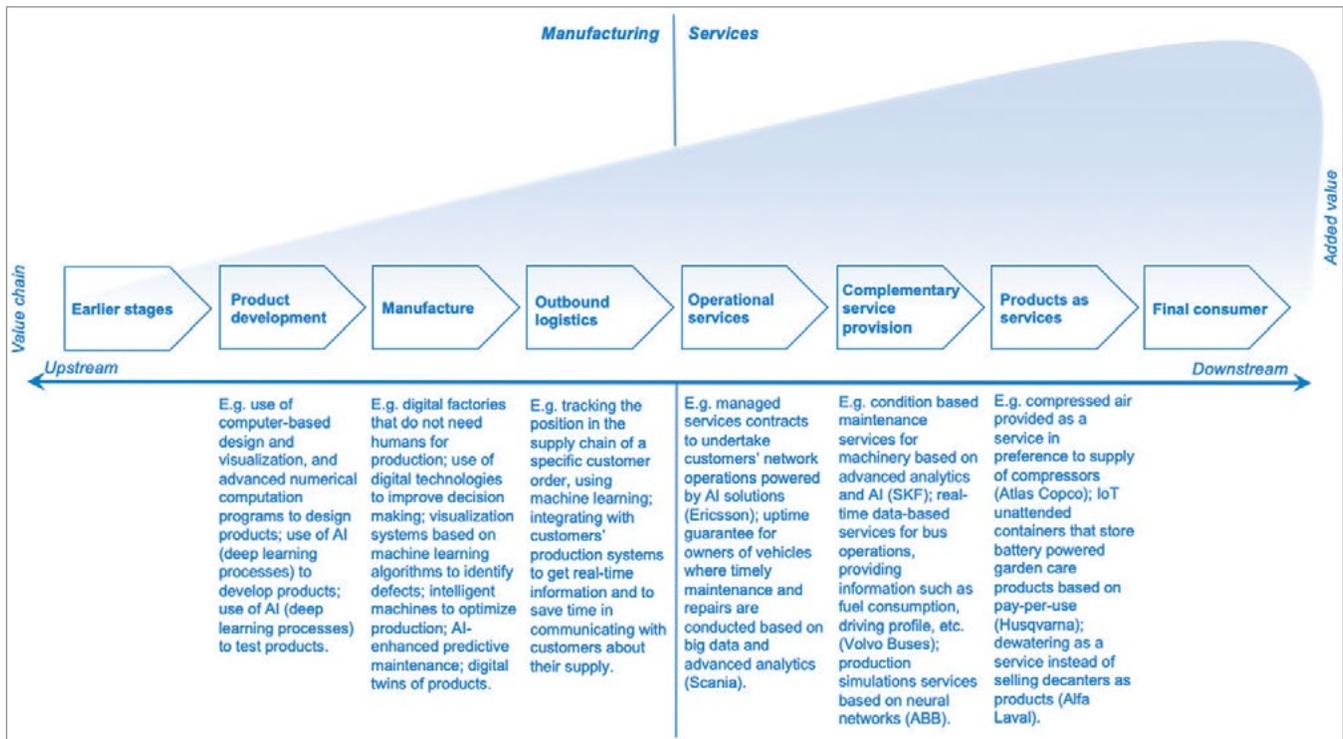


Figure 4: Digitalization among manufacturers (Bjorkdahl, 2020)

systems, powered by machine learning algorithms, facilitate real-time defect detection, reducing the need for manual inspections and optimizing production workflows.

Moreover, the adoption of “digital twins” enables manufacturers to create virtual models of products, reflecting the entire manufacturing process. AI-driven predictive maintenance systems leverage real-time data from sensors and digital sensors, minimizing costly production stoppages and maintenance expenses.

The emergence of fully digital factories represents a significant milestone in manufacturing (Rossini, et al., 2021). Companies like SKF have embraced digitalization to enhance production planning, flexibility, and quality control. By leveraging digital technologies, firms can achieve higher levels of competitiveness and produce superior quality goods at reduced costs.

Digital technologies are increasingly integrated into products, rendering them more intelligent and interconnected (Correani, et al., 2020). Manufacturing firms leverage data generated by products to enhance performance, introduce new functionalities, and optimize user experiences.

## Integrated Value Chains

Digitalization facilitates the integration of value chains, enhancing operational efficiency and coordination. By sharing information across systems and functions, firms can streamline production processes, reduce lead times, and improve resource planning.

Leading firms are leveraging machine learning algorithms to optimize supplier interfaces and streamline procurement processes (Bjorkdahl, 2020). This digitization of supply chain management enables better control over materials, reduces inventory costs, and fosters closer collaboration between firms and their suppliers.

In summary, the imperative for digital transformation in manufacturing is underscored by the profound impact of digital technologies on product development, manufacturing processes, and value chain integration. By embracing digitalization, firms can enhance competitiveness, drive innovation, and capitalize on emerging opportunities in the digital economy.

## The Phases of Digital Transformation

Understanding digital transformation requires a multidisciplinary approach that integrates insights from

various fields, including manufacturing, marketing, engineering, information systems, innovation, supply chain, and human resources (Verhoef et al., 2021). Digital transformation encompasses organizational-wide changes and strategic imperatives that necessitate a holistic understanding to optimize opportunities and address relevant aspects effectively.

### Three Phases of Digital Transformation:

1. **Digitization:** Digitization involves converting analog information into digital formats (Verhoef et al., 2021). It primarily focuses on encoding analog data into digital ones, facilitating storage, processing, and transmission via computers. Examples include digital forms in ordering processes and the digitization of internal financial declarations. While digitization streamlines documentation processes, it does not inherently alter value creation activities.
2. **Digitalization:** Digitalization entails leveraging IT or digital technologies to modify existing business processes (Verhoef et al., 2021). It facilitates the creation of new online or mobile communication channels, transforming traditional firm-customer interactions. Digitalization optimizes business processes, enhances coordination, and improves customer experiences, thereby driving efficiency and adding value beyond cost savings.
3. **Digital Transformation:** Digital transformation represents a company-wide change that results in the development of new business models (Verhoef et al., 2021). It introduces novel approaches to creating and capturing value, often through innovative business logic. Digital transformation encompasses process digitization, focusing on efficiency, and digital innovation, enhancing products with digital capabilities. It aims to improve product quality, services, and overall organizational performance.

### Maturity Models, Dynamic Capability, and Agile Leadership:

Maturity models serve as tools for assessing the current status quo of digital maturity within organizations (Berghaus & Black, 2016). These models comprise dimensions, criteria, and maturity stages, enabling organizations to evaluate their digital readiness and identify areas for improvement.

Dynamic capability refers to an organization's ability to adapt

to changing environments by reconfiguring internal and external processes and resources (Fachrunnisa et al., 2020). It involves analyzing data and disseminating knowledge across the organization to facilitate agile responses to uncertainties. Strategic flexibility complements dynamic capability by enabling organizations to adjust objectives in response to changing internal and external factors, supporting future strategy development and rapid adaptation (Fachrunnisa et al., 2020).

Agile leadership plays a crucial role in fostering successful strategic flexibility and digital transformation (Fachrunnisa et al., 2020). Agile leaders guide teams, influence behaviours, and maintain organizational vision, emphasizing customer-centric approaches and value creation. In agile organizations, every member aligns with customer needs, ensuring that work contributes to delivering value.

### Strategic Imperatives, Organizational Structure, and Growth Strategies:

Digital transformation necessitates strategic imperatives focused on digital resources, including digital assets, digital agility, digital networking capability, and big data analytics capability (Verhoef et al., 2021). These imperatives underscore the importance of leveraging digital technologies, adapting to market opportunities, fostering digital partnerships, and harnessing data-driven insights to drive organizational growth and competitiveness.

Organizational structure plays a pivotal role in facilitating digital change, favouring flexible structures that support agility and innovation (Eggers & Park, 2018). Separate business units enable experimentation and rapid learning, agile organizational forms enhance responsiveness to digital change, and digital functional areas drive innovation and collaboration.

Digital firms leverage various growth strategies, with digital platforms being prominent drivers of growth (Verhoef et al., 2021). Platforms enable scalability and foster network effects, attracting users and creating value through ecosystem expansion. Successful growth strategies prioritize user acquisition, platform management, and ecosystem development to sustain competitive advantages.

Measuring performance improvements via key performance indicators (KPIs) is essential for assessing the effectiveness

of digital transformation efforts (Verhoef et al., 2021). While outcome-related metrics like ROI remain relevant, process-related metrics track intermediate results and gauge value creation. Traditional incumbents and digital entrants may differ in their focus on profitability versus growth, reflecting distinct business objectives and strategies.

### **Approach to Digital Transformation of Business Models:**

A roadmap for digital transformation encompasses phases such as Digital Reality, Digital Ambition, Digital Potential, Digital Fit, and Digital Implementation (Schallmo et al., 2017). This approach involves assessing the current state, setting transformation objectives, identifying enablers, designing digital solutions, and implementing new business models to achieve organizational goals.

In summary, digital transformation requires a comprehensive understanding of its phases, strategic imperatives, organizational dynamics, growth strategies, and measurement frameworks to navigate the evolving digital landscape successfully. By adopting a holistic approach and embracing digital innovation, organizations can unlock new opportunities, enhance competitiveness, and drive sustainable growth in the digital age.

### **Findings**

Digital transformation is a multifaceted journey for companies, encompassing various elements such as data management, technological innovation, strategic partnerships, and organizational adaptation. This section distills key findings from the case studies and literature review, highlighting critical aspects and best practices for successful digital transformation.

### **Scope of Digital Transformation**

At the heart of any digital transformation initiative lies a clear definition of objectives and scope. CNHi's transformation focused on developing new services centred around predictive maintenance and intelligent logistics through digitalizing its fleet. This strategic clarity ensured alignment between transformation efforts and overarching business goals.

### **Data Management. People and Skills Development. Partnerships.**

Effective data management serves as the cornerstone of

digital transformation. CNHi leveraged both internal and external data sources to drive its digital strategy. Internal sensors provided crucial insights into product status, while external data enriched analyses with additional context. Moreover, robust data platforms facilitated secure storage, processing, and utilization of data, ensuring compliance with regulatory standards.

Empowering employees with the requisite skills is pivotal for realizing the potential of digital technologies. CNHi invested in upskilling its workforce to navigate the digital landscape effectively. Collaboration with external partners like Microsoft further augmented expertise, enabling CNHi to transition into a software-centric model and offer innovative services.

Strategic partnerships play a vital role in augmenting organizational capabilities and driving innovation. CNHi's collaboration with Microsoft exemplifies how external partnerships can catalyze digital transformation efforts. By leveraging Microsoft's expertise, CNHi successfully navigated technological complexities and accelerated its digital journey.

### **Artificial Intelligence. Customer-Centric Approach. Operational Efficiency and Growth.**

Harnessing the power of AI is indispensable for deriving actionable insights from data. CNHi embraced AI technologies, particularly those offered by Microsoft, to develop and deploy machine learning models. This agile approach to data exploration empowered CNHi to drive continuous improvement and deliver enhanced value to customers.

Understanding and catering to evolving customer needs is fundamental for sustainable growth. CNHi's digital transformation aimed to create enhanced value for both existing and new customers. By leveraging data-driven insights, CNHi enhanced customer experiences and expanded revenue streams, underscoring the importance of customer-centricity in digital initiatives.

Digitalization offers opportunities for both operational efficiency and revenue growth. Firms often begin with upstream digitalization activities to optimize operations and enhance product functionality. However, sustained growth necessitates a holistic approach encompassing new income streams and business model reinvention. See [Table 3](#) for a summary of cost-cutting versus growth.

**Table 3: Digitalization Aimed at Cost-Cutting versus Growth (Bjorkdahl, 2020)**

<b>Factor</b>	<b>Cost-Cutting and Operational</b>	<b>Growth and Innovation</b>
Efficiency	Growth and Innovation	No established mechanisms to allocate capital needed by several functions to build a growth agenda.
Culture	Well-established culture to reduce waste through better methods. Collective ability across functions to transform output markets.	There is no established culture to develop and sell services or to use data to build new businesses.
Coordination between functions	Dependent on excellence in individual functions.	Dependent on several functions.
Data management	Data are generated internally, and usually, fewer variables need to be considered to identify efficiency improvements.	Data are generated from customer applications, and many variables need to be considered to identify growth options
Demand	Internal demand and the firm's responsibility to decide if it would be productive.	Uncertain market demand.
External cooperation	Well-established partners and suppliers for implementing efficiency improvements.	Partnerships are context-dependent, and there is a strong dependence on the complementors in the ecosystem to create value.
Investments	Relatively easy to estimate.	Difficult to estimate.
Managerial processes	Established managerial processes are working.	Dependent on new managerial processes to become flexible
Return on investments	Easy to estimate.	Very uncertain
Strategy	Well-established procedures to invest in solutions that are critical for competitiveness and that have high rates of return on investment.	No established strategy. Need to make trade-offs among many uncertain alternatives
Time to implementation	Relatively easy to estimate.	Difficult to estimate.
Transferability	High between firms.	Low between firm

### **Strategic Challenges**

Overcoming organizational inertia and fostering a culture conducive to digital transformation pose significant challenges. Establishing data governance structures, cultivating analytical capabilities, and aligning internal processes are imperative for successful digitalization. Companies like Scania exemplify how proactive organizational restructuring can facilitate adaptation to digital disruptions (Erbay & Yildirim, 2022).

### **Supporting Long-Term Digital Transformation**

Simultaneously, firms must chart a course for long-term digital transformation to remain viable in evolving landscapes. This entails a strategic evaluation encompassing the 'why, where, what, and how' of digitalization. Understanding the value proposition of digitalization, identifying areas of maximum impact, and leveraging enablers such as data management, automation, and advanced analytics are critical components of this process.

For instance, companies like Scania exemplify how strategic utilization of data management and innovative working methods facilitates digital transformation initiatives. By embracing a culture of consistent innovation and fostering organizational alignment, firms can navigate the complexities of digital transformation and position themselves for long-term success (Bjorkdahl, 2020).

### **Best Practices for the Digital Transformation of Business Models**

ThyssenKrupp's transformation journey serves as a paradigm for successful business model digitization. Facing challenges in elevator maintenance due to increasing demand, ThyssenKrupp developed the MAX Elevator Monitoring System to predict and prevent failures, thereby improving maintenance services and customer satisfaction (Schallmo et al., 2017).

Through digitalization, ThyssenKrupp enhanced customer relationships by delivering clear communication on maintenance repairs, thereby augmenting the customer dimension of its business model. Moreover, by harnessing real-time data insights, ThyssenKrupp created value for both internal and external stakeholders, underscoring the transformative potential of digital technologies (Schallmo et al., 2017).

Additionally, the role of the Chief Digital Officer (CDO) emerges as a pivotal enabler of digital transformation. CDOs assume diverse roles, from driving digital innovation to orchestrating digitization initiatives across organizational functions. By aligning digital strategies with business objectives and fostering a culture of digital advocacy, CDOs play a crucial role in steering organizations toward digital maturity (Haffke et al., 2016).

The emergence of Chief Digital Officer (CDO) positions reflects the growing importance of digital leadership. CDOs assume various roles, from driving digital innovation to orchestrating transformation initiatives. While not essential for every company, CDOs can play a pivotal role in navigating the complexities of digital transformation (Haffke et al., 2016).

Digital transformation unfolds through distinct stages, from strategic prioritization to data-driven enterprise. Each stage represents a progression toward organizational agility

and innovation. Companies must prioritize user-centricity, embrace data-driven decision-making, and cultivate a culture of continuous improvement to succeed in their digital endeavours (Berghaus & Black, 2016).

During this phase, digital innovation takes center stage, driving strategic initiatives and product innovation. Emphasizing the strategic significance of innovation involves actively promoting digital innovation and systematically exploring the potential of emerging technologies.

As organizations progress to stage 3, the focus shifts towards cultural transformation, expertise development, and organizational restructuring. Digital transformation permeates internal culture and shapes organizational structures, reflecting a commitment to embracing digitalization.

In stage 4, emphasis is placed on user-centric approaches and refined processes. User involvement in innovation processes, personalized customer experiences, and data-driven interaction design underscore the importance of user-centricity. Furthermore, the tangible outcomes of digital transformation initiatives begin to manifest during this phase.

The most challenging aspects of digital transformation are encountered in stage 5, characterized by the establishment of a data-driven enterprise. This stage involves leveraging advanced data analytics technologies for various purposes, including expenditure planning, customer data aggregation, real-time analysis, and personalized customer interactions.

### **Transforming Customer Experience, Operational Processes, and Business Models**

Enhancing customer experiences through digital initiatives yields substantial benefits. Leveraging data analytics, companies gain insights into customer preferences and behaviours, enabling personalized interactions and targeted marketing efforts. Digitalization also streamlines customer touchpoints, improving service delivery and fostering customer loyalty.

Digital transformation extends beyond customer-facing activities to internal process optimization. Automation and digitization enhance operational efficiency, enabling resource reallocation toward strategic initiatives. Moreover,

performance management systems powered by data analytics facilitate informed decision-making and drive continuous improvement.

Digital transformation fundamentally reshapes traditional business models, fostering innovation and globalization. Companies augment physical offerings with digital solutions, introduce new digital products, and embrace global synergies facilitated by digital technologies. These transformations not only drive revenue growth but also enhance organizational agility and competitiveness in a digital ecosystem.

In summary, successful digital transformation requires a strategic and holistic approach encompassing technological innovation, organizational agility, and customer-centricity. By leveraging data-driven insights, fostering a culture of innovation, and forging strategic partnerships, companies can navigate the complexities of digital disruption and emerge as leaders in the digital economy.

## Discussion

In this discussion, the author offers a comment on the findings of the research study.

## Management Leadership and Workforce Culture

The findings underscore the significance of fostering digital commitment and affinity among employees. Several indicators, such as utilizing digital tools for collaboration, appointing internal digital experts, ensuring employee familiarity with digital products, and promoting digital innovation internally, reflect an organization's digital readiness (Berghaus & Black, 2016).

Early-stage digital transformation initiatives primarily focus on acknowledging digital transformation's importance and experimenting with digital innovation. Establishing a strategic vision, delineating roles and responsibilities, setting measurable goals, and continually reviewing transformation roadmaps typically follow these initial exploratory steps.

Research demonstrates a positive correlation between workforce transformation and strategic flexibility. Organizations that frequently undergo workforce transformation are better positioned to adapt strategically, emphasizing the pivotal role of workforce evolution in fostering strategic agility (Fachrunnisa, et al., 2020).

Agile leadership moderates the relationship between strategic flexibility and digital transformation positively, underlining the importance of agile leadership in facilitating adaptive responses to digital challenges (Fachrunnisa, et al., 2020).

A coherent digital strategy drives digital maturity, distinguishing between operational focus and transformative business objectives. Mature digital organizations prioritize holistic digital strategies aimed at business transformation (Fachrunnisa, et al., 2020).

Digitally mature organizations prioritize skill development to realize their digital strategies effectively. Employees in these organizations are provided with necessary digital skills, reflecting the alignment between skill enhancement and strategic objectives (Fachrunnisa, et al., 2020).

Leadership plays a pivotal role in driving the digital agenda, with digitally mature organizations typically led by individuals or groups with strong digital fluency. Confidence in leadership's digital capabilities correlates with organizational digital maturity (Fachrunnisa, et al., 2020).

Mature organizations foster a culture conducive to digital transformation, characterized by risk-taking, innovation promotion, and collaborative work environments. Cultivating such a culture accelerates digital adoption and adaptation (Fachrunnisa, et al., 2020).

Digitally mature organizations exhibit a higher tolerance for risk, viewing failure as a stepping stone to success. Encouraging risk-taking behaviours facilitates innovation and agility in digital environments (Fachrunnisa, et al., 2020).

## Strategic Flexibility, Collaboration, and Innovation

Strategic flexibility significantly impacts digital transformation, highlighting the importance of adaptive strategies in navigating digital transitions effectively (Fachrunnisa, et al., 2020).

While digital tools for collaboration are relatively easy to implement, utilizing digital data strategically presents challenges. Incorporating big data analytics and real-time customer insights into decision-making processes remains a hurdle for many organizations, indicating the

need for enhanced strategic collaboration in data utilization (Battistoni, et al., 2023).

Digital maturity enables organizations to leverage collaborative efforts for generating new ideas and solutions. Cultivating a collaborative culture fosters innovation and propels digital transformation initiatives forward (Fachrunnisa, et al., 2020).

### Charting Transformation in Digitally Mature Organizations

Digitally mature organizations adopt transformative strategies supported by collaborative cultures and a risk-tolerant environment. These distinctive attributes shape their approach to digital transformation, setting them apart from less digitally mature peers (Fachrunnisa, et al., 2020) (see [Table 4](#)).

**Table 4: Digital Transformation and Strategy Questions (adapted from Verhoef et al. 2021)**

Major Topic	Relevant Disciplines	Research Questions
Phases of Digital Transformation	Information systems, strategic management, innovation	<p>How should the manufacturer move through multiple digital transformation phases?</p> <p>How can we measure digital transformation phases and digital readiness?</p> <p>How resilient is the manufacturer against digital competition and digital change?</p> <p>To what degree should the manufacturer transform digitally?</p> <p>What is the impact of digital transformation on performance?</p> <p>What firm and market variables moderate the relationship between digital transformation and performance?</p>
Digital Resources	Information systems, strategic management, innovation	<p>How can the manufacturer develop specific digital resources?</p> <p>What is the relative impact of identified assets and capabilities on digital transformation and performance?</p> <p>What are digital networking capabilities and how can the manufacturer develop them?</p> <p>How can digital resources facilitate digital transformation?</p>
Organization Structure	Strategic management, innovation	<p>Which organizational structures enhance the manufacturer’s digital agility?</p> <p>What organizational structures are most effective for digital transformation?</p> <p>How to balance agility with the need for control and efficiency?</p> <p>How to construct self-organizing teams to attain digital transformation?</p> <p>How can transforming firms benefit from new organizational structures and management styles?</p>

*Table continued to next page...*

Major Topic	Relevant Disciplines	Research Questions
Digital Growth Strategies	Strategic management, marketing	<p>What should be the diversification strategy of digital platforms?</p> <p>What is driving the success of specific digital growth strategies?</p> <p>Which growth strategies should the manufacturer use when digital transforming their firm?</p>
Metrics and Goals	Strategic management, marketing, operations management	<p>Which metrics are essential for the different phases of digital transformation?</p> <p>How does the manufacturer's use and importance of metrics evolve across the different phases of digital transformation?</p> <p>Which metrics are important for digital platforms, given the increasing reliance on networks and ecosystems?</p>

## Conclusion

The rapid advancement of technology, exemplified by products like Oculus, promises to revolutionize personal and professional experiences. Computing will soon be seamlessly integrated into our clothing, and data will become intrinsic to every process. Organizations must cultivate cultures that embrace analytics and data-driven decision-making. X's (formerly known as Twitter) acquisition of Gnip underscores the importance of integrating social and mobile data with analytics to drive real-time business intelligence. Business models, particularly in the sharing economy, are evolving rapidly, challenging traditional notions of ownership (Fachrunnisa, et al., 2020). Leaders must anticipate these changes to remain competitive in their industries.

CNHi's successful digital transformation journey, supported by Microsoft, highlights the importance of a structured framework for implementing digital strategies. This framework guides companies through the complexities of digital transformation, ensuring that strategy formulation aligns with implementation. It serves as a practical tool for senior executives embarking on digital strategy implementation, providing a comprehensive checklist to address key elements of the strategy.

Strategic flexibility and agile leadership are crucial for navigating digital transformation (Fachrunnisa, et al., 2020). Organizations must foster work transformation and dynamic capabilities to manage digital disruption effectively. Agile leadership, as a moderating variable, enhances the impact of strategic flexibility on digital transformation. Visionary

leadership, coupled with strategic decision-making and modern methodologies, fosters organizational agility.

Further research is needed to explore the manufacturer's journey through digital transformation phases. Is the traditional path of digitization, digitalization, and then digital transformation always optimal? Investigating digital readiness in facilitating digital transformation and exploring concepts like digital resilience are crucial. Understanding the contextual factors influencing digital transformation's impact on performance, including firm and market characteristics, is essential for guiding strategic decision-making.

Digital transformation is inevitable, but its scope and pace must be carefully considered. Organizations must adapt their strategies, cultures, and leadership styles to thrive in the digital age. Continued research will provide valuable insights into navigating the complexities of digital transformation and maximizing its benefits for organizational performance. Additionally, attention should be given to concepts like digital resilience and the optimal path toward digital transformation, considering variations in firm size, market dynamics, and industry characteristics.

In conclusion, the journey towards digital transformation is not without its challenges, but the rewards are immense. Organizations that embrace digital innovation, foster a culture of agility, and invest in strategic flexibility will position themselves as leaders in the digital age, driving sustainable growth and competitive advantage.

## Note on Contributor

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# The Effectiveness of Occupational Health and Safety Practices in Public Technical Training Institutes

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\***Original Research Papers** are papers that report on original empirical research with a focus on teaching and learning. Papers may be qualitative or quantitative and include an Abstract, Introduction, Method, Results, Discussion, and Reference section, as well as any tables and/or figures.

## Abstract

The study aimed to evaluate the extent of occupation-related injuries and accidents, the use of Personal Protective Equipment (PPE), Occupational Health and Safety (OHS) training, and awareness and implementation of OHS policy among Technical Training Institutes (TTIs).

The study used qualitative and quantitative methods to analyze data from 99 final-year trainees, including 47 auto mechanics, 24 electricians, 16 welders, and six OHS focal persons. Data was collected through self-administered questionnaires and in-depth interviews and analyzed using SPSS-16 and MAXQDA-2020.

The study revealed a commendably low rate of hazards in training institutes (TTIs), with a mere 10.26% and a mean score of 2.1. This positive outcome, a testament to the high awareness of OHS and PPEs, should give reassurance about the current state of OHS practices in TTIs. The training system was a resounding success, with a mean rating of 4.09 for trainees' understanding and use of PPEs. However, the study also identified areas for improvement, particularly the urgent need for improved monitoring and management support. This need for immediate action is crucial for sustaining and enhancing these standards, and it should make the audience feel the urgency of the situation.

The study's findings underscore the high level of compliance with OHS procedures in TTIs, with a remarkably low incidence of injuries and accidents. This not only bolsters the reputation of TTIs but also underscores their commitment to fostering a culture and environment that nurtures the positive character of trainees. These efforts, guided by the principles of sustainability, integration, consistency, implementation, and fun, further elevate the safety standards of TTIs. The study's results suggest the need for continued monitoring and management support to sustain and enhance these standards. Furthermore, the study recommends further research in the field of OHS, particularly a

*Abstract continued on next page...*

study on OHS covering all the institutions, including two National Institute of Zorig Chusum, to get a clearer picture of the OHS practices in Ministry of Education and Skills Development-administered institutions. This reiteration of the need for further research underscores the study's contribution to ongoing improvements in OHS practices.

## Introduction

**Workers account for half of the world's workforce and play** a significant role in socio-economic growth (Berman & Larson, 1993). Therefore, the quality of occupational health services at work substantially impacts their health (Haldane, 2020). Occupational health refers to providing comprehensive health services (personal and impersonal) to staff through preventive, curative, and rehabilitative treatments to improve their quality of life (Park, 2005). It is also known as the working environment's impact on workers' health and productivity (Curran, 1993).

Globally, the protection of workers against work-related injuries and illnesses has, over the years, been an issue of great concern to employees, workers, governments, and the general public (Tonozzi et al., 2016). A safe working environment promotes workers' mental and social well-being. The International Labour Organization (ILO) estimates that every year, approximately 270 million work-related accidents are recorded worldwide, resulting in the death of some 2 million people (ILO, 2005).

In today's Industry 4.0, the Bhutanese industry is developing quickly, keeping pace with scientific and technological advancements. This rapid development has led to a more significant and diverse risk of danger due to technological transfer, employing complicated machines and work equipment to support production. Like people in other developed countries facing challenges in managing OHS-related accidents and injuries, Bhutanese people working in various industries are no exception. According to the Department of Labour, the industry was responsible for 60% of workplace incidents in 2015-2016. Accidents occurred 58.7% of the time in hydropower plant construction and 8.3% in other construction operations (residential, road, and bridge construction). The most construction-related accidents were reported in 2012/13 and 2013/14, with no significant variation from 2012 to 2016.

Despite continuous efforts to make OHS practices more dynamic and involve all walks of life in the institutes, some hitches concern staff and the administration. A fatal accident involving a boy trainee who lost his fingers due to OHS not being practiced mindfully was caused by an instructor's negligence. Although no proper record has been maintained, institutes have experienced a few incidents which leave a permanent emotional fear and mark throughout an individual's life. Dendup et al. (2017) conducted a study on HOF and workplace accident records of the 35 auto mechanics interviewed; 11 (31.4%) had experienced a workplace-related accident in automobile workshops. Similarly, the construction industry in Bhutan accounts for 60% of total workplace accidents (Drukpa, P. & Dendup, P. 2017).

According to DoL (2006), despite the absence of a specific requirement, all work must be carried out without undue risk of injury or occupational disease to any person. The MoLHR plays a crucial role in setting and enforcing Bhutan's occupational health and safety standards. During the recent curriculum review, all stakeholders expressed the same worry, and its relevance was examined in depth. As a result, the module's full title has been changed to "Demonstrating professionalism advancement, protection, and workshop methods" (TPSD, 2017).

It is expected that a strong safety culture results in fewer accidents. Dhendup (2017) showed that a lack of workplace safety culture is a risk factor for workplace accidents. A poor safety culture resulted in a more significant percentage of workplace accidents (37.50%) than a strong safety culture. Similarly, his study found that workplaces with poor safety communication had a higher rate of workplace accidents (37.50 per cent) than those with strong safety communication. His findings backed up prior research, indicating that good safety communication aids an organization in minimizing accidents by keeping employees involved in safety activities, participating in decision-making, and exchanging information and knowledge.

A study by Dukpa (2017) on occupational health and safety practices in Bhutan's construction industry recommends conducting a similar study in other sectors to obtain a more holistic view. Their research found that a similar survey of OHS components practiced in TTIs is indispensable. Thus, this research aimed to explore the level of compliance with

occupational health and safety practices by student-trainees and staff in five TTIs.

## Research Questions

- a. What are the barriers affecting the implementation of occupational health at TTIs?
- b. Are the TTI's current occupational health and safety policies adequate?
- c. What level of Occupational Health and Safety compliance do trainers and trainees practice?

## Literature Review

### Hazard at Work

A hazard is something that has the potential to cause harm. In practice, the danger is usually related to a condition or action that, if left unchecked, can lead to injury or sickness. Preventing injuries and illnesses begins with identifying hazards and eliminating or reducing them as soon as possible (Arora et al., 2020). Accidents cause a broad spectrum of job injuries. According to the Bureau of Labor Statistics, workplace risks resulted in 3,277,700 nonfatal injuries and illnesses in 2009, with 965,000 resulting in missed workdays. Recognizing workplace dangers keeps employees safe and lowers expenses associated with injuries and diseases, including missed productivity (Long, 2013).

According to Woolf (2007), common hazards and their descriptions at the workplace are physical hazards, including heat, cold, vibration and high noise. Working at heights on roofs, ladders, or scaffolding creates a risk of falling. Other equipment-related dangers are electrical shock or exposure to dangerous radiation, such as X-rays, lasers, and radio-frequency energy. Typically, back injuries can be caused by poor lifting technique, and repetitive stress injuries are triggered when using computers for a longer time. Simple housekeeping issues, such as spilt coffee on the floor, might result in a significant slip and fall injury. Driving is the most common source of work-related injury. The occupational injury rate among the six ferroalloy industries was 200 (20%) per 1000 workers yearly, according to this study, which is 1.7 times lower than the general manufacturing workplace injury rate (33.3%) published by the Department of Labour Bhutan in 2015-16 (Dhendup et al., 2017).

### The Occupational Health and Safety Act

Appropriate legislation and regulations and adequate enforcement mechanisms are critical policy instruments for

worker protection. They serve as a foundation for attempts to enhance working conditions in the workplace. The inspection process should use the workers' health surveillance system, which the government, the community, or the business might manage.

The Labour and Employment Act of Bhutan 2007 establishes mandatory minimum standards for everyone. Employers and employees must comply with these requirements by employing appropriate techniques. It has been recognized that stating the duties of those with primary responsibility for OHS measures in general terms is more successful than attempting to control many dangers in minute detail in countries with a solid safety record. The effectiveness of safety measures ultimately depends on how well workers implement them.

### Health and Safety Policies

According to Alli (2008), workplace occupational risk prevention and management measures should be based on a clear, implementable, and well-defined policy at the company level. It should be brief, easy to understand, approved at the highest management level, and widely known throughout the organization. This occupational safety and health policy is the foundation for developing occupational safety and health goals, objectives, performance metrics, and other system components.

The policy can be expressed in organizational mission and vision statements as a document that embodies the enterprise's occupational safety and health values. It should spell out the tasks and responsibilities of the department head or the occupational safety and health team leader, who will drive policy goals into reality inside the company. The employer should establish the policy through information exchange and discussion to ensure workers accept the safety and health policy objectives. In addition, appropriate measures should be taken by the competent authority to guide employers and workers in fulfilling their legal obligations.

The policy should be reviewed regularly to keep it alive. It may need to be updated due to new information, hazards, or organizational changes. Revision may be required if the nature of the work being done changes or new equipment or risks are introduced into the workplace. Establishing new regulations, standards of practice, or official guidelines

relating to the enterprise's operations may also be necessary.

As preserved in the Labour and Employment Act of Bhutan 2007, an employee registered under the Companies Act of the Kingdom of Bhutan (2000) or a small, medium, or large-scale industry or falling outside section 150 (a) and (b) and having twelve or more employees shall prepare and implement an occupational health and safety policy that ensures that each workplace of the enterprise is safe and healthy.

According to the Department of Labor's Annual Report 2018-2019 (DoL, 2019), 45 businesses developed OHS policy statements for the fiscal year 2018-2019. The majority of the workers work in the manufacturing industry. TTIs, as vocational training institutes, are also required to have an OHS policy statement that ensures workplace health and safety.

### **Safety Education and Training**

Education and training are critical to promoting safe labour procedures in the workplace. Workers establish a robust health and safety culture through training and education. Spangenberg, et al. (2003) discovered that well-trained workers on health and safety laws lost much less time due to injury than those without. Training programs could help companies effectively carry out health and safety initiatives, establish a positive attitude, and integrate safety with other goals, e.g. quality. Injuries caused by falling materials, according to Tam, et al. (2004) might be readily avoided by providing construction workers with training programs.

According to Ganguly (2011), human mistakes are responsible for around 90% of workplace mishaps, which can happen anytime during decision-making or task execution. Human error can be avoided by training. Occupational safety and health training should not be viewed as a stand-alone course; it should be integrated into job training and everyday work processes. Institute management must guarantee that everyone involved in vocational education and training is trained in the technical abilities required to complete their tasks. As a result, any training for technical skills should always contain an OSH component (Alli, 2008). In consonant with what Alli (2008) has remarked, a module on OHS is included in the curriculum across all trades in Technical Training Institutions in Bhutan to reinforce OHS implementation. Further, the Department of Labour and

Regional offices provided an awareness program on the Labour and Employment Act 2007 for 3004 participants and awareness on OHS for 1446 participants. Four hundred seventy-seven workers were trained on OHS and 178 on industrial first aid (DoL, 2019).

### **Research design and sampling**

This study employed a self-administered survey questionnaire from 99 trainees of five TTIs and a follow-up by in-depth interview of 5 OHS focal persons. This research is an explorative study, and it used both qualitative and quantitative tools to analyze the data gathered through questionnaires and in-depth interviews. By combining quantitative and qualitative data, this approach effectively obtains detailed information about the effectiveness of feedback modes from OHS focal persons' and trainees' perspectives (Bakla, 2020).

The target populations for collecting data for this study were the OHS focal persons for qualitative data collection using purposive sampling and the final-year trainees of five TTIs (names mentioned below) for quantitative data collection using stratified sampling. The researchers considered final-year trainees as the study sample, considering their stay in the institute and having gone through OHS training and implementation. They were the appropriate people to obtain the correct information on the subject of the study. (See [Table 1a](#) and [1b](#)).

Before administering the full-scale questionnaire, the researchers did an informal pretesting of the draft questionnaire with ten trainees of TTI Thimphu to determine the significance of the relationship between the variables using the Cronbach-Alpha test. The result showed that the Cronbach Alpha coefficient of 0.913 was established, indicating that the questionnaire was reliable, as shown in Table 2.1. According to Pallant (2001), Cronbach Alpha's value greater than 0.6 indicates moderate reliability and a suitable index. It is deemed low if the Cronbach Alpha's value is less than 0.6. Cronbach Alpha's coefficient ranges from 0.60 to 0.80, a tiny yet acceptable range. Between 0.8 and 1.00, Cronbach Alpha coefficients are regarded as excellent. (See [Table 2](#)).

### **Research instrument and procedure**

A self-administered survey questionnaire and follow-up interview were used to gather data. Before data collection,

**Table 1a: Quantitative sample size, total sample size: 99**

Sl#	Institute	Dzongkhag	Category of sample	No. of sample
1	TTI, Khuruthang	Punakha	Trainees	20
2	TTI, Samthang	Wangdue Phodrang	Trainees	20
3	TTI, Chumey	Bumthang	Trainees	16
4	TTI, Ranjung	Tashigang	Trainees	20
5	TTI, Thimphu	Thimphu	Trainees	23

**Table 1b: Qualitative Sample size: 5**

Sl#	Category of sample	No. of sample
1	OHS focal person	1
2	OHS focal person	1
3	OHS focal person	1
4	OHS focal person	1
5	OHS focal person	1

the trainees were given consent, informed of their voluntary participation and assured that the data would be confidential and for research purposes. Based on the literature review, the survey design consists of 7 clusters of closed-ended questions. While trainees responded to the closed question by selecting four feedback modes, the OHS focal persons responded to the semi-structured interview questions.

### **Interview**

An interview is a dialogue in which the goal is to gather specific information (not needed)—the discussion aimed to acquire valid and trustworthy information from the interviewee's responses to questions. A semi-structured interview was conducted with OHS focal persons of the six TTIs utilizing purposive sampling to achieve the desired result. The idea of using interviews was to complement the findings from the survey questionnaire and as well as to cross-check information gathered from trainees, thereby increasing the validity of the data collected. Thus, it gave the researchers a deeper understanding of all aspects of the subject under investigation.

### **Questionnaire**

This research took the form of a series of questions that respondents were asked to answer to gain information on the subject of study. The self-administered survey questionnaire with five-point Likert Scale questions was used to assess respondents' belief in the effectiveness of Occupational

**Table 2: Cronbach Alpha coefficient**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.909	0.913	32

Health and Safety Management Systems (OHSMS) in providing a safe working environment for employees and the system's impact on the organization's productivity.

### **Significance of the Study**

The significance of this research can be seen in a variety of ways. First, the findings could help the TTIs develop successful occupational health and safety measures. Thanks to this work, trainers and trainees will recognize their particular health and safety issues. Based on the recommendations it also serves as a basis for other private TVET organizations to implement effective health and safety policies in their facilities. Finally, policymakers may use the study to help them decide on health and safety practices and procedures.

### **Method of data analysis**

The data collected was analyzed at the end of the data collection. The responses were classified and summarized based on the information provided by the respondents. The analysis was performed using both qualitative and

quantitative tools. The current Statistical Package for the Social Science (SPSS) data analysis program was used for quantitative data. In contrast, MAXQDA-2020 was used to analyze qualitative data collected from in-depth interviews, which employed coding of themes.

## The Findings of Quantitative Study

### Response Rate:

The overall institute response rate was 100%, according to the records of the total number of second-year trainees shared by the management of five TTIs. The details of the response rate are attached herewith. (See [Figure 1](#)).

### Descriptive Statistics

This is an overview of the descriptive information of the variables of interest. It primarily presents the output of the categorical variables, namely gender, age, institution, and course type.

### Trainees' demographics and backgrounds

The table below indicated that most of the trainees (60.6%) were 21-25 years old, and more than 25% fell in the age group of 16-20. A little more than 22% (f=22) of the participants were female, while 77.7% were male. This indicates that female enrolment in TTIs is significantly low. The TVET Statistics of Bhutan published by MoLHR in 2020 also marked the same situation, with an average enrolment per institute in the last five years (2015-2019) estimated at 722 (527 males and 201 females). This has produced a GER

of 1.85% for males and 0.76% for females. (See [Table 3](#)).

### Courses offered in institutions

Forty-seven participants had an automobile background, followed by electrical and welding, with 24 and 16, respectively. An equal number of four participants from computer hardware and networking, furniture making, and domestic house wiring added diversity to the sample group. The table below reveals the information on different courses undertaken by the participants. (See [Table 4](#)).

### Training place hazards

The five-point Likert Scale, such as 1–Never, 2–Rarely, 3–Occasionally, 4–Frequently, and 5–Very Frequently, was used to collect data, which was then computed with an interval scale of 1 to 1.8–Never, 1.81 to 2.60 – Rarely, 2.61 to 3.40 – Occasionally, 3.41 to 4.20 – Frequently, and 4.21 to 5 – Very Frequently. After that, the computed mean ratings were compared with the above verbal interpretation to determine the existence of hazards in the training places.

As shown in the table below, the statements “Do repeated actions with your hands or wrists for three hours during the day (sorting, assembling, cleaning, pulling, pushing)” and “Work in noise levels that are so high” have the highest mean ratings of 2.80 and 2.74, respectively, indicating that trainees are occasionally exposed to these workplace hazards in public TTIs.

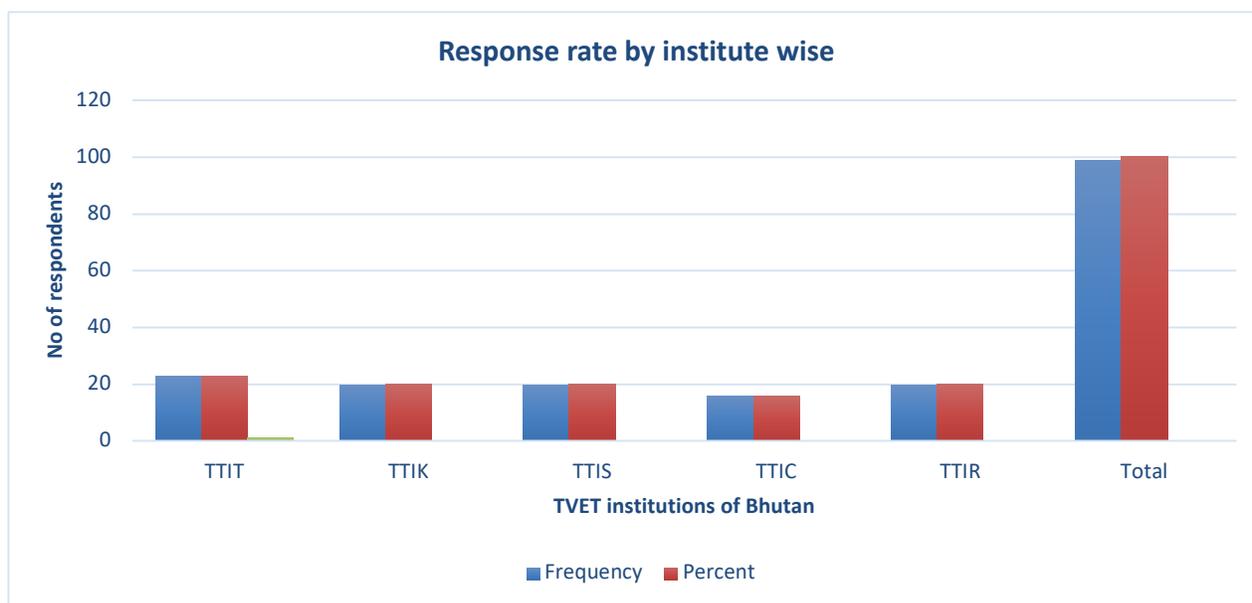


Figure 1: Response rate

**Table 3: Gender \* In range \* Institute Cross tabulation (Demographic details)**

Institute	Gender	Age 16-20	Age 21-25	Age 26-30	Age 31+	Total
TTIT	Male	1	19	1	1	22
	Female	0	1	0	0	1
<b>Total</b>		1	20	1	1	23
TTIK	Male	0	8	3	0	11
	Female	0	6	2	1	9
<b>Total</b>		0	14	5	1	20
TTIS	Male	2	15	1	0	18
	Female	2	0	0	0	2
<b>Total</b>		4	15	1	0	20
TTIC	Male	12	3	1	0	16
<b>Total</b>		12	3	1	0	16
TTIR	Male	2	7	1	0	10
	Female	6	4	0	0	10
<b>Total</b>		8	11	1	0	20

**Table 4: Institute \* Courses offered in TTIs\* Cross-tabulation (Details of participants' courses)**

Institute	Auto mobile	Welding	Electrical	Computer hardware and networking	Furniture Making	Domestic House wiring	Total
TTIT	23	0	0	0	0	0	23
TTIK	0	0	20	0	0	0	20
TTIS	20	0	0	0	0	0	20
TTIC	0	16	0	0	0	0	16
TTIR	4	0	4	4	4	4	20
<b>Total</b>	47	16	24	4	4	4	99

As specified in the above-computed interval scale for interpretation, if the mean rating falls within 1.81 to 2.60, hazards in the workplace are rare. The lowest mean rating scored by the statement “Interact with hazardous substance” is 2.01, demonstrating that student-trainees do not face hazardous substances like chemicals, flammable liquids, or gases. Thus, the rest of the statements have a mean rating of 2.01 to 2.55, signifying that workplaces in all the TTIs are safe and hazards are managed well. (See [Table 5](#)).

### Workplace policies and procedures

In this section, the five points Likert Scale such as 1- Strongly disagree, 2 - disagree, 3 - Neutral, 4 -Agree and 5 - Strongly agree were used to collect data to understand

the workplace policies and procedures, which was computed with an interval scale of 1 to 1.8 - Strongly disagree, 1.81 to 2.60 -Disagree, 2.61 to 3.40 - Neutral, 3.41 to 4.20 - Agree and 4.21 to 5 - Strongly Agree. After that, the computed mean ratings were compared with the theoretical mean rating (assuming a normal distribution of responses) of 2.50 to determine the effectiveness of OHS policies and procedures.

Interestingly, the table below indicated that all the statements under OHS policies and procedures scored the mean rating of 3.41 and above, indicating that TTIs included in the study have the OHS policies and procedures strictly implemented. The statement “I experienced some harassment in the institute” has a mean rating of 1.43 -

strongly disagreeing with the lowest mean, indicating that trainees in all five TTIs do not experience harassment or bullying from trainers or fellow trainees. This suggested that the learning environment is conducive and free of harassment. (See [Table 6](#)).

### Occupational health and safety awareness

In consonant with the workplace policies and procedures, the same five-point Likert scale value was used to explore trainees' awareness of occupational health and safety. The table below indicates that all the observants agree with all the statements used to determine the awareness level of OHS. When compared with the theoretical mean, it was observed that all the participants were clear on their roles and responsibilities laid down in the OHS policy and procedures indicated, with the mean ranging from 4.04 to 4.04, respectively. However, a low mean score of 3.87 and

3.12 was recorded in "I know about workplace safety, and emergency call numbers are displayed in the workplace," indicating that the participants neither agreed nor disagreed. (See [Table 7](#)).

### Training on the use of PPEs

The table below describes the mean rating of trainees' knowledge of personal protective equipment and OHS guidelines. The mean rating was compared as above, and it found that the statement, "Young people are involved in the formulation of OHS guidelines," scored the lowest mean rating of 3.26, interpreted as neutral or unsure of their involvement. The rest of the statements have a mean rating of 3.41 and above, indicating they agree and strongly agree. Interestingly, most respondents agreed that they were trained in using PPEs. (See [Table 8](#)).

**Table 5: Training hazards**

Statements	N	Min	Max	Mean	Std. Deviation
Manually lift 20kgs more than five times	99	1	4	2.34	0.81
Do repetitive movements with your hands	99	1	5	2.8	0.99
Perform tasks or use work methods that are not familiar	99	1	5	2.55	0.982
Interact with hazardous substances	99	1	5	2.01	1.005
Work in bent, twisted or awkward position	99	1	4	2.31	0.955
Work at a height of two meters or more	99	1	4	2.2	0.869
Work noise levels that are so high	99	1	5	2.74	1.084
Stand for more than two hours in a row	99	1	5	2.29	1.127
Valid N (listwise)	99				

**Table 6: workplace policies and procedures**

Statements	N	Min	Max	Mean	Std. Deviation
I experienced some harassment in the institute.	99	1	4	1.434343	0.91
Everyone receives workplace safety training.	99	1	5	3.919192	0.93
There is regular communication on safety management.	99	1	5	3.777778	0.89
Safety systems are in place to prevent hazards.	99	1	5	3.707071	0.87
There are OHS policy guidelines.	99	1	5	3.89899	0.90
There is an active and effective committee or focal person.	99	1	5	3.626263	0.96
Incidents and accidents are investigated quickly.	99	1	5	3.565657	0.83
There is clear communication on safety procedures.	99	2	5	3.979798	0.77
Valid N (listwise)	99				

**Findings of the qualitative data:  
In-depth interview**

*What are the responsibilities of an OHS focal person?*

The participants discussed their roles and responsibilities as OHS focal persons. The table below shows the roles and responsibilities of the institute’s OHS focal persons. Almost 15.38 % (f=12), when asked about their significant roles and responsibilities as OHS focal persons, mentioned that apart from their primary role as trainers, they also have to conduct awareness programs on OHS components for new trainers and trainees every year and monitor OHS practices in the institute. The in-depth interview data analyses also revealed that the OHS focal person’s job is to display OHS signs and symbols and ensure the use of PPEs by trainers and trainees. Their roles and responsibilities were not limited to the above ones only. They remarked that they must maintain records of injuries and accidents in the institute with follow-up action. “They provide awareness on OHS to trainers and

trainees” came significantly in all the interviews”, followed by “maintaining records of the accidents and injuries” as per the OHS procedures. (See [Table 9](#)).

**Barriers or challenges**

*What barriers or challenges do focal persons face in implementing OHS Procedures in TTIs?*

To explore the barriers that hamper the implementation of OHS procedures in TTIs, the following question has been asked: “What might be some of the foreseeable barriers to implementing OHS?” It was found that 16.67% (f=12) codes extensively discussed barriers to executing their roles and responsibilities or ensuring a safe learning environment. Among the codes in the table, “lack of technical support from management” was the highest in frequency, followed by lack of OHS policy and guidelines, inadequate budget and limited training opportunities with (f=2) each. (See [Table 10](#)).

**Table 7: Occupational health and safety awareness**

Statements	N	Min	Max	Mean	Std. Deviation
I am clear on the rights and responsibilities of OHS.	99	2	5	4.181818	0.68
I am clear on my employer’s rights and responsibilities.	99	2	5	4.080808	0.67
I know how to perform in a safe manner.	99	3	5	4.20202	0.59
I know precisely whom to report on hazards.	99	1	5	4.040404	0.82
I know about workplace safety.	99	3	5	3.878788	0.64
I know precautions to be taken while doing work.	99	2	5	4.191919	0.65
Safety signs and symbols can be seen in the classroom.	99	1	5	4.090909	0.92
Emergency call numbers displayed in the workplace.	99	1	5	3.121212	1.11
Valid N (listwise)	99				

**Table 8: Training on the use of PPEs**

Statements	N	Min	Max	Mean	Std. Deviation
I feel free to voice my concerns on workplace safety.	99	1	5	3.686869	0.865
The management considers my concerns about improving OHS.	99	2	5	3.444444	0.717
Young people are involved in the formulation of OHS guidelines.	99	1	5	3.262626	0.887
The first aid boxes are accessible during injuries.	99	2	5	3.818182	0.908
The principle of five Ss is practiced enough.	99	1	5	3.717172	0.959
Trainees are given adequate PPEs.	99	1	5	3.838384	0.900
Trainees are trained on how to use PPEs.	99	1	5	4.090909	0.980
Valid N (listwise)	99				

### Opinion on Personal Protective Equipment

What is your opinion on using Personal Protective Equipment (PPEs) by your trainers and trainees?

Regarding trainers' and trainees' knowledge of the use of PPEs, the interview data revealed that the incidence among the trainees seemed to be a poor and fair level of knowledge and practice on PPE usage. There seemed to be different opinions on the use of PPEs. Among the codes under this theme, 7.78% (f=7) of them remarked that wearing PPE is uncomfortable, especially during work. They recognized that the focal person's OHS concerns are immediate safety and protective action when trainees are in training, and the workplace is essential. The focal persons thought OHS meant wearing appropriate footwear, uniforms, gloves, goggles and other PPE. Some of the responses were:

*"PPE is the last control method from hierarchy injuries." (interview 1). While other participants responded that:*

*"All required continued reminders to use PPEs to make it a habit." (Interview 2). (See [Table 11](#)).*

### Kinds of hazards exposed by TTIs

What are the types of hazards TTI faculty and trainees face?

To ascertain what the participants in the survey questionnaire responded to regarding the hazards TTIs faculties and trainees were exposed to, the above question was asked in the in-depth interview with focal persons. The data analysis revealed that 10.26% (f=8) codes discussed the kinds of hazards to which TTIs were exposed. In general, the participants replied that risks could be categorized into many types, such as physical, chemical, biological, ergonomic, and psychological hazards. Among the above dangers, TTIs faced moderate chemical hazards (f=2) and frequent physical risks (f=3). One of the participants noted that they also face dust and heat hazards (f=1) more regularly, depending upon their occupations. The interview data also discovered that respiratory troubles were prevalent due to fumes from painting in some automobile institutes. The focal person also remarked that unlike significant manufacturing and other private industries, threats in training institutes are manageable and of a minor degree. (See [Table 12](#)).

**Table 9: Roles and responsibilities of the focal person**

Theme	Frequency	Percentage	Codes
Roles of the focal person (+)	14	17.94	Provide awareness(f=3), ensure continuous use of PPEs(f=2), maintain records of accidents and hazards(f=3), display OHS information and safety signs(f=3), monitor and conduct classes(f=1), maintain a safe and risk-free environment(f=1), familiarize and comply with the health and safety statutory requirement(f=1).

**Table 10: Challenges or Barriers**

Theme	Frequency	Percentage	Codes
Barriers/ challenges	13	16.67	Lack of space(f=1), lack of proper OHS policy and guidelines(f=2), inadequate budget(f=2), limited training opportunity for FP(f=2), lack of technical support from the management(f=4), lack of participation on OHS procedures(f=1), lack of OHS knowledge by PF(f=1)

**Table 11: Understanding about PPEs**

Theme	Frequency	Percentage	Codes
Understanding about PPEs	7	7.78%	PPE provide safety (f=4), wearing PPEs is uncomfortable (f=2), the last control method from hierarchy injuries (f=1),

### **OHS Training and Monitoring**

The researchers asked the following questions to confirm the replies provided in the survey questionnaire on the frequency of OHS training and the monitoring provided by the institute and the Ministry:

*“To what degree do you think the monitoring, inspection and evaluation of safety practices are done?”*

The focal persons of the TTIs have responded that the frequency of OHS monitoring from the Ministry was rare and minimal. To this, the participants have responded as follows:

*“In this regard, it has been done minimum, but it could have been done more efficiently if the concerned agencies had built the capacity building equally.” (Interview 1).*

*“We do monitoring, inspection and evaluation of occupational health and safety (OHS) before we execute any tasks/practical, but in reality, people take occupational health and safety lightly because of self-complacency.” (Interview 2).*

The interview data also revealed minimal training for focal persons on OHS. One of the participants has responded as follows:

*“Once in a year or not at all. Training conducted virtually was not effective at all. Training should be conducted in theory and practice to ensure effective occupational health and safety in the institute. It will be much better, and I should say that there will be lots of changes within the organization on occupational health and safety.” (Interview 3).*

In terms of OHS training provided by the institute to the trainees, it was stated that OHS training was conducted once a year when they had new recruitment to orient on this component. It was also learned that concerned trainers train trainees as per the curriculum, indicating that OHS training is adequate. The following responses support the frequency of training provided by the institute:

*“As per the curriculum, OHS classes are taken at the beginning of the year for one week, and after that concern, trade instructor will take care during their respective session.” (Interview 4).*

The overall thematic coding in this section indicated that 11.71%(f=5) of the respondents discussed the lack of regular training on OHS and monitoring, as shown in [Table 13](#).

### **Status of OHS practiced in TTIs**

The OHS guidelines and policy implementation in TTIs seemed satisfactory, as 7.69% (f=6) of the participants said that trainers and trainees have good knowledge of OHS policy guidelines. They also stated that 40% of the faculty and trainees practiced whatever they learnt during the OHS training. To note precisely what the participant said on this question:

*“I should say good because we do not have any serious casualties so far, but still, we have miles to go, and we have been exercising occupational health and safety in every task we perform. We need more practices on occupational health and safety to be competent enough.”*

Also, one of the participants from TTIs said that their status of OHS practices is average only.

**Table 12: Kinds of hazards**

Theme	Frequency	Percentage	Codes
Kinds of hazards faced by TTIs	8	10.26%	Heat(f=1), chemical(f=2), physical(f=4), dust and respiratory hazards(f=1).

**Table 13: Training and awareness on OHS**

Theme	Frequency	Percentage	Codes
OHS Training and Monitoring	9	6.41%	Monitoring is minimal or once a year(f=4), OHS training once or not at all (f=5)

## Discussion

The in-depth interviews and survey questionnaire results disclosed minimal training hazards in the TTIs. However, there were some incidences where trainers and trainees were exposed to physical, heat and respiratory hazards at their workstations (10.26%). The qualitative data analysis also revealed that trainers and trainees in TTIs minimally interacted with hazardous substances like chemicals and flammable gas ( $m=2.1$ ). Apart from physical injuries, there was a possibility of other non-physical work-related injuries in the study area, as per the survey data, resulting from excessive noise levels and prolonged inhalation of contaminated air (fumes from painting in automobile institutes and dust). According to available studies, this could culminate in reduced hearing acuity and work-related asthma (Monney et al., 2014). A study conducted by Dendup et al. (2017) indicated a similar finding, which discovered that, among ferroalloy industry workers, contact with objects and equipment (44.2%), contact with hot substances (26.7%), and falls from height (20.9%) were the three most common causes of occupational accidents. Being struck by flying or falling objects is considered coming into contact with moving objects and equipment. The primary cause of the contact with hot materials is contact with the molten ore while tapping. The results of this investigation corroborate those of Alli's (2008) study, which found that in the ferroalloy business, contact with items in translational motion, rotation, or flight was responsible for 29% of accidents.

The study also uncovered that low or no incidence of accidents and injuries in TTIs was credited to the prevalence of trainees ages 16 to 31. This finding corresponds to the study conducted by Dhendup P., & et al. (2017), which found that the higher the age, the higher the risk of experiencing workplace accidents. The workers between 35-44 years were more susceptible (27.6%) to workplace accidents than the rest. In contrast, this finding differs from the findings of Ajslev et al. (2017), where young workers between 18 and 24 years were highly susceptible to workplace accidents. The low rate of injuries in TTIs was credited to the high level of awareness of OHS and PPEs. The quantitative data revealed that training on the use of PPEs for trainees scored a mean rating of 4.09, indicating that TTIs have a robust system of trainees being trained once they enroll in the institute. However, the focal person interviews showed that training of the focal persons by the agency concerned and monitoring the OHS implementation in TTIs was minimal or not at all. It was also

learnt that training conducted virtually is not practical. It was suggested that frequent OHS focal persons or trainers be provided to strengthen OHS management and prevent accidents and injuries. A similar finding in hazard training was proposed in an Australian survey of 270 workplaces in the hospitality industry, which recommended the need for improvement in induction training for young workers (Hicks, 2009 as cited in Mostafa & Momen, 2014). Indeed, the importance of providing occupational safety education in secondary school has been widely recognized.

According to Enshassi et al. (2008), the rate of injury among workers will decrease if supervisors are well-trained, as they play a vital role in the workers' safety. This report shows that private companies have severe occupational health and safety issues. Previous research has indicated that having supervisors more responsible for workplace safety reduces accidents. As a result, it was advised that the Ministry of Labour and Human Resources strictly implement OHS laws and practices training for managers, supervisors and workers. Managers and supervisors should be held more liable and accountable for workplace safety issues. According to the study conducted by Ashola (2017), improved psychological wellness of employees is ensured by manager's communication, formalization, and implementation of safety management policies and practices. Managers must choose the kind of maintenance culture that will save costs and ensure worker safety. Encouraging managers to communicate regularly about operational issues, particularly maintenance techniques, is crucial to addressing workers' safety demands. Moreover, a strong strategy for creating a comprehensive safety management culture is to involve staff members in operational decision-making. Other studies have demonstrated that inadequacies in risk management account for 84% of workplace accidents in the construction industry in Britain. These are trailed by issues resulting from workers (70%), equipment and PPE shortcomings (56%), workplace issues (49%), and material suitability and conditions (27%). Given the obvious costs associated with building for employers, workers, and society, safety awareness in the construction sector has grown over the past few decades (Haslam et al., 2002).

The above findings prove that a strong safety culture would result in fewer accidents, which is closely associated with the findings of this study. This can be ensured only by a sound safety management system or OHS policy through a

coordinated and systematic approach to managing OHS. When comparing the two data sets, the survey data showed that TTIs have a higher prevalence rate of workplace policies and procedures, with a mean rating of 3.89. In contrast, the interview data revealed that although there is a firm OHS policy, the implementation of the OHS procedures is either good or average. The participants stated that only 40% of the trainers and trainees put into practice what they learned. The reason for an average implementation of OHS policy in TTIs could be a lack of a strong monitoring system, as the focus is equally burdened with teaching and other administrative loads. In line with this conclusion, research by Dendup et al. (2017) found that more workers (39%) risk their safety by disregarding safety procedures when workloads grow. The study also found that workers with adequate workplace safety awareness and competency are at higher risk (23.68%) than those levelled as good (19.92%). Inadequate education and awareness of health and safety were the main factors contributing to the poor safety culture, mainly in the private sector. Sometimes, workers cannot understand the simple safety signs displayed at their worksite, while safety signs are conspicuously absent in many others. Dendup found in his study that a similar result was also revealed by the quantitative data on occupational health and safety awareness, which showed that trainees of TTIs were well informed of the OHS, resulting in more minor injuries and accidents. One reason for the low prevalence of occupational accidents was that trainers cultivate trainees' understanding in some ways, including briefing at the beginning of practice, giving sanctions when some are not serious in practice, and others showing videos due to work accidents. Hence, trainees are afraid not to be serious when in practice.

Even though faculty and trainees were given a complete set of personal protective equipment to prevent accidents and injuries, this study revealed that many do not use PPEs despite constant reminders and penalties. The reason for not being used was that the person felt uncomfortable or unfamiliar. A study conducted by Dukpa (2017) also showed that workers in the construction sector strongly opposed using personal protective equipment (PPE), claiming that it hinders their performance and makes them uncomfortable. The finding of this study is in line with the results of Edytya et al. (2020), where 40% of an accident occurred due to workers not using PPE and the findings of Tanko, B.L and Anigbogu (2012), where 81.1% of workers do not use PPE provided to them. It should be noted that, in the absence of workplace

risk assessment, safety equipment plays a critical role in determining the level of injuries. Notwithstanding, similar reasons for not using PPEs were shared in a study conducted by Monney et al. (2014) that the host of hazards at the shops, the use of PPE among the artisans was low. The justification only reinforced the fact that these artisans are either ignorant or just careless about the health implications of their work. The study by Dukpa et al. (2017) noted that workers needed to be reminded to wear and monitor personal protective equipment. Despite companies providing PPE and workers understanding its importance, it was also discovered that PPE was not used consistently. It was inferred that PPE was inconvenient and hindered their ability to work.

Occupational Health and Safety (OHS) culture is critical to any organization, particularly in technical training institutes where students and staff are exposed to various potential hazards. To address this, the Technical Training Institute developed a culture of OHS that operates and carries out the principles of sustainability, integration, implementation, consistency, and fun. To ensure the sustainability of the OHS culture, the institute focuses on embedding safety awareness and practices into the core of its operations during the orientation program and consistently applying this OHS component while doing the training. This can be achieved through comprehensive training programs that educate all stakeholders, including students, faculty, and other staff, on the importance of occupational safety and health. Additionally, the institute established clear policies, procedures, and accountability measures to reinforce the commitment to OHS.

It is also essential that OHS concepts be incorporated into every facet of the institute's operations. This entails adding safety concerns to research initiatives, facility management, and curriculum design. OHS will become a seamless and essential component of the organization when it is in line with the academic and operational goals of the institute. It is critical to apply and communicate OHS procedures consistently. The institute works hard to ensure that safety policies and procedures are followed consistently in all departments and activities and that any updates or modifications are successfully shared with all parties involved. Keeping daily logs of minor accidents and injuries also promotes a healthy work environment, complies with legal requirements, and raises safety standards.

Nevertheless, the institute considers adding innovation and fun to its safety programs to promote an interesting and pleasurable OHS culture. This includes engaging training sessions, gatherings with a safety theme, and recognition schemes honouring outstanding OHS procedures. Enhancing OHS to be a fun and engaging part of the institute's culture will increase community buy-in and commitment. Through the establishment of an Occupational Health and Safety culture based on the values of sustainability, integration, implementation, consistency, and enjoyment, the Technical Training Institute can establish a secure and lively setting that promotes the health and welfare of its staff, faculty, and students, while also serving as a model for the larger community. Other agencies within and outside can replicate the above ideas.

Additionally, this study explored the challenges TTIs face when implementing OHS policies: a lack of funds, limited training opportunities for the focal person, lack of supervisory support, lack of standard OHS policy and guidelines, and non-compliance in using PPEs. These are the cross-cutting challenges all TTIs face in maintaining the OHS policy and Act standards. A lack of funds is one of the major issues that deter the implementation of the Act and policies, which demands procurement of PPEs, regular training on OHS, and continuous monitoring and evaluation of the program.

### **Limitations of the study**

This study's design is a restriction in and of itself because it is a snapshot. The study is limited to a few vocational institutions, which may not represent other institutions not included. The findings may not be generalizable to all TTIs with different sizes, locations, or demographics as the current study has a sample size of 99 final-year trainees selected for examination on the 31 items limited to certain occupations for information processing load.

The qualitative design used in this study included a purposeful sample of current OHS focal persons of six TTIs as the data collected may be limited in scope, focusing on specific departments or types of hazards. This could overlook other significant OHS issues present in vocational institutions. The quantitative element used in this study was administered to a stratified sample of final-year trainees in six TTIs. Therefore, the statistics do not reflect all trainees, but the data may be substituted to comparable people in similar situations.

Other limitations include differences in regulations, policies, and safety practices between the studied institutions, which limit the results' applicability to other settings. OHS practices and conditions continuously evolve, and the study does not capture the most current practices or newly emerging hazards. Further, external factors such as local regulations, economic conditions, and societal attitudes towards health and safety may influence the study results and limit their broader applicability.

Thus, a comprehensive study of all TTIs, including two National Institute of Zorig Chusum (NIZCs), is warranted to obtain a holistic picture of the necessary policy considerations.

### **Conclusion**

This is the first time a mixed-method study has been conducted on occupational health and safety practices in TTIs. Even though the findings are informative, there are few opportunities for comparisons to previous studies in the global context and none in the Bhutanese context, limiting comparison. The examination of the survey result showed that the workplace injury rate is two times lower compared to the record maintained by the Department of Labour in the construction sector. Based on the study results conducted in the TTIs, the compliance level of TTIs in OHS is good or average, with very minimal records of injuries and accidents. This proved that TTIs try to provide the best culture and environment conducive to growing and developing the positive character of trainees, which are carried out according to the principles of sustainability, integration, consistency, implementation, and fun. A good safety culture can shape worker behaviour towards work safety, manifested through safe work behaviour. However, the study suggested having a uniform SOP for OHS implementation across all TTIs. Further, there is a need to strengthen the implementation of basic occupational health and safety practices in all the TTIs in formal training sessions and during their apprenticeship (OJT) to instill in them the need to protect themselves at the workplace. This would require a strong collaboration between TTIs and relevant stakeholders such as the Department of Labour, Department of Workforce Planning and Skills Development and industries to organize training-of-trainers workshops for trainers who subsequently train their apprentices.

The literature review indicated that Bhutan is not unique in confronting the implementation of the OHS policy (Dukpa et al., 2017). Their study found significant gaps in Bhutan's workplace health and safety: lack of competent human resources, inadequate OHS training, poor health promotion, lack of safety data on construction sites, and an organized safety management system. Concerning their findings, this study also discussed many issues or challenges TTIs face. The prominent issues highlighted are the institute's OHS focal person's lack of skills and knowledge in managing OHS, inadequate OHS training, lack of monitoring and support from management, and insufficient budget.

In summary, the interview of the focal persons suggested the following strategies to strengthen the safety implementation in TTIs:

1. Comprehensive training for all the faculties and trainees on occupational health and safety (OHS) should be provided;
2. Institute reward system to those who implement and practice OHS policies;
3. Effective use of labels and signs to communicate important information quickly;
4. Ensure trainers, trainees and staff have the right tools to prevent accidents and injuries;
5. Conduct regular inspections of tools and equipment;
6. Implement safety protocols from the start;
7. Have regular meetings on workplace safety;
8. The management should support the OHS focal person.

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# Student Perceptions Of Flexible Deadlines

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\***Original Research Papers** are papers that report on original empirical research with a focus on teaching and learning. Papers may be qualitative or quantitative and include an Abstract, Introduction, Method, Results, Discussion, and Reference section, as well as any tables and/or figures.

## Abstract

Instructors' course policies have an important impact on student success in our courses, as well as their perceptions of instructors. One such course policy, which is the focus of this descriptive study, is that of assessment deadlines, more specifically, the various permutations of flexible deadlines. These might include automatic extensions, short or long extensions with or without a penalty, open deadlines for submissions, or a bonus point as an incentive for meeting the deadline. In the present study, we asked students to evaluate these submission deadline policies and how they might affect their wellbeing, procrastination, and perceptions of their instructor. Although they report encountering them most frequently, students don't perceive extensions with a reduction in grade (e.g., 10% per day) as helpful for their learning and would prefer automatic non-punitive extensions to help support their success and wellbeing. Additionally, students reported that they would have a more positive view of their instructor (nicer and cares about their success) if they had a flexible deadline policy and that it would increase their satisfaction with both the course and instructor. Surprisingly, the largest number of students indicated that their preferred flexible deadline policy would be to receive a bonus for submitting it on time. Implications for policy and student success are discussed. The authors recommend that faculty who use hard/rigid deadlines consider adopting flexible deadlines to better support student success.

## Introduction

**As instructors, we make many pedagogical and administrative decisions when planning and delivering our courses.** Choosing policies related to assessment deadlines is one such decision. Deadlines are often employed as a means of structure built into the course, which have the potential to promote or hinder student success (Koch et al., 2015; Levitin, 2019; Wyre, 2019). Seeing as policies surrounding due dates are found in almost every scholarly experience, an intentional analysis of why we implement deadlines, how they are perceived, and what effects they have are all worthwhile endeavours. Due date policies are often course-specific and individual instructors typically have the autonomy to alter these policies; thus,

such considerations may lead to different student experiences and could also affect the quality of the course and perception of the instructor.

There are various types of deadlines. There are hard/rigid deadlines, in which no late submissions are accepted. Late submissions may be accepted, with or without a penalty, such as the submission being docked marks based on how late they are (e.g., 10% per day). Another option is to offer an extension for a set period of time (e.g., 3 days) without any penalty. Alternatively, faculty could impose a penalty after a grace period; for example, after 4 days late, the penalty is 10% per day. There can also be the option for students to receive bonus marks (e.g., 1%) if they submit their work on time. In many of these cases, the extension might be automatic, while in other cases, students may have to formally request an extension (often in writing). One final option, which might be less commonly encountered in higher education, is to have an open submission deadline where there are no due dates at all until the end of the course. Some of these possibilities are not mutually exclusive and can be used together to form a highly accommodating deadline/late submission policy. For example, an instructor could allow students an automatic extension grace period of 3 days, without requiring approval and without penalty, followed by a 10% penalty per day up until 10 days late, at which point the grade is zero. These are just some examples of the many deadline structures that could be implemented to encourage flexibility and support students with both documented and undocumented accommodation needs.

An examination of the purpose behind a due date is important because the purpose should drive the policy. Why do we implement deadlines for students? Part of the answer surely lies in our own (instructor) workload management; after all, it could be highly problematic to submit final grades on time if all student work arrived in the final week(s) of the semester. However, aside from that, our rationale likely centres around student success, both during their studies as well as in their eventual careers, because workplace deadlines are a part of the working world. Scholarly due dates are meant to promote commitment and prevent procrastination (Koch et al., 2015; Levitin, 2019). Many teachers rationalize the use of inflexible deadlines as being reflective of real-world experience; however, the reality of multiple constraints of real-world deadlines compels strategies such as time management and prioritization, and workplace deadlines may be necessarily

delayed. Providing flexibility and accommodations may better reflect the workplace, where deadlines are often negotiated with supervisors or bumped rather than being set in stone (Warner, 2019). Interestingly, some research shows that rigid deadlines may be counterproductive (Hasinoff, 2022). Course deadlines assume that students submit coursework on time with ease, and they do not accommodate individual circumstances or challenges (Hills & Peacock, 2022). Evidence shows that penalties for late coursework can increase anxiety and poor grades, potentially harming the ability of students to succeed (Hasinoff, 2022). To promote student success, many educational systems have recently pivoted towards a more compassionate and inclusive learning environment that leaves space for obstacles and mistakes and supports the individual needs of students. One way this can be done is by providing the option of flexible deadlines, which decreases anxiety and helps students who may need to adapt to life complications (Hasinoff, 2022).

The decision to incorporate flexible deadlines is supported by some pedagogical literature. Offering students multiple options is in line with universal design for learning (UDL), first proposed by the Center for Applied Special Technology (CAST) (2018). The goal of the three principles of UDL (Multiple Means of Representation, Multiple Means of Engagement, and Multiple Means of Action and Expression) is to remove as many barriers as possible so that all students can be successful learners. Additionally, when courses are designed within the UDL framework, students shouldn't need to provide instructors with an access plan (e.g., allowing extra time to complete a test) because those barriers have already been removed. In the case of flexible deadlines specifically, providing students with choice and some control over how they allocate their time removes a number of barriers and supports the Multiple Means of Engagement principle of UDL, whereby students are motivated to learn and feel safe doing so (CAST, 2018). The equity and belonging approach to UDL is much more prominently focused on in the newest version of these guidelines, UDL 3.0 (CAST, 2024).

Having a flexible policy about deadlines also provides students with agency over their learning; thus, it provides options to self-regulate and an opportunity for goal setting, planning, and strategic development, all of which are important durable/transferable skills (America Succeeds, n.d.; Government of Canada, 2023; Government of Ontario, n.d.). Additionally, provisions for extra time may redirect

the student's focus to producing better quality work or performance rather than fixating on the ability to meet a set deadline (Warner, 2019). Furthermore, embedding flexible deadline policies into a course instead of evaluating individual student requests on a case-by-case basis is far more equitable for all students and aims to remove unequal barriers that students experience (CAST, 2024; Hasinoff, 2022; Hills & Peacock, 2022). Metacognition is an important component of students' cognitive growth and flexible deadlines, particularly if combined with personal reflection; because of this, students analyzing their own performance could contribute to their journey towards metacognition and lead to self-directed growth and improvements in time management and their own learning (Hills & Peacock, 2022).

Although some have reported drawbacks of using flexible deadlines in education, such as additional instructor workload (Levitin, 2019), increased student procrastination (Levitin, 2019; Walsh, 2019), and unrealistic workplace expectations, many research findings support positive outcomes from flexible deadline policies (see Patton, 2000). For example, the use of flexible deadlines has been reported to reduce student stress (Nickels & Uddin, 2003), improve the quality of student work (Hills & Peacock, 2022), and supports equity, diversity, inclusion, and belonging (EDIB; CAST, 2024).

The present study builds on the literature to investigate students' experience with and perceptions of flexible deadlines. We will examine what type of flexibility has been experienced by students at our institution as well as what they perceive to be helpful to them in their learning. Additionally, this study will investigate how the use of flexible deadlines might impact students' perceptions about their instructor. By describing this aspect of using flexible deadlines, we hope to gain additional insight about supporting student success, wellbeing (broadly defined), and student satisfaction.

## Method

### Participants

Participants ( $N = 45$ ) were students enrolled in a course offered by the Faculty of Liberal Studies in the Winter 2024 or Spring 2024 semester at a technical college in Ontario, Canada. These courses were primarily general elective courses but also included communication courses and courses within the General Arts and Science certificate program. As such, the recruitment of students was collegewide as all programs at the college take at least one

general education or communications course offered by the Faculty of Liberal Studies (the demographic data collected confirmed this). Participant demographics showed that 71% of respondents were female (27% male, and one (2%) identified as non-binary). Ages ranged from 18 to 50, with a mean of 23.16. The most common age of respondents was 19 years old (24%). More than one-third (36%) of respondents were studying in the Faculty of Liberal Studies (in which there is only one program, General Arts and Science). The remaining participants were studying in other Faculties: Science, Engineering, and Information Technology (11%); Health Sciences (11%); Business (11%); Social and Community Services (9%); Media, Art, and Design (9%); Hospitality and Horticultural Sciences (4%) and 7% weren't sure or preferred not to disclose ( $n = 3$ ).

International students made up 11% of the sample. Some (29%) identified that they had childcare responsibilities (either their own child/ren or that of younger siblings), approximately one-quarter had an individualized education plan (a special education plan to support unique learning needs and which may include modifications to instruction, or additional support and/or services) in high school (24%) and most (76%) indicated that they were not registered with the Access and Support Centre for an accommodation (note: of those who were registered with the office, almost all (82%) had flexible deadlines as part of their accommodation).

## Materials

The survey used can be found in Appendix A and contained 31 questions. These questions were developed based on a review of the literature, with a focus on what had been previously reported as the benefits of using flexible deadlines in higher education. The authors formulated the questions to try to shed some light on the research questions that guided this project. Due to a limited subject pool at the college, the survey was not normed or tested, and no psychometric properties were available. The questions focused primarily on students' submission behaviours (e.g., when they are likely to submit assignments), their experience of specific flexible deadlines in their classes (which they had experienced in their classes) and the perceived benefits of flexible deadlines more generally. Finally, we also asked whether they perceived various forms of flexible deadlines as beneficial for their success in the course, which specific flexible deadline they would prefer if given a choice, and if flexible deadlines would have an effect on their satisfaction with the course or teacher

of the course. The survey was presented through Microsoft Forms, an online survey tool which allowed for the anonymous collection of responses.

## Procedure

After approval from the institutional ethics board, the researchers asked their colleagues in the Faculty of Liberal Studies to share the research opportunity with their students via email as well as through an announcement in their learning management system. It is not known how many faculty shared the invitation with their students. Invited students who wished to participate read the consent form, which was sent to them with the invitation and clicked on the anonymous online survey link to answer the questions. Students were allowed to skip any question, though very few did: 2 questions were skipped by two different respondents (likely accidentally) across the entire sample (.001%). Once finished, participants were thanked for their time. No compensation was offered to participants, and surveys were completed anonymously.

## Results and Discussion

We examined the data in order to describe student perceptions of various aspects of flexible deadlines, including their experience with different types of flexible deadlines and their impact on students' perceptions of their instructors.

When we asked students how early they usually completed their assigned work, 33.33% indicated that it was completed "a day or two before the deadline," 28.89% indicated that they completed it "earlier than 2 days before the deadline" and another 28.89% said they completed it "the same day as the deadline but many hours before." When asked when they were likely to submit their completed assignment, 37.78% responded that they typically submitted it "the same day as the deadline but many hours before," while 24.44% answered "a day or two before the deadline, 15.56% said they'd turn it in just prior to the deadline, and 13.33% indicated that they'd submit it more than two days ahead of the deadline.

It is perhaps surprising that no student indicated that they normally complete their work after the deadline has passed. One possible explanation for this relates to our sample itself; perhaps students who are likely to submit their work late did not elect to complete our survey. If this is the case, future research should attempt to capture this sub-sample of the student population. A second possibility is that students attempted to present themselves in a more positive light to

the researchers (social desirability effect; Chung & Monroe, 2003; Phillips & Clancy, 1972; Zerbe & Paulhus, 1987). Although the survey was anonymous, students might have been enrolled in the researchers' courses and, consequently, could have wanted to appear more positively. A third option is that students inaccurately perceived their own behaviours related to meeting deadlines, particularly if it served a self-preservation objective, preserving their self-esteem or academic identity, which has been reported in other areas of the scholarly literature (e.g., Barr, 2007; Bailey & Wundersitz, 2019; Baumeister, 1997; Polivy et al., 2014; Stirratt et al., 2015). Future research may wish to include a more objective measure of behaviour rather than solely relying on self-reported perceptions of students' own behaviours.

Students reported experiencing many kinds of deadline policies in their courses (see [Table 1](#)), but when asked to select only one policy which best represented the most common policy they experienced in their courses, 37.78% ( $n = 17$ ) selected short-term flexibility with a penalty (e.g., 1-3 days late, 10% penalty per day), followed by rigid deadlines where no late submissions were accepted (15.56%,  $n = 7$ ).

[Table 2](#) shows the number of students who indicated each Likert-type response for how helpful each type of deadline would be for them. Although reported as the most frequently occurring (above), short-term extensions with a penalty were not perceived to be particularly helpful to students. Instead, students reported that earning a bonus point for meeting a deadline, an automatic short-term extension, or a long-term extension would be the most helpful. They also reported that it would be helpful to have extensions available, even if they have to ask for them, though, as Levitin (2019) and Whillans et al. (2022) have noted, not all students feel comfortable asking for an extension, so including these flexible deadlines also supports equity in the classroom (CAST, 2024). Although students report a preference for not imposing a penalty for late assignments, Korpusik et al. (2022) reported that students demonstrated the worst performance (i.e., grades) when it was available for a lab assignment, so future research should examine this possible downside of flexible deadlines in college students. Most students indicated that not having any deadlines until the end of the semester would not be at all helpful to their learning, which is supported by the literature. Miller and Schmidt (2021) found that having regular (weekly) deadlines resulted in positive outcomes for students by way of retention of information and demonstrated by better

**Table 1 Percent and raw number of students indicating that they had experienced each of the deadline policies.**

Policy	n	Percent
Short term extension with penalty	34	75.56
Hard/rigid deadlines (no late submissions accepted)	33	73.33
Must ask for an extension	25	55.56
Short term extension without penalty	26	57.78
Automatic short-term extension	19	42.22
Long-term extension without penalty	9	20.00
Long term extension without penalty	7	15.56
There are no due dates until the end of the semester	4	8.89
Bonus point if submitted on time	3	6.67

Note: As this was a multi-select question, students could select as many policies as they had experienced.

**Table 2 Frequencies for Likert-type responses of how beneficial/helpful each deadline policy is.**

Policy	1 (very helpful)	2	3	4	5 (not at all helpful)	Mean (SD)
Bonus point if submitted on time	27	12	3	2	1	1.62 (0.96)
Automatic short-term extension	25	12	7	0	1	1.67 (0.91)
Short term extension without penalty	23	12	7	1	2	1.88 (1.07)
Must ask for an extension	22	13	5	4	1	1.87 (1.08)
Long term extension without penalty	16	7	4	9	9	2.73 (1.60)
Hard/rigid deadlines (no late submissions accepted)	8	12	7	8	10	3.00 (1.45)
There are no due dates until the end of the semester	6	7	7	9	16	3.49 (1.46)
Long-term extension without penalty	5	15	8	8	9	3.02 (1.34)
Short term extension with penalty	1	17	10	8	9	3.16 (1.21)

Note: High scores (5) indicate a policy that is less helpful.

performance on an exam at the end of the semester. It's encouraging to note that students are self-aware enough to know that not having regular due dates to keep them on track would not help them be successful.

Of significant interest to us was students' perceptions of the effect that flexible deadline policies (broadly defined) would have on their lives. To this end, we asked about the various aspects of their wellbeing (see [Table 3](#)). In all cases, the majority of students strongly agreed that flexible deadline policies would have a positive impact on their wellbeing.

We also asked students about their perception of flexible deadlines as they related to the workplace and their teachers (see [Table 4](#)). Students were divided on the effects that flexible deadlines would have on their procrastination and whether allowing for flexible deadlines is disconnected from the realities of the workplace. Employees report that more than half of their work-related tasks have somewhat flexible deadlines but that employees (and particularly women) rarely ask for extensions for fear of being perceived as less competent, even if it is clear that the deadlines are flexible (Whillans et al., 2022). This likely manifests itself in our

**Table 3 Summary of respondent agreement with various statements related to wellbeing.**

Policy	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Flexible deadlines would improve my overall wellbeing	27 (60.00%)	9 (20.00%)	2 (4.4%)	7 (15.56%)	0
Flexible deadlines would help with my mental health challenges	26 (57.78%)	12 (26.67%)	2 (4.4%)	5 (11.11%)	0
Flexible deadlines would reduce the amount of stress I experience	28 (62.22%)	8 (17.78%)	4 (8.89%)	4 (8.89%)	1 (2.22%)
Flexible deadlines would allow me to improve my performance in the course	23 (51.11%)	10 (22.22%)	5 (11.11%)	5 (11.11%)	2 (4.44%)
Flexible deadlines would help me be successful even if I procrastinate	20 (44.44%)	7 (15.56%)	7 (15.56%)	10 (22.22%)	1 (2.22%)
Flexible deadlines would help me balance my workload across multiple courses	30 (66.67%)	9 (20.00%)	4 (8.89%)	2 (4.44%)	0
Flexible deadlines would make course work more equitable for all students	24 (53.33%)	9 (20.00%)	8 (17.78%)	3 (6.67%)	1 (2.22%)

Note: Both raw numbers (*n*) and percentages are reported.

classrooms in a similar way. It is possible that students' limited work experience (often in entry-level jobs) has coloured their perspective on workplace flexibility. Unlike Whillans et al. (2022), who included workers of all ages, our college student sample is primarily comprised of young adults who may have mainly experienced rigid deadlines (e.g., arriving on time for their shift). Future research should continue to explore the potential future impact of flexible deadlines in higher education on students' ultimate success in various workplaces.

There is also evidence that self-imposed deadlines encourage procrastination and that externally imposed deadlines help to reduce procrastination (Ariely & Wertenbroch, 2002). Additionally, in terms of the proportion of students who submit assignments, late policies do have an impact, with the highest submission rates being encountered when there is only a small allowed extension, but adding a penalty to the extension didn't increase submission rates and was no different than having a hard/rigid deadline with no late work accepted (Walsh, 2019). In terms of procrastination, Walsh (2019) found that when there was too much flexibility (allowing work to be submitted one week or more past the deadline), procrastination actually increased and led to even fewer submissions of assignments than if there had been a rigid due date. As others have also proposed, deadlines in the

"real world" are rarely as inflexible as rigid assignment deadlines are in a classroom (Green, 2017). As such, the argument that faculty sometimes put forward to support rigid deadlines (that they are preparing students for the hard deadlines of the working world) doesn't appear to be factual. Instead, providing less rigid deadlines might actually better help to support students in their future careers by allowing them to develop transferable skills like time management and metacognition.

Students disagreed that including flexible deadlines would reduce their development of time management skills because they would use them all the time. Additionally, students reported more positive perceptions of their teachers if they were to use flexible deadlines.

When asked how much the use of flexible deadlines would increase their overall satisfaction with a teacher, 44.44% said "a lot," 28.89% answered "somewhat," and 26.67% answered "no change." Importantly, no student indicated that a flexible deadline policy would decrease their satisfaction with a teacher.

When asked whether flexible deadlines would increase their overall satisfaction with a course, 55.56% said "a lot," and 28.89% answered "somewhat," while "no change" accounted

**Table 4 Respondent agreement with various statements related to perceptions of teachers and flexible deadlines.**

Policy	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I would submit work later if I was provided with flexible deadlines	9 (20.00%)	11 (24.44%)	9 (20.00%)	11 (24.44%)	5 (11.11%)
In the real world, many workplaces have flexible deadlines	5 (11.11%)	5 (11.11%)	14 (31.11%)	14 (31.11%)	7 (15.56%)
Because many real-world workplaces do not have flexible deadlines, allowing them in school sets an unrealistic expectation	7 (15.56%)	12 (26.67%)	8 (17.76%)	11 (24.44%)	7 (15.56%)
Flexible deadlines would cause me to procrastinate (or procrastinate more)	8 (17.76%)	11 (24.44%)	13 (28.89%)	8 (17.76%)	5 (11.11%)
If I was provided with a flexible deadline, I would still wait until the last minute to complete my work	4 (8.89%)	11 (24.44%)	8 (17.76%)	14 (31.11%)	8 (17.76%)
I would use flexible deadlines all the time, so I wouldn't learn time management skills	6 (13.33%)	5 (11.11%)	8 (17.76%)	16 (35.56%)	10 (22.22%)
A teacher with flexible deadlines is nicer	12 (26.67%)	16 (35.56%)	12 (26.67%)	4 (8.89%)	1 (2.22%)
A teacher with flexible deadlines cares more about my academic success	15 (33.33%)	16 (35.56%)	8 (17.76%)	4 (8.89%)	2 (4.44%)
A teacher with flexible deadlines cares more about me	13 (28.89%)	11 (24.44%)	12 (26.67%)	7 (15.56%)	2 (4.44%)

Note: Both raw numbers (*n*) and percentages are reported.

for 11.11% of responses, and 4.4% of students indicated that their course satisfaction would actually decrease if flexible deadlines were part of the course.

Finally, to help summarize their views on flexible deadlines, we asked students if they had to choose only one policy related to deadlines which would be applied to all of their courses, which one policy they would choose. Table 5 shows their responses. It appears that students would prefer a bonus for submitting their work on time, followed by a short-term no-penalty extension. The preference for a bonus/reward for on-time submissions was somewhat surprising, but others have reported similar positive student perceptions toward this policy (e.g., Becker, 2006; Korpusik et al., 2022). It is possible that, in line with the predictions of Kahneman and Tversky's (1979) prospect theory, students are interpreting these flexible deadlines to minimize losses (penalties) and maximize gains (bonus point). In this way, they are weighing their flexible deadline choices to avoid the risk of a loss and

placing greater value on the potential gain afforded by the bonus point. Alternatively, students may have been comparing the example on the survey itself in terms of absolute value (1 point as a bonus versus a 10-point reduction as a penalty). Future studies may be able to tease apart this finding by testing a number of different variations on bonuses for on-time submissions and penalties for late submissions, including framing the policy in a loss-aversion versus benefit-gained description to see why students seem to prefer bonuses over penalties (and whether that remains the case in these various manipulations).

### Impact and Conclusion

Overall, students seemed to agree that flexible deadline policies are beneficial to their learning, wellbeing, and result in more positive perceptions of their teachers.

One limitation of the present study is that it was an online survey which asked students about their perceptions,

**Table 5 Summary of students who selected each policy as their preferred policy to be used in all of their courses.**

Policy	n	Percent
Bonus if submitted on time (example: 1% bonus)	17	37.78
Short term no penalty (example: 1-3 days late, no marks lost)	9	20.00
Automatic short term extension (example: due Friday, but can submit until Sunday with no penalty)	6	13.33
Must ask for an extension before the due date but it will probably be granted	4	8.89
There are no due dates until the end of the course	4	8.89
Short term with penalty (example: 1-3 days late, 10% penalty per day)	2	4.44
Hard/rigid deadline (no late submissions accepted)	1	2.22
Long term no penalty (example: 4-10 days late, no penalty)	1	2.22
Long term with penalty (example: after 4 days late, penalty is 10% per day)	1	2.22

Note: Both raw numbers (*n*) and percentages are reported.

which can sometimes be biased, particularly if tied to an emotionally salient memory (Kensinger, 2007; Tversky & Kahneman, 1973). However, self-report data are widely used and do tend to be relatively accurate (Baldwin, 2000; Chan, 2009). Future research should gather data in multiple ways to provide convergence on the findings presented here. Additionally, it's unclear whether these policies would actually result in improved performance and/or wellbeing for students. An experimental manipulation of multiple types of flexible deadlines might help to tease apart whether any such benefits would manifest.

In addition to what has been discussed thus far, there are certainly many additional interesting opportunities for future studies to build on the present data. For example, expanding our sample to include students from various types of academic programs (particularly highly competitive and/or rigorous ones) to see whether their perceptions differ from what has been reported here. Similarly, students with greater time constraints (e.g., mature learners or those balancing heavy work and/or family obligations) might prefer more flexible deadlines due to these constraints. Despite these limitations, this descriptive study suggests that college students do perceive flexible deadlines in a positive way for their own wellbeing and learning success, as well as having a positive impact on their perception of teachers and courses. As such, faculty who use hard/rigid deadlines should consider adopting one or more of the flexible deadline options which

better align with UDL, equity and learner needs, and which may better support students in their learning.

### Conflict of Interest

The authors have no conflicts of interest to declare.

### Note on Contributor

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## Appendix A- Survey Questions

1. **Gender: man, woman, non-binary, other, prefer not to answer**
2. **Age (textbox)**
3. **Are you an international student?**
  - Yes
  - No
  - Prefer not to answer
4. **Please select the academic Faculty of the program you are currently studying:**
  - Science, Engineering & Information Technology
  - Business
  - Liberal Studies
  - Professional & Part-Time Learning
  - Social and Community Services
  - Health Sciences
  - Media, Art & Design
  - Skilled Trades & Apprenticeship
  - Hospitality & Horticultural Sciences
  - Unsure
  - Prefer not to answer
5. **Do you have any childcare responsibilities? This could be your own children, younger siblings, etc.**
  - Yes
  - No
6. **Did you have an Individualized Educational Plan (IEP) in high school?**
  - Yes
  - No
  - Unsure
  - Prefer not to answer
7. **Are you registered for accommodations with the Access and Support Centre (ASC)?**
  - Yes
  - No
  - Unsure
  - Prefer not to answer
  - **If yes 7b:** Does your Access Plan include being able to negotiate flexible deadlines/extensions with faculty? (Yes/No/Unsure/Prefer not to answer)

8. Suppose you have an assignment due on Friday at 11:59pm. When do you typically COMPLETE your assignment?

- Earlier than 2 days before the deadline
- A day or two before the deadline
- The same day as the deadline but many hours before
- Just before the deadline (after 11pm)
- At the very last minute
- A little bit after the deadline (a little after midnight)
- Within the first 24 hours after the deadline (sometime on Saturday)
- Right before any extended deadline (example: penalty of 10% per day for 3 days, so you would complete it on Monday)

9. Suppose you have an assignment due on Friday at 11:59pm. When do you typically SUBMIT your assignment?

- Earlier than 2 days before the deadline
- A day or two before the deadline
- The same day as the deadline but many hours before
- Just before the deadline (after 11pm)
- At the very last minute
- A little bit after the deadline (a little after midnight)
- Within the first 24 hours after the deadline (sometime on Saturday)
- Right before any extended deadline (example: penalty of 10% per day for 3 days, so you would submit it on Monday)

10. Which of the following due date policies have your teachers used? Select ALL policies that you have seen within your college classes. IF YOU HAVE AN ACCOMMODATION FOR FLEXIBLE DEADLINES, PLEASE THINK OF THE COURSE POLICIES AND NOT YOUR INDIVIDUAL ACCOMMODATION.

- Hard/rigid deadline (no late submissions accepted)
- Bonus if submitted on time (example: 1% bonus)
- Short term no penalty (example: 1-3 days late, no marks lost)
- Short term with penalty (example: 1-3 days late, 10% penalty per day)
- Long term no penalty (example: 4-10 days late, no penalty)
- Long term with penalty (example: after 4 days late, penalty is 10% per day)
- Automatic short term extension (example: due on Friday, but you can submit until Sunday with no

penalty and you don't have to ask teacher)

- Must ask for an extension but it will probably be granted (example: emailing your teacher on a Thursday and ask if you can submit it 48 hours late)
- There are no due dates until the end of the course
- Other (please specify)

11. Which of these is the one due date policy you saw the most? Select the ONE that has been used the most within your college classes. IF YOU HAVE AN ACCOMMODATION FOR FLEXIBLE DEADLINES, PLEASE THINK OF THE COURSE POLICIES AND NOT YOUR INDIVIDUAL ACCOMMODATION.

- Hard/rigid deadline (no late submissions accepted)
- Bonus if submitted on time (example: 1% bonus)
- Short term no penalty (example: 1-3 days late, no marks lost)
- Short term with penalty (example: 1-3 days late, 10% penalty per day)
- Long term no penalty (example: 4-10 days late, no penalty)
- Long term with penalty (example: after 4 days late, penalty is 10% per day)
- Automatic short term extension (example: due on Friday, but you can submit until Sunday with no penalty and you don't have to ask teacher)
- Must ask for an extension but it will probably be granted (example: emailing your teacher on a Thursday and ask if you can submit it 48 hours late)
- There are no due dates until the end of the course
- Other (please specify)

**Instructions:** Please choose your level of agreement with each of the following statements. We are interested in what you think, whether or not you have experienced flexible deadlines. For these questions, the term "flexible deadlines" refers to any due date which is not a hard/rigid deadline where no late submissions are accepted.

12. Flexible deadlines would improve my overall wellbeing.

- Strongly Agree
- Agree
- Neither Agree nor Disagree
- Disagree
- Strongly Disagree

*Survey questions continued to next page...*

13. Flexible deadlines would help with my mental health challenges.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
14. Flexible deadlines would reduce the amount of stress I experience.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
15. Flexible deadlines would allow me to improve my work/performance in the course.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
16. Flexible deadlines would help me be successful even if I procrastinate.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
17. Flexible deadlines would help me balance my workload across multiple courses.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
18. Flexible deadlines would make course work more equitable for all students.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
19. I would submit work later if I was provided with flexible deadlines.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
20. In the real world, many workplaces have flexible deadlines.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
21. Because many real world workplaces do not have flexible deadlines, allowing them in school sets an unrealistic expectation.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
22. A teacher with flexible deadlines is nicer.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
23. A teacher with flexible deadlines cares more about my academic success.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
24. A teacher with flexible deadlines cares more about me.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree

25. Flexible deadlines would cause me to procrastinate (or procrastinate more).
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
26. If I was provided with a flexible deadline I would still wait until the last minute to complete my work.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
27. I would use flexible deadlines all the time, so I would not learn time management skills.
- Strongly Agree
  - Agree
  - Neither Agree nor Disagree
  - Disagree
  - Strongly Disagree
28. Please indicate how helpful/beneficial each of the flexible deadline policy would be for you (1- VERY helpful/beneficial for my success) to 5 (NOT AT ALL helpful to my success)
- Hard/rigid deadline (no late submissions accepted)
  - Bonus if submitted on time (example: 1% bonus)
  - Short term no penalty (example: 1-3 days late, no marks lost)
  - Short term with penalty (example: 1-3 days late, 10% penalty per day)
  - Long term no penalty (example: 4-10 days late, no penalty)
  - Long term with penalty (example: after 4 days late, penalty is 10% per day)
  - Automatic short term extension (example: due on Friday, but you can submit until Sunday with no penalty and you don't have to ask teacher)
  - Must ask for an extension but it will probably be granted (example: emailing your teacher on a Thursday and ask if you can submit it 48 hours late)
  - There are no due dates until the end of the course
29. If you could choose ONLY ONE, which due date policy would you prefer to see in all of your classes?
- Hard/rigid deadline (no late submissions accepted)
  - Bonus if submitted on time (example: 1% bonus)
  - Short term no penalty (example: 1-3 days late, no marks lost)
  - Short term with penalty (example: 1-3 days late, 10% penalty per day)
  - Long term no penalty (example: 4-10 days late, no penalty)
  - Long term with penalty (example: after 4 days late, penalty is 10% per day)
  - Automatic short term extension (example: due on Friday, but you can submit until Sunday with no penalty and you don't have to ask teacher)
  - Must ask for an extension but it will probably be granted (example: emailing your teacher on a Thursday and ask if you can submit it 48 hours late)
  - There are no due dates until the end of the course
30. Flexible deadlines would increase my overall satisfaction with a course.
- A lot
  - Somewhat
  - No change
  - My overall course satisfaction would decrease
31. Flexible deadlines would increase my overall satisfaction with a teacher.
- A lot
  - Somewhat
  - No change
  - My overall teacher satisfaction would decrease

# Examining Confidence Accuracy, Observation Skills, And The Dunning Kruger Effect: A Simulation Study On Eyewitness Memory

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\***Original Research Papers** are papers that report on original empirical research with a focus on teaching and learning. Papers may be qualitative or quantitative and include an Abstract, Introduction, Method, Results, Discussion, and Reference section, as well as any tables and/or figures.

## Abstract

Using a quantitative approach, this study examines the confidence accuracy relationship of eyewitness memory and observation skills and explores the relationship between self-perception and accuracy (The Dunning Kruger Effect). The present study has three purposes. The first purpose is to highlight the importance of understanding one's limitations and self-assessment abilities to ensure effective training and preparedness for high-stress situations of a police officer. The second purpose is to show that eyewitness memory accounts in consequential settings such as court should not rely on confidence as an indicator of accuracy. The third purpose is to show that eyewitness accounts of police officers are not always more correct than those of civilians. Using Humber College's Conflict Resolution FAAC Digital Simulator, 18 subjects (17 students and 1 police officer) were assigned to take part in a virtual, pre-recorded simulation experiment. Participants' confidence in observation skills and their eyewitness memory abilities were assessed. Results found no correlation between confidence and accuracy in eyewitness memory, though it revealed that people can be extremely confident in their wrong answers, demonstrating that confidence is not always a good indicator of accuracy. Despite assumptions that police officers make better eyewitnesses, findings include that there was no significant difference in memory abilities between the police officer and Humber students.

## Introduction

Confidence is defined as "The act of confiding, trusting, or putting faith in; trust reliance; belief" (Adams, 2005). One's confidence is often assumed to be an indicator of their accuracy, but is it dependable? Human judgement is susceptible to biases, including overconfidence bias, where individuals tend to be overly confident in the accuracy of their beliefs. This bias occurs when individuals have unwarranted confidence in the accuracy of their beliefs, leading them to trust their memory even when it is flawed or incomplete. This is also known as the Dunning Kruger Effect. That is, high confidence does not necessarily correspond to high accuracy, and vice versa. In fact, individuals who are highly confident in their

memories may sometimes be less correct than those who are less confident (Schlösser et al., 2013; Kruger & Dunning, 1999; Muller, Sirianni & Addante, 2021; Zhou & Jenkins, 2020). The present study aims to show a need for new police recruits to understand their own strengths, weaknesses, abilities, and limitations to focus their training efforts where they need improvement. By doing so, training resources are used efficiently and effectively. This study also illustrates that confidence and accuracy are not always related and shows that eyewitness accounts of police officers are not always more dependable than those of civilians, which brings up the question of whether the accounts of police officers should be given more weight.

## Literature Review

Police officers are tasked with various duties that rely on observation and eyewitness memory—administering line-ups, making arrests, writing notes, and reports, which are all often used as evidence in court (Odinot & Wolters, 2006). Wise, Sartori, Magnussen, & Safer (2014) claim that one of the leading causes of wrongful convictions is eyewitness error. Are reports by police officers more complete and/ or more correct than reports by civilians? Are police officers better eyewitnesses? It has been shown that prominent levels of stress during an incident can impair the memory ability of both police officers and civilians alike (Vredeveldt & van Koppen, 2016; Christianson, 1992). Further, it is known that police officers have the same visual abilities as any other people, yet their words are weighted much heavier in consequential settings such as court. A study conducted by Benton, Ross, Thomas & Bradshaw (2006) compared jurors, judges, and law enforcement on their understanding and trust in their eyewitness memory to experts of eyewitnesses. When evaluated on their memory, none of these groups performed better than the others. It can be assumed by most that police officers make better eyewitnesses because they are ‘trained observers’ (DeCarlo, 2010). Results of a 2017 study by Vredeveldt, Knol, & Koppen tell us that the eyewitness memory reports of police officers are far more correct than civilians. Further, detectives provided the most correct and complete recall of information. As this study suggests, one of the explanations for this is that level of experience and training play a role in eyewitness memory ability. DeCarlo (2010) rejects the belief that police officers are “trained observers” and claims that this claim is generally false. Research studying change blindness found that law enforcement and students did not differ in their rates of

noticing change (Smart, Berry & Rodriguez, 2014). Legal decision-makers tend to believe that eyewitnesses are dependable if they have a high confidence level, such as a police officer would but this is not always true (Spearing & Wade, 2022). Within the past two decades, extensive research has been conducted on the relationship between confidence accuracy and eyewitness memory. A study done by Perfect, Watson & Wagstaff (1993) compared the results of performance on general knowledge and eyewitness memory. It was found that a confidence-accuracy (C-A) relation was dependable in general knowledge but not eyewitness memory. There are many hypotheses around why this is, one being that individuals lack knowledge of how good they are at a particular skill, affecting how confident they are (Perfect, 2004). In contrast, new research shows that high confidence is a good indicator of accuracy. According to Spearing and Kimberley’s (2022) analysis of earlier research on line-up identification, those with prominent levels of confidence typically had higher accuracy rates.

Research on the Dunning Kruger Effect has shown that low-ranking performers are often unable to accurately self-assess their performance level, as individuals will perceive that their results are substantially better than they are. Studies that aim to assess the Dunning Kruger Effect show that participants who landed in the bottom quartile of performance are seen to overestimate their abilities significantly. In contrast, performers in the highest-performing quartile were found to have only minimally underestimated their abilities (Muller, Sirianni & Addante, 2021). In contrast, Krajč and Ortmann (2008) suggest that there is no significant difference in the abilities of low-ranking performers versus high-ranking performers in terms of the ability to self-assess. These findings suggest that a certain degree of metacognitive skill is crucial in self-assessment. Dunning (2011) calls this “meta ignorance” or “ignorance of ignorance.” Further, Dunning (2011) describes the effect as a “double burden”: the same deficiencies that lead someone to make mistakes also prevent them from recognizing them as well. The research highlights the intriguing notion that incompetence can breed overconfidence, while competence can lead to self-doubt.

## Methodology

This present study was conducted in Humber College’s Sim Lab, using a MILO Range Equipment simulator. This is a 180-degree conflict resolution simulator that uses a curved screen 193 cm high and 305 cm wide. Participants were

acting as police officers on duty and told to de-escalate the situation. Participants wore a realistic duty belt that held an IR-laser-fitted training handgun to mimic a police officer's tool belt. At only 60 seconds long, the simulation was of an adult male standing in the middle of a suburban road with five other people in the area and two cars that drove past him. He was uncooperative and displayed behavioural issues, all while being armed with a large knife. As it is a pre-recorded simulation, the scenario played out the exact same way for each participant, regardless of their actions. This means that the on-screen individual ran toward the participant with his knife at the end of the simulation every time, no matter how they interacted with the simulation. The use of the Sim Lab was vital in the creation of a realistic environment in which to run this experiment. Being able to create a safe but realistic, high-stress environment allowed for a more accurate and realistic experiment to be run.

18 Participants took part in the experiment: 1 Police officer, 8 Humber College Police Foundations students (PFP), 6 Humber College Criminal Justice students (CJ) and 3 Humber College Music Students (BM). Prior to engaging in the simulation, participants were told that the experiment was based on verbal de-escalation strategies. All participants were given a survey to rate their confidence in their abilities in eyewitness memory and verbal de-escalation skills on a scale of 1-4 (1 being not confident in their abilities, 4 being extremely confident in their abilities). After completing the simulation, participants were told of the real nature of the study when another survey was given, asking about confidence levels of their eyewitness memory and observation skill abilities on a scale of 1-4 (1 being not confident in their abilities, 4 being extremely confident in their abilities) and 8 open-answer questions testing their eyewitness memory (e.g. how many cars passed by you?). In addition to asking for their overall confidence level before and after the simulation, each open-answer question asked for the participants' confidence in that specific answer.

The written surveys were developed by our team for this experiment. The Riker Scale used to assess confidence was taken from a 2016 study titled "Academic Integrity: The Fool's Dilemma" by Qaderi, Alexandre & Thomson. When being analyzed, the eight open-answer questions were classified as either correct or incorrect. These scores were then tallied, which presented a score out of eight for each participant. The correct answer scores were then compared to the pre-

and post-confidence levels of each participant to run the correlation analysis.

**Example of how the pre- and post-confidence levels of each participant were compared for the correlation analysis**

Participant #	Number of correct answers	Post-confidence	Pre-confidence
6	3	4	3
16	7	2	3

For information related to this equipment, please visit <https://www.faac.com/milo/virtual/accessories/>

**Results & Analysis**  
**Pre-Confidence (The Dunning Kruger Effect)**

An important part of this study is looking at the relationship between pre-confidence levels and performance. As mentioned earlier, participants were asked to rank their confidence in their eyewitness memory abilities prior to the experiment and after the experiment on a scale of 1-4 (1 being not confident, 2 being somewhat confident, 3 being confident, and 4 being very confident). Correlations were run on the confidence and accuracy level. However, due to the small sample size, this was not as significant as hoped.

Employing a quantitative approach, the present study can show the Dunning Kruger Effect. To begin, Participant 17 (P-17) rated themselves as extremely confident (4/4) in the pre-survey, yet they only got 3/8 correct answers in the post survey. In contrast, P-5, P-16, and P-2 rated themselves as only somewhat confident in the pre-survey (3/4) while scoring 7/8 correct answers in the post survey. This is noteworthy as it shows that not only did P-17 not receive the highest number of correct answers, but P-17 also believed that they were going to achieve more correct responses than the others did (with a prominent level of confidence). In contrast, P-5 and P-16 received more correct answers, with a lower level of pre-confidence. Overall, there was a weak positive correlation of 0.21 between confidence and accuracy. With a larger sample size, this result may be more reflective of the Dunning Kruger Effect.

There was quite a notable difference in the averages of pre-confidence among programs. It was found that Police

Foundations students were the most confident in their eyewitness memory abilities going into the experiment, with an average pre-confidence of 3.25/4. In contrast, the average pre-confidence of CJ students was 2.83/4, and the average pre-confidence of music students was 2.33/4. As the Dunning Kruger Effect predicts, the police officer had less pre-confidence than the average confidence of all PFP students, showing that the skilled/experienced are more aware of their abilities than the unskilled/inexperienced. See [Figure 1](#).

### Confidence-Accuracy Relationship

The second main goal of the present study was to examine the confidence accuracy relationship of eyewitness memory. To do this, a graph was created, which showed the number of correct responses and post-confidence levels of each participant. The graph was then sorted by the sum of correct responses, from left to right. Results showed that there is no linear correlation between post-confidence and the number of correct responses (accuracy). P-16 rated themselves a level 2/4 confident and received 7 correct responses. In contrast, both P-15 and P-17 rated themselves with a 3/4 level of confidence and received only 3 correct responses. See [Figure 2](#).

One of the post-survey's written answer questions relating to eyewitness memory asked the participants to recall what the dog on the left side of the screen looked like. This question was a trick question, as there was no dog present in the simulation. A total of 6 participants claimed they saw a dog (33%), with 3 of them claiming this with either a level of 3/4 or 4/4 confidence. A few written answers include "large brown dog," "a lab," "small of age, light brown," "small grey," "medium size," and "small grey fur." See [Table 1](#).

The minimum, maximum, and average number of correct responses between those who had high post-confidence and those who had low post-confidence were compared. Those who rated themselves either 1 or 2 out of 4 were grouped together as low confidence and those who rated themselves as 3 or 4 out of 4 were grouped together as high confidence. We found that the maximum and minimum numbers of correct responses were the same for both groups. The average of the high and low confidence scores varied by only 0.7. Those with high post-confidence had an average score of 5.2, while those with low post-confidence had an average of 4.5.

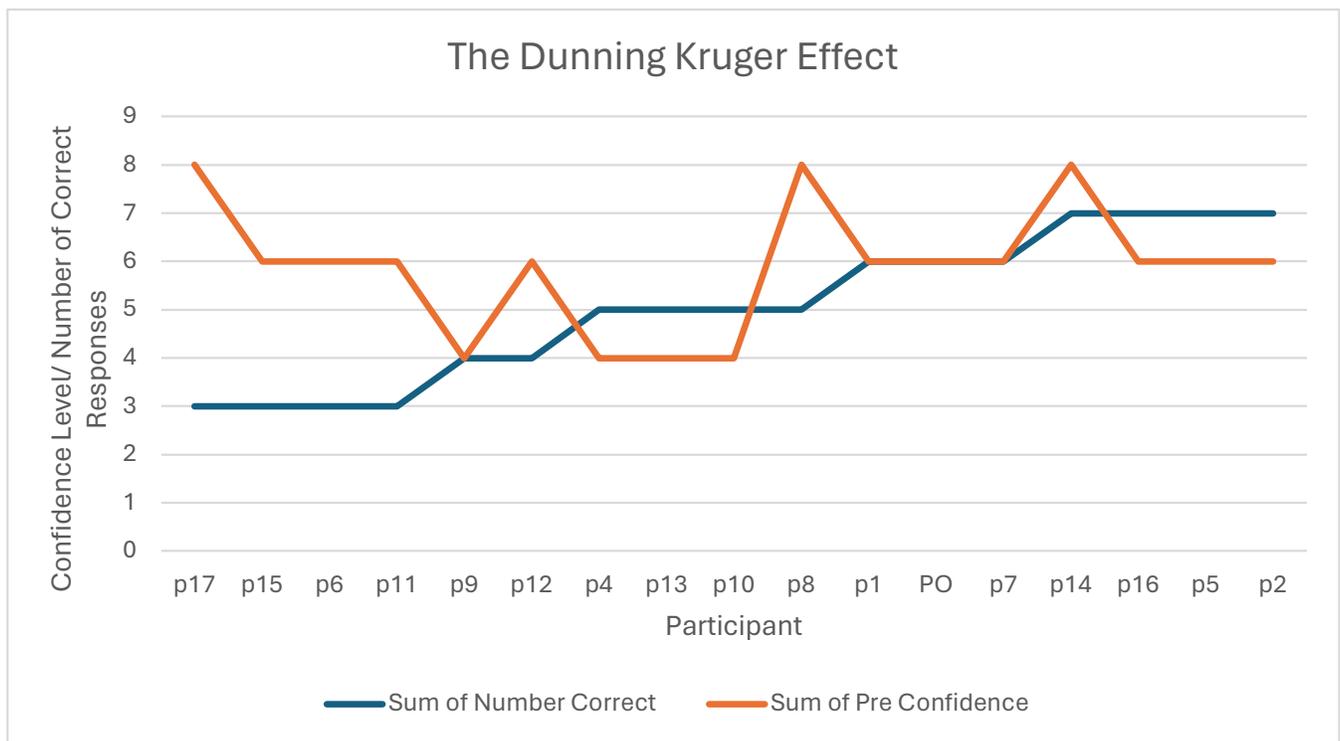


Figure 1. The Dunning Kruger Effect

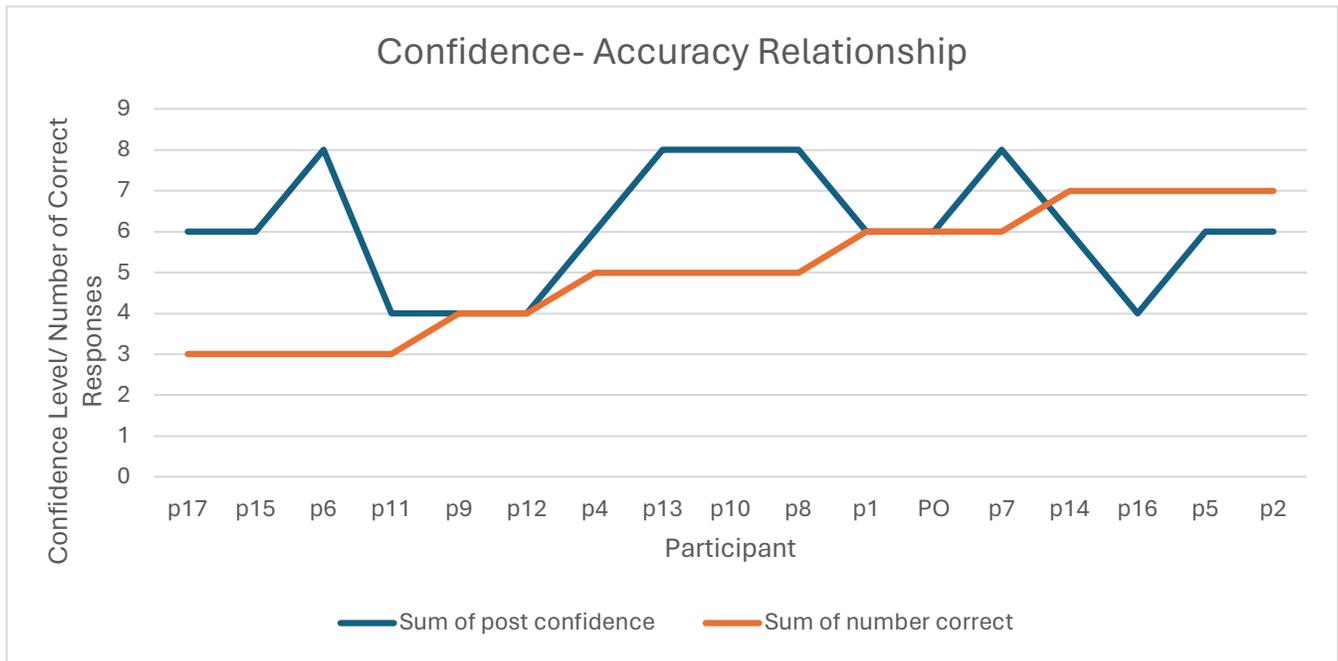


Figure 2. Confidence-Accuracy Relationship

**Table 1. Results of question “What did the dog on the left look like?”**

Participant #	Answer to Q: “What did the dog on the left look like?”	Confidence level in their answer
2	Large brown dog	1
4	A lab	1
8	Small of age, light brown	4
10	Small, grey fur	2
12	Small grey	3
14	Medium size	3

## Discussion

In conclusion, results showed that confidence accuracy has no correlation to eyewitness memory or observation skills. However, results showed that people can be extremely confident in their inadequate abilities, showing that confidence is not always a good indicator of accuracy. As mentioned by DeCarlo (2010), it can be assumed by most that police officers make better eyewitnesses because they are “trained observers.” But, contrasting results were found. The results found that the police officer did not have more correct responses than all students; four students had seven correct responses, while the officer had six. So, how do Humber College students’ observation skills and eyewitness memory differ from police officers according to their

confidence level and accuracy? The answer is short. Police officers’ and students’ eyewitness memory abilities and observation skills do not differ significantly, even though their eyewitness accounts in court are often weighed differently. One of the main purposes of this study was to show that new police officers need to understand their own limitations of ability to ensure effective training and preparedness for high-stress situations of a police officer. As the present study shows, people often have little insight into their abilities. This inability to assess one’s own limitations may have detrimental effects on confidence when entering a high-stress scene. This is particularly important for eyewitness testimony and the criminal justice system.

## Limitations

One significant limitation of the current study was the small sample size, which may compromise the reliability and generalizability of the presented results. A small sample size may not accurately represent the population being studied. As a result, future studies with larger and more representative samples are needed to confirm and generalize these findings. Due to the time constraint of the research, the present study also recognizes its limited access to data, one being that only one police officer took part.

## Future Recommendations

Findings from this study may provide future researchers with a framework for the evaluation of self-assessment of eyewitness memory abilities for police officers. As the literature around eyewitness error shows, people often assume eyewitness accounts of police officers are more correct than those of civilians. There is a strong need for police departments to consider how new recruits are trained, to make sure they are aware of their own abilities and limitations. This way, they can be more prepared to manage high-stress and fast-paced situations effectively. Having little insight into their own abilities may have detrimental effects on confidence when entering a high-stress scene. Future research can look at evaluating the effectiveness of training methods and experience, as well as accuracy and confidence of recall, to help better understand what works best for training new recruits and how to improve their skills over time. The more research is conducted in this field, the higher the potential of improving these skills. The recommendation includes creating better training programs that not only build technical skills but also strengthen cognitive and emotional readiness. This can help recruits provide more reliable eyewitness accounts in real-life situations, leading to more effective policing and fairer court hearings.

## Conclusion

This study highlights the importance of further understanding the roles of eyewitness memory and self-perception in individuals entrusted with making high-stakes observations. People often lack insight into their own abilities, which can lead to overconfidence in challenging situations. The findings underscore the need for a more detailed approach to assessing one's limitations and self-assessment abilities. Importantly, the study challenges the assumption that eyewitness accounts of police officers are always more correct than those of civilians. This suggests that we must

carefully consider how we evaluate the effectiveness of training methods and experience, as well as the accuracy and confidence of memory. By establishing this framework, we can implement better training practices for new recruits and continuously improve their skills over time.

## Acknowledgments

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## Conflict of Interest

The authors have no conflicts of interest to declare.

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# Equity and Health in Youth Sports

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\***Original Research Papers** are papers that report on original empirical research with a focus on teaching and learning. Papers may be qualitative or quantitative and include an Abstract, Introduction, Method, Results, Discussion, and Reference section, as well as any tables and/or figures.

## Abstract

This study explores the significance of youth sports and highlights its multifaceted importance for today's children as well as the next generations. This report will start by examining the economic shifts for families across southern Ontario who want to be able to provide their children with the opportunity to play sports. The rising cost associated with youth sports poses challenges for families, from expensive equipment to travel expenses to coaching fees and the financial burden it has on many families who want to provide their children with the opportunity to play sports. Addressing the economic barriers in youth sports will ensure that all children in Ontario will have equitable access to the benefits that organized sports offer. Following this section, we continue to examine the importance of both physical and mental health among children and the challenges children face. Regular participation in sports enhances cardiovascular health, builds muscular strength, and improves overall physical health. Through many studies provided below, we will also highlight the importance of youth mental and physical health. Lastly, this report will highlight the next steps and recommendations regarding the current subsidy programs that are offered throughout some municipalities. We will compare the current programs they offer families and suggest changes to the current plan. In conclusion, youth sports are crucial for the holistic development of children. Therefore, communities, policymakers, educators and government officials must prioritize and support youth programs to ensure the well-being and future success of youth. In examining the rising affordability and accessibility challenges of sports in Ontario, this report explores how it's now viewed as a luxury rather than a necessity despite its critical role in promoting physical and mental well-being. Recognizing the pivotal role of sports as determinants of health, this report will underscore the essential linkage between youth sports, children's health, and overall prosperity.

## Introduction Project Scope

The purpose of this project is to inspire positive change in the communities that we are focusing on in Southern Ontario. The regions we are targeting are

Peel, York, Toronto, and Simcoe; the five sports we are aiming at are soccer, basketball, learn-to-skate/hockey, aquatics, and accessible sports. As a group, we want to create a meaningful impact for our representatives of each municipality to help work towards solutions in the community, with adjustments to policies, budgets, and funding. Our objectives are simple: we have set out to break the norm and create change to allow more youth the opportunity to play community-level sports and identify what areas need more support and change. The two questions we are asking everyone are, **Is Youth Sports a Necessity or a Luxury?** and **Why is Youth Sports important?**

## Methodology

Through our utilization of specific methods and gathering both qualitative and quantitative data, we analyzed and interpreted our findings/results, which aided us in making concrete conclusions based on our hypothesis. Within our research of qualitative data, we conducted a literature review and analyzed many articles and studies pertaining to our topic to see if there is a correlation between youth sports. To gather our quantitative data, we conducted interviews with city officials and community centre members within our targeted regions/municipalities with specific questions pertaining to the necessity of youth sports that will establish conclusive evidence, either supporting or rejecting our hypothesis. Our sample size includes individuals aged 4 to 18 from the four regions in the designated sports we discuss in this report. From this analysis, we had a better understanding of the overall information on youth sports.

## Economic shifts in youth sports

Youth sports participation is a pressing issue, with many children lacking access and funds to join programs, rendering them unable to benefit from municipal recreational services. In today's economy, essential goods take precedence over recreational activities, excluding youth from sports opportunities. Our research in Toronto, York, and Peel highlights why youth sports are viewed as a luxury rather than a necessity.

We first investigated inflation rates in Canada, analyzing the Consumer Price Index (CPI) to understand the rising costs of essential goods and services. In 2023, the CPI saw a 3.9% annual increase, surpassing the 6.8% peak in 2022. Factors such as the COVID-19 pandemic, housing market inflation, and geopolitical instability contributed to this rise, impacting

consumer behaviour and creating economic challenges (Government of Canada, "The Daily – Consumer Price Index: Annual Review, 2023").

Additionally, we explored the growing provincial and federal net debt, which nearly doubled from \$1.18 trillion in 2007/08 to a projected \$2.18 trillion in 2023/24 (Fraser Institute, 2024). Provincially, Ontario's residences are second to Newfoundland & Labrador in having the highest combined debt per person with approximately \$61,000 (Fraser Institute, 2024). This amount of debt, coupled with financial anxiety among Canadians, especially lower-income individuals, exacerbates the challenge of affording youth sports.

Our research revealed that average and median household salaries in Ontario (See [Figure 1](#)) fall short of covering average annual expenditures, estimated at \$97,000 (See [Figure 2](#)). When factoring in additional costs for recreation services and equipment, households face a deficit of \$2,000 to \$18,600, making it difficult to enroll children in sports programs (See [Figure 3](#)). Moreover, housing market prices and rental rates within the GTA present significant barriers for families. Sales prices for houses and condos range from \$726,000 to \$1,400,000 (See [Figure 4](#)), while rent rates stand at \$2,755 to \$3,329 (See [Figure 5](#)).

Our economic analysis underscores the widening gap between household finances and the cost of living, making youth sports unattainable for many families. An "Economic Budget" was created to explain the current financial crisis that households are currently facing (See [Table 1](#)). This shifting economic landscape necessitates a re-evaluation of funding allocations and program structures to ensure equitable access and sustainable participation opportunities for youth sports.

To address these challenges, we examined pricing structures, availability, and accessibility of five targeted sports across Toronto, York, and Peel. Through continuous evaluation and adaptation, we aim to balance affordability and inclusivity in youth sports programs, ensuring all children have access to recreational opportunities.

Engaging children in sports from a young age is a fantastic way to promote physical activity, teamwork, and discipline. Various sports cater to different interests and skill levels,

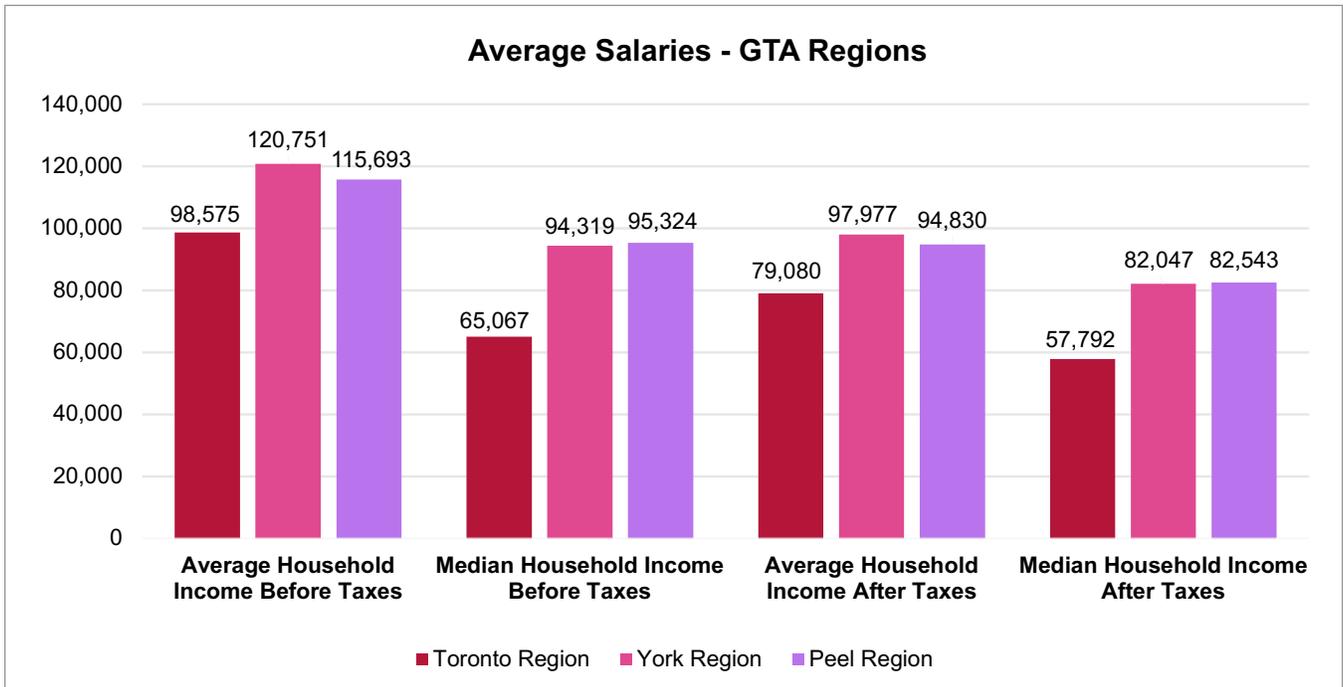


Figure 1. Average and median household salaries in Ontario

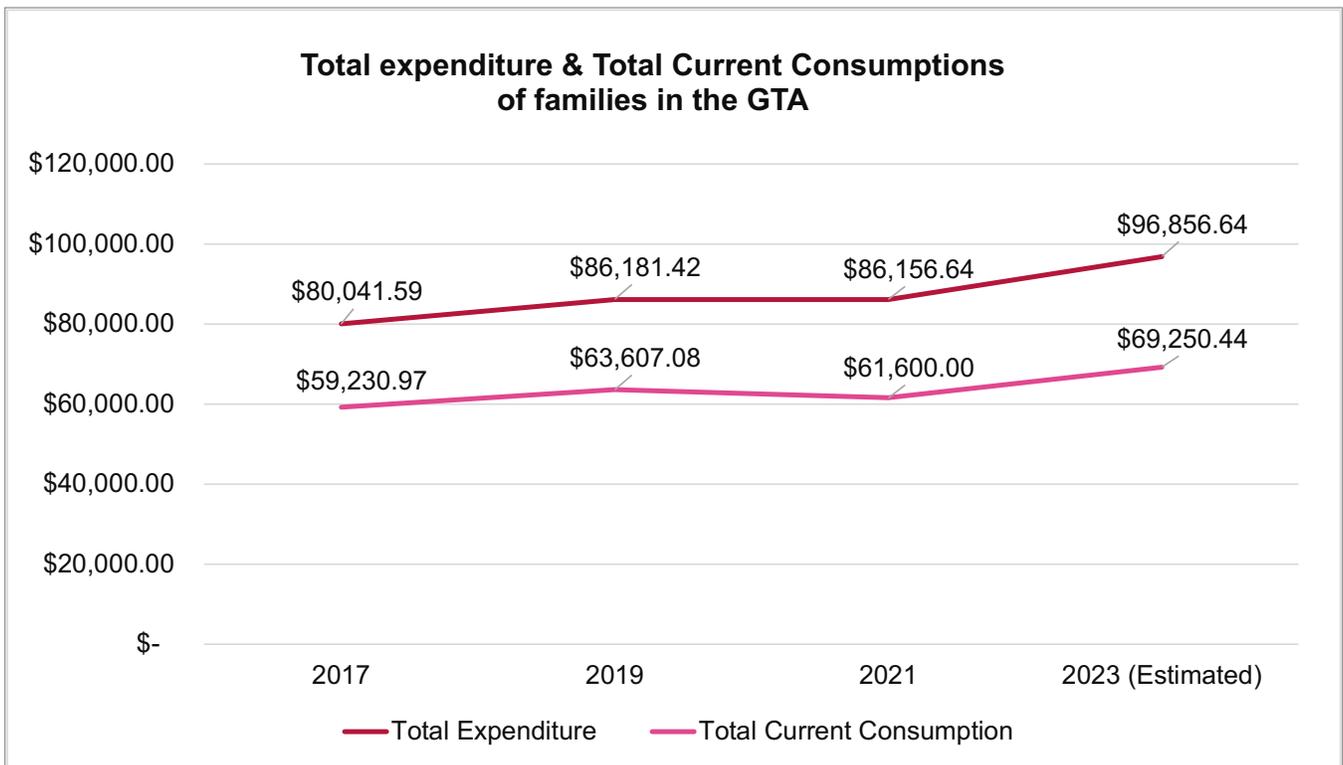


Figure 2. Total expenditure & Total Current Consumptions of families in the GTA. Created by the author, data pulled from Statistics Canada

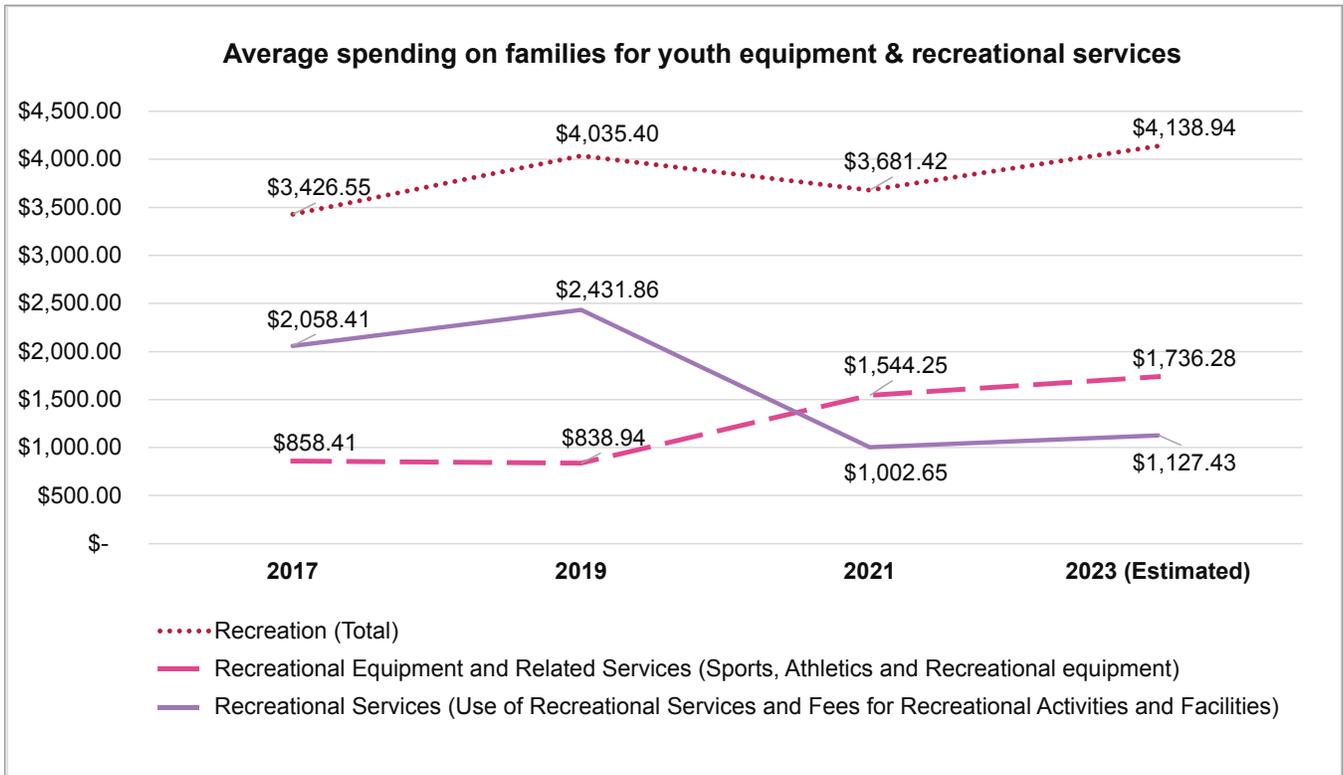


Figure 3: Average spending on families for youth equipment & recreational services. Created by the author, data pulled from Statistics Canada  
 \*\*Specifically recreation section\*\*

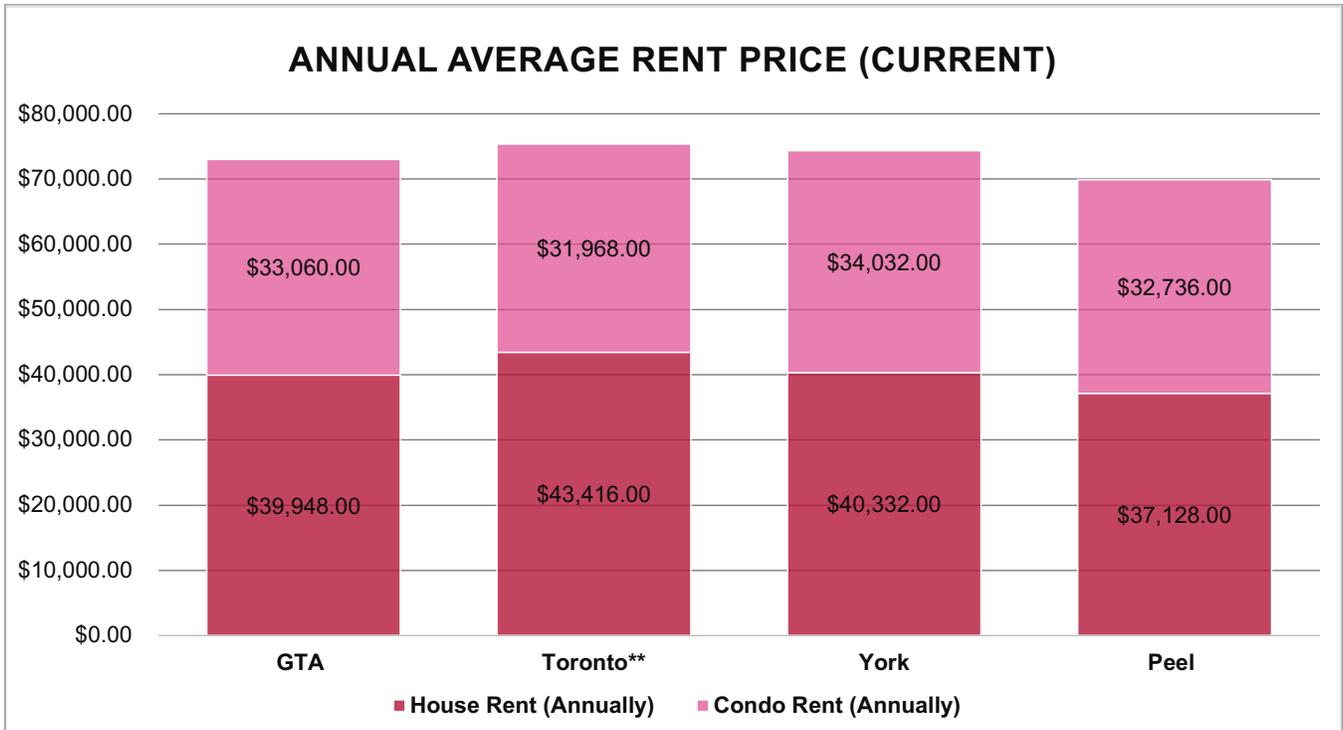


Figure 4: Created by the author, data pulled from Realosophy

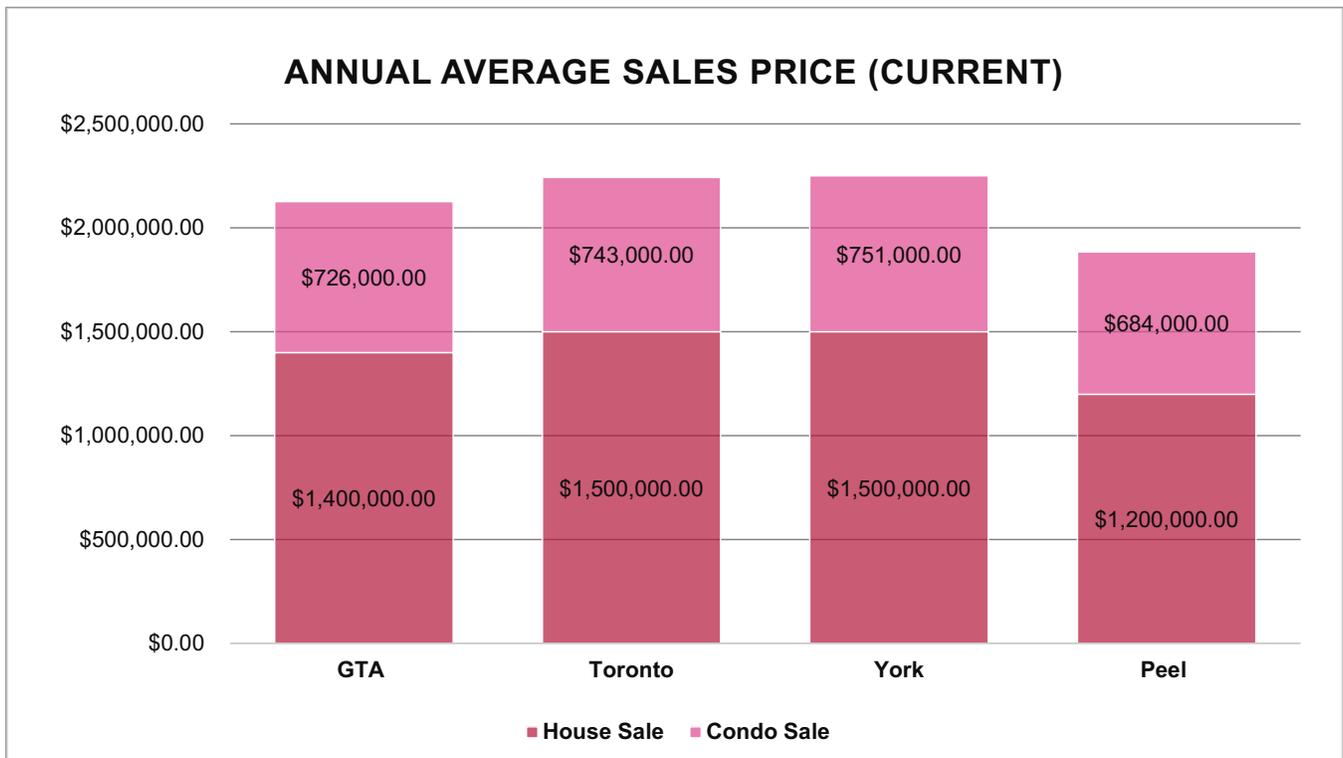


Figure 5: Created by the author, data pulled from Realosophy

each with unique equipment requirements and age-appropriate entry points.

**Soccer:** Soccer requires minimal equipment, making it accessible for many. Essential items include a soccer ball, cleats, shin guards, and appropriate athletic clothing. Youth as young as 4 or 5 years old can start playing soccer in introductory programs, focusing on basic skills and fun.

**Hockey:** Hockey demands more specialized gear, including skates, a stick, a helmet with a face cage, gloves, shoulder pads, elbow pads, shin guards, and a mouthguard. Children typically begin playing hockey around 4 to 5 years old in learn-to-skate programs before advancing to more competitive play.

**Swimming:** Swimming requires a swimsuit, goggles, and a swim cap. Access to a swimming pool is necessary, whether it's for lessons, practice, or competition. Youth can start swimming lessons as early as infancy for basic water safety and gradually move into more structured swim teams or competitive swimming by age 5 or 6.

**Basketball:** Basketball equipment is relatively simple, including a basketball, proper athletic shoes, and

comfortable sports attire. Children can start playing basketball in introductory programs as young as 5 or 6 years old, focusing on fundamental skills and teamwork.

### Children's health in relation to youth sports

Promoting children's health in youth sports is crucial for their overall well-being and development. Some of the highlights for promoting children's health are physical fitness, motor skills, social and emotional well-being, and mental health. To start off, physical fitness is important to children's overall health, focusing on maintaining a healthy weight, strengthening bones/ muscles, and reducing the risk of developing chronic diseases such as obesity, type 2 diabetes and health diseases later in life. In 2022, Stats Canada reported that 27.2% of children between the ages of 12-17 years old were overweight or obese and had an increase of 2.9% in 2023. Diabetes is currently increasing in children's health. In 2023, 76.5% of youth between the ages of 12-17 were not physically active, and 7,000 children have been diagnosed with type 1 diabetes. Statistics from a StatsCan report released in 2019 highlight that diabetes affects approximately 0.19% of children ages 1-17, with girls being twice as likely to have it at 0.26% compared to boys at 0.11%. When a family has a child who suffers from

## Table 1 Economic Budget

**Table 1a. Average Household Salaries and Median Household Income (After Tax)**

Average Household Salaries and Median Household Income (After Tax)	Average Salary	Median Salary
Toronto Region	\$79,080.00	\$57,792.00
York Region	\$97,977.00	\$82,047.00
Peel Region	\$94,830.00	\$82,543.00
<b>Total Salary:</b>	\$90,629.00	\$74,127.33

**Table 1b. Expenditures Per Household (Estimated 2023 - After Tax)**

Expenditures Per Household (Estimated 2023 - After Tax)	Average Salary	Median Salary
Total Expenditure (Not Including Recreation)	\$92,717.70	\$92,717.70
Recreation (Equipment and Services)	\$4,138.94	\$4,138.94

**Table 1c. Total Expenditures**

Total Expenditures	Average Salary	Median Salary
**Average Household consists of 2-3 people**	\$96,856.64	\$96,856.64

**Table 1d. Net Result**

NET RESULT	Average Salary	Median Salary
NET RESULT Including Recreation	\$(6,227.64)	\$(22,729.31)
NET RESULT Not Including Recreation	\$(2,088.70)	\$(18,590.37)

a health condition, it can become extremely costly for the family. Another health condition that children are facing today is asthma. Asthma poses a significant health concern among children aged 1 to 17, 7% of whom were affected by this respiratory condition, according to a 2019 report by StatsCan. Asthma's impact extends beyond its immediate symptoms, often leading to reduced quality of life, which is why early intervention is crucial in reducing symptoms in the long term.

When children are playing sports, their social and emotional well-being play a very important role. Regular exercise releases endorphins, which are mood lifters, helping to reduce stress and anxiety in children and promoting better sleep. According to the CSEP guidelines, children of ages 5-13 should be receiving 9 to 11 hours of uninterrupted

sleep per night and 8 to 10 hours of sleep for children aged 14-17, with consistent bed and wake-up times. While children are playing sports, they learn many different life lessons, but one of the important lessons is how to handle their emotions through the wins and losses of a game. During these times, children develop emotional resilience and learn to manage stress as well as disappointments.

When children participate in sports, they also develop social skills, giving them the chance to interact with other children, develop team skills, and learn other important skills such as communication, cooperation, and sportsmanship. In 2021, SickKids Hospital released an article highlighting how the COVID-19 pandemic impacted children's mental health. SickKids completed a study with over 3,700 participants ranging in age from 2 to 18 who live in Ontario to understand

the impact. Among 2,206 members (74%), the research showed a strong association between time spent online learning and depression and anxiety in school-age children aged 6-18. The results showed that the more time students were spending online learning, the more signs of depression and anxiety they experienced. During this time, children were also exposed to family troubles, such as job loss, income change, and food insecurity, which caused high emotional levels for both children and parents showing strong signs of mental health.

“Child and Youth Mental Health: Signs and Symptoms,” a study conducted by the Centre for Addiction and Mental Health (CAMH), highlighted that 70% of mental health challenges have their onset in children. About 1 in 5 children and youth in Ontario suffer from mental health. After researching the impact anxiety has on children, Stats Canada released an article in 2019 which showed that anxiety poses a significant concern for our youth, impacting 5% of kids ages 5-17. Academic pressures and societal expectations could be prominent factors in these heightening of stress levels. From the ages of 8-13, children start puberty, where self-esteem plays a factor, as well as finding where they belong in this world. Children will start to look for a sense of accomplishment and conference.

Children who play sports have less of a chance of going through depression as sports help regulate moods. There have been many studies completed to show the positive relationship between physical activities and depression. CAMH completed a study in November 2023 to show how

sports participation has long been associated with positive physical health outcomes, especially among young people. The study focused on a subgroup of 4,975 kids between the ages of 9 and 10 and found strong correlations between playing team sports or non-contact sports with fewer behavioural and social issues. Additionally, every participant supplied saliva samples for genetic testing, which enabled researchers to determine each person’s susceptibility to certain mental diseases. Assessments for anxiety, attention span, and rule-breaking behaviours were conducted concurrently. Playing sports also encourages the release of serotonin, a neurotransmitter that is essential for mood control.

### Subsidy Program

The revised rates listed in [Table 2](#) are based on how much Canadians spend on children yearly. According to StatsCan, it roughly costs parents with one child \$21,600 per year from the ages of 0 to 17. Furthermore, if a Canadian makes \$16.55 and works 7.5 hours a day, the final net pay after tax is roughly \$32,272.50 (net \$28,320.39). According to current subsidy rates, this level of income is not sufficient to raise a child in the current economic condition or even apply for programs in these regions.

The four main areas of focus regarding municipalities that are our focus of subsidies include Toronto, York Region, Mississauga, and Brampton. These regions represent a large portion of the diverse population across Ontario. In this section, we will be exploring the potential benefits of increasing the subsidy amount across these regions. The

**Table 2. Subsidy rates based on how much Canadians spend on children yearly created by the City websites**

Household	Toronto	York Region	Mississauga	Brampton	Caledon
2 people	\$ 34,254.00	\$ 43,000.00	\$ 29,632.00	\$30,788.00	Caledon has no subsidy program for patrons.
3 people	\$ 42,111.00	\$ 53,000.00	\$ 36,898.00	\$38,338.00	N/A
4 people	\$ 51,128.00	\$ 61,000.00	\$ 46,033.00	\$47,829.00	N/A
5 people	\$ 57,989.00	\$ 68,000.00	\$ 52,418.00	\$54,463.00	N/A
6 people	\$ 65,401.00	\$ 74,500.00	\$ 58,133.00	\$60,401.00	N/A
7 people	\$ 72,814.00	\$ 80,500.00	\$ 63,848.00	\$66,339.00	N/A

Source: Table 2 subsidy rates based on how much Canadians spend on children yearly created by the City websites

subsidy program is a crucial component for each of these regions as it can provide benefits to many low-income households; however, we believe that the current numbers are not sufficient for the inflation that has occurred over the past few years due to the growing demands of each respective population.

Our whole report reflects on the question of if sports are considered a necessity or a luxury. This demonstrates the importance of ensuring equitable access to sports opportunities for all residents, regardless of socio-economic class. For example, there are instances across Ontario where single parents raising one child making the official minimum of \$32,272.50 (52 weeks of working the minimum wage of \$16.55 having 37.5 hours a week) annually can't even qualify in Mississauga for the current maximum of \$29,632. This is taking away so many opportunities from young kids living in these households, including any chance of playing sports. The above-mentioned issues can then be tied into the whole health aspect of how it can negatively affect youth in terms of physical, mental, and emotional well-being. By increasing subsidies to meet these specific types of needs, regions can promote healthier and happier lifestyles while reducing the burden on healthcare systems and fostering a more resilient younger generation.

According to a new report from Stats Canada (See [Table 3](#)), families are 29% more likely to raise their kids until the age of 22 than 17, and this number is only on the rise (Crawford, 2023). Parents are spending more on food, shelter, clothing, and bare necessities, which are of the utmost importance.

However, after this, oftentimes, it does not leave much for sports, if any. Providing financial assistance to individuals and families by increasing subsidies can truly help address these needs for families who may be unable to access sports in their communities. Additionally, increasing subsidies demonstrates a commitment to investing in the well-being and prospects of Ontario's younger generation in this increasingly challenging world.

**Recommendations and next steps**  
**Economic shifts in youth sports**

Due to economic hurdles, youth sports face significant challenges in gaining prominence on people's agendas, with inflation being the main cause of financial strain. As household incomes struggle to keep pace with rising costs, creating a favourable environment for youth sports becomes increasingly challenging. While addressing these economic struggles may seem daunting, efforts to mitigate inflation can alleviate financial burdens, freeing up resources for recreational activities. Implementing financial assistance programs and restructuring subsidies can provide support to families with limited resources, ensuring access to sports opportunities. Moreover, municipalities can adopt data-driven approaches to pricing strategies, benchmarking against comparable programs to ensure affordability for all. Collaborations with schools, non-profits, and businesses can further bolster support and funding for youth sports initiatives, enhancing accessibility and participation. There is a need for greater attention to para-sports for individuals with disabilities. While some progress has been made through inclusive modifications, dedicated programs within

**Table 3. Subsidy rates based on how much Canadians spend on children yearly created by the City websites**

Household	Toronto	York Region	Mississauga	Brampton	Caledon
2 people	\$ 49,114.00	\$ 46,852.00	\$ 45,947.00	\$46,897.00	\$46,852.00
3 people	\$ 70,114.00	\$ 68,452.00	\$ 67,547.00	\$68,497.00	\$68,452.00
4 people	\$ 92,314.00	\$ 90,052.00	\$ 89,147.00	\$90,097.00	\$90,052.00
5 people	\$ 113,914.00	\$ 111,652.00	\$ 110,747.00	\$111,697.00	\$111,562.00
6 people	\$ 135,514.00	\$ 133,252.00	\$ 132,347.00	\$133,297.00	\$133,252.00
7 people	\$ 157,114.00	\$ 154,852.00	\$ 153,947.00	\$154,897.00	\$154,852.00

Source: Table 3 revised subsidy rates based on how much Canadians spend on children yearly created by created by the authors

the public sector, supported by investments in infrastructure, transportation, and education, are essential for fostering a more supportive and inclusive environment for all participants.

### **Children's health in relation to youth sports**

Everyone plays a vital role in advocating for children's participation in sports through various initiatives and policies. Firstly, launching public awareness campaigns can effectively highlight the benefits of sports for children. These campaigns, disseminated through diverse media channels, aim to educate parents, caregivers, educators, and children themselves about the significance of sports. Secondly, government collaboration with schools to integrate sports and physical education into the curriculum is crucial. By prioritizing sports from an early age, schools can foster a culture of physical activity and cultivate healthy habits in children for lifelong well-being. Lastly, ongoing government investment in research on the advantages of children engaging in sports and data collection on participation rates, demographics, and trends are essential. This data-driven approach informs policymaking and identifies areas requiring intervention to encourage sports participation among children. Through proactive measures to promote children's sports involvement, governments, parents, and educators contribute to building a healthier, more active, and inclusive society.

### **Subsidy program**

After reviewing several factors that have affected sports over the years, it is safe to say that it is becoming increasingly harder for people to register and participate in sports, with cost being one of the primary issues. Subsidy programs are created to help aid individuals or families who are at or below the poverty level and give them some financial support to register for these sports programs. However, after doing some calculations, it has become abundantly clear that these subsidy programs do not properly represent the demographic of people who are struggling in society today as more people are heading towards poverty. These subsidy programs must be re-evaluated to increase the baseline incomes people need to show in their households to even apply for these programs. The cost of living has increased greatly, and Canadians, more than ever, are struggling financially and are having to, unfortunately, make important decisions about where to allocate money, with sports being

cut from their child's life to afford the bare necessities in life. The various regions highlighted throughout this report could use this report's example of the updated subsidy as a reference to potentially change and increase the amounts in each given region.

### **Limitation Simcoe County**

Throughout our research, we could not find any conclusive evidence regarding the Simcoe region and their recreational information. Despite our efforts over several weeks, there were few resources related to community sports participation levels. While Simcoe County has a fund for tourism, culture, and sport enhancement, only Barrie is openly engaged in recreational programs. Despite exhausting all of our efforts and reaching out to multiple Simcoe representatives, our team was unable to gather sufficient information for the Simcoe region. Moving forward, we will focus on analyzing youth sports programs in other regions to inform potential strategies for Simcoe County.

### **Time Constraints**

A major limitation our project faced was the time frame in which it needed to be completed. Being that it was to be completed in 16 weeks, our group was tasked with conducting research in a short timeframe while meeting deadlines given by the professors of the class. Since the time frame was short, our group had to choose quicker methods, where needed, to produce both accurate and meaningful observations as well as research to further define the project scope.

### **Access to information**

Certain information needed to further our scope was available in a timely manner, given the time frame of the research project. This included government websites as well as local sports clubs with information pertaining to the sports we highlighted in the report. As a result, our group had to pivot and find other useful resources within our scope.

### **Conclusion**

Our project aimed to spark positive change in Southern Ontario communities regarding youth sports and recreation. We sought to determine if youth sports should be viewed as a necessity or a luxury, firmly advocating for their necessity. Our research delved into economic challenges facing families, emphasizing the vital role of youth sports in mental

and physical well-being. We propose reshaping subsidy programs to support broader access. Youth sports offer more than leisure; they foster holistic development, life skills, and community bonds. We urge stakeholders to recognize their significance and consider changes to Ontario's youth sports structure. Investing in youth sports means investing in community well-being and prosperity. We hope our report convinces stakeholders of youth sports' essential role in building healthier and happier communities.

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## Conflict of Interest

The authors have no conflicts of interest to declare.

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All authors are graduated students from Humber College with Bachelor of Commerce: Management Studies Degree. Humber College Institute of Technology & Advanced Learning

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# Unveiling the Unforeseen: Researchers' learning from a collaboration examining learner agency in vocational education across Canada, Denmark and New Zealand

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## Abstract

A group of researchers have collaborated for three years to explore learner agency across vocational contexts in Canada, Denmark, and New Zealand. To investigate the learning from this collaboration, participants carried out a collaborative autoethnography. Participants wrote their perspectives and themes, which were distilled. What emerged is a community of practice that has generated unexpected trust and depth. The cultural exchange and diversity-building have changed previous views of each other's practices. There has been significant personal and professional growth for all participants. The collaboration has led to an increased criticality, something all participants noted would not have been possible without the freedom to be candid about the challenges and changes they face in their home contexts. What began as an inquiry into learner agency has resulted in the researchers becoming the unexpected learners by unveiling unforeseen insights into their own practices.

## Introduction and Context

**This paper articulates the unexpected learning from the collaboration between researchers from three countries** in the area of Student-Centred Learning (SCL). We came together as a part of the Global Polytechnic Alliance between the vocational institutions where we each work in Canada, Denmark, and New Zealand. This alliance seeks to foster a shared exchange of ideas, programmes, and carry out joint research projects. In response to a call for research into SCL by our institutions' executives, our group connects virtually and (at times) in person. We first met in 2022, as described elsewhere (Roodt et al. 2022) and explored how we could move toward a joint research agenda for delivering professional practice programmes on the basis of the SCL review that makes sense both from a comparative perspective and from three individual, institutional viewpoints. We limited our numbers to two participants from each institution to build trust in a smaller group.

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**\*Original Research Papers** are papers that report on original empirical research with a focus on teaching and learning. Papers may be qualitative or quantitative and include an Abstract, Introduction, Method, Results, Discussion, and Reference section, as well as any tables and/or figures.

Early in the collaboration, we identified learner agency as a suitable research topic because it appeared to be an appropriate response to the interest of increasing complexity in our education programmes in every institution. In Denmark, the European Union was pressing for a policy on student-centred learning, which was shaping future funding using a measured learning outcome approach, a significant change for Danish vocational education. In Canada, a reframe of research and its place in the institution and in industry partnerships was getting more complex. For the New Zealanders, this was a chance to test learner-centred practices with international colleagues and learn how to articulate this for an audience that does not usually have the learner at the centre. We define learner agency as the capacity to act independently and to make one's own choices (Manyukhina & Wyse, 2019). As a pedagogical approach, the purpose of learner agency is broader, including deeper transformational learning, critical and humanist education and whole-person learning (Hoidn & Reusser, 2021).

To guide our exploration of learner agency, we turned to the concept of autoethnography, a methodological approach that invites all participants to delve into our own experiences and reflective narratives. As we shared and continued to exchange our individual stories and experiences, we anticipate discovering mutual patterns and distinctions. It is through this collective sensemaking that we aim to understand the multiple meanings of agency so that we may bring our new understanding and insights into the work we undertake with all learners. We recognize that we all have multiple social identities that we bring to the discussion, including our learners. It is essential for research to acknowledge that we all belong to multiple social categories (Gaither, 2018, p. 443). In order to understand the complexity inherent in student agency and student voice, we needed to experience that complexity ourselves. We realized our different cultures, traditions and research lenses offer the potential for new learning opportunities that arise from our interactions. This paper examines the learning that occurred for the researchers and how it has impacted their practice, with the hope that it is of value to other researchers considering scholarly collaborations across the world. The purpose of the paper is to share our unexpected agency as researchers with the hope that others find value in understanding what we learn. We continue to be advocates for global collaborations on teaching practices and research.

## Literature

In navigating the challenges posed by an ever-evolving world, higher education institutions face pressing questions regarding their form and purpose (Friday & Halloran, 2019). The urgency of these inquiries is underscored by voices suggesting an escalating disruption of late modernity, deeming current educational responses inadequate. Projections from the World Economic Forum (2020) indicate a future where the majority of students will engage in jobs that do not exist today, and almost half of today's jobs will be automated within the next decade. Additionally, more than half of the content in graduate degrees is expected to lose relevance within five years from 2020.

Central to such change is the historic assumption in formal education that learners are taught rather than having the agency to learn and become independent. Changes in technology are resulting in learners expecting to have more say in where and how their learning occurs. Cascio (2020) posits that we are entering an age of chaos, framing it as Brittle, Anxious, Non-Linear, and Incomprehensible (BANI). The context of education is rapidly changing. Abegglen et al. (2023) contribute to the discourse by urging acknowledgment of the super complexity of education in the 21st century. They highlight the persistence of outdated faculty practices and languages, forming silos of knowledge into which students are inculcated. This approach is not only disrespectful but also prepares them for professional practices that no longer exist.

Smith (2020) argues that the stability of education delivery has bred overconfidence, overpricing, and an overreliance on business models tailored to the physical world. Sparkes (2016) further contextualizes this phenomenon as a "reculturing" within an audit culture framed by market-driven imperatives. The linear model of formal education, as described by Biggs and Collis (2014), positions the teacher on the outside and the learner on the inside of a relatively closed system, fostering an obedient subjectivity. Ings (2017) challenges this obedient learning, advocating for a more creative, open space described as an "unflattening" of learning (Sousanis, 2015).

Moravec's (2008) paradigms of education, evolving from linear instruction (Education 1.0) to expert-centred (Education 2.0), facilitator (Education 3.0), and finally to Education 4.0 where the learner and their context are at

the centre, underlining the shift towards individual learner agency. Responding to complexity with expanded meaning structures, as suggested by Covey (2021), becomes imperative for understanding ourselves, others, and solving complex social problems. The swift adjustments made by institutions during the global pandemic in 2020 illustrate the potential for quick change (Eisenstein, 2020; Hess, 2020).

Grocott (2022) contends that transformative learning necessitates an embodied, cognitive, and social experience, with significant shifts occurring at the margins and within the intrapersonal realm. Thomassen (2016) describes this liminal space as a critical intermediary zone that facilitates transitions from previous ways of knowing to future states. Liminality refers to periods of transition during which “the normal limits to thought, self-understanding and behaviour are relaxed, opening the way to novelty and imagination, construction, and destruction” (Thomassen, 2016, p. 1). Researchers in this collaboration have observed such moments in their learning processes.

The exploration of liminal spaces and the transformative learning literature indicates that adult learners undergo a transformation when they encounter disorienting dilemmas, engage in critical reflection, and take action (Mezirow, 2000; Dirkx, Mezirow & Cranton, 2006; Schnepfleitner & Ferreira, 2021). However, despite the anecdotal evidence from this collaborative journey, there is a conspicuous absence of a formal process to systematically examine these changes.

So, we asked how we could best capture our collective learning together. How does our collaboration influence our practice and our workplaces? Research by Hökkä et al. (2017) points to the importance of addressing individual narratives and learning pathways in seeking to understand emergent collective agency and identity in professional contexts.

Autoethnography (Adams et al., 2022) emerges as a suitable method for researchers interested in exploring personal experiences, emotions, and self-accountability. It involves describing and systematically analyzing personal interactions and observations to understand cultural phenomena. The collaborative autoethnographic approach operates as a community of ‘we’ (Spry, 2011; Harris & Holman Jones, 2021), influencing all researchers to pause together in reflexivity. Transformation in collaborative ethnography

begins at the individual level (Hernandez et al., 2022, p. 66). This moment allows the researcher to intentionally position themselves and their lived experiences within the larger conversation or analysis at hand. This collaborative model shifts from an individual to a collective focus, offering personally engaging, accessible research that makes an impact (Lapadat, 2017).

Reflective practice, as suggested by Dewey (2005), initiates with a felt difficulty, mirroring the real problems and tensions faced by researchers in navigating learner agency amid conflicting educational traditions. To connect to larger social and cultural meanings, these moments of pause and refocus must be deliberately and regularly exercised within the researcher’s process. Piaget’s (1967) assertion that individuals learn through intellectual resolution further strengthens the reflective aspect.

Community or collaborative autoethnography is an emic (insider) methodology of multivocal sharing or pooling of experiences and thoughts by individuals captured systematically (Martin et al., 2022). This community autoethnography is “a relationship-making activity among researchers who participate in and co-construct each other’s existence” (Toyosaki et al., 2009, p. 59). This has been a consistent outcome for us having met for more than two years before meeting in person. We have shared lived experiences on pre-identified sociocultural phenomena and collaboratively analyzed and interpreted them for commonalities and differences (Hernandez et al., 2017). This led to increasing trust and comfort in deeper sharing, the result being a communal sense of real experience (Richardson & St. Pierre, 2005), which is how we, as the author researchers, feel about our unique encounter with each other. Ethically, we never sought explicit permission to share; rather, it emerged from our deepening trusting relationship. This aligns with recent studies with teachers, which have highlighted the importance of making sense of one’s personal histories and experiences and of one’s role within a particular community for the development of professional identity (Kayi-Ayder, 2015; Ruohotie-Lyhty & Moate, 2016).

We each share a long-term relationship with our formal education institutions, where change is not always welcomed. As academics examining a marginal activity, we are often denied space to examine our feelings, including anxiety, to

negotiate a reflexive, ethical and scholarly self (Pithouse-Morgan et al., 2022). Being a researcher in this changing BANI environment drives our inquiry together as to how best to enable ourselves and our learners to thrive.

## Methods

Participants met online for two years prior to meeting in person in July 2023. At this first face-to-face meeting, each participant answered a series of mutually designed questions. From these narratives, themes were then analyzed.

The questions were:

1. Introduce yourself, the role you are in, at what institution, and your research interests.
2. Why did you choose to participate in this international collaboration on Student-Centred Learning?
3. How has it been, and what have been the key moments in the collaboration for you?
4. What have you learnt through this collaboration?
5. What are the impacts of this learning on your professional practice?

## Themes arising

We considered the five main themes that emerged from the responses to the questions. These are supported by a short narrative followed by respective quotes in *red italics*.

1. **Safety, Trust and Community Building:** Researchers felt liberated, able to express themselves freely in contrast to the constraints they experienced in their respective organizational environments.

*“Trust between us was established quickly, much to my surprise and delight.”*

*“I felt safe expressing both doubt and fears”*

2. **Personal and Professional Growth:** Reflective journeys unfold within the collaborative space, shaping personal and professional perspectives on teaching, research, and educational practices.

*“Engaging in dialogue with other understandings and knowledge that challenge one’s own is arguably the essence of academic work.”*

3. **Educational Challenges and Innovations:** Recognition of challenges in post-pandemic education prompts exploration of new methodologies and paradigms, highlighting a commitment to innovation.

*“Introduce challenging thoughts.”*

*“Sharing disruptive concepts, especially when discussing radical change in large organizational structures became possible.”*

*“The in-between spaces, where enlightening ideas surface.”*

4. **Cultural Exchange and Diversity:** Cultural encounters within the collaborative setting are appreciated, offering insights into diverse educational perspectives and fostering an understanding of differences.

*“We don’t just experience differences; we reflect on them together.”*

*“I had so many assumptions about our cultural contexts that were inaccurate.”*

5. **Increase in Criticality:** More able to critique own and others’ practice with higher researcher agency.

*“I have been surprised at how valuable it is to set aside one’s own habitus in favour of an explorative intellectual discourse and a shared passionate interest.”*

## Discussion

Our accounts of our time together reflect the different yet complementary ways each of us makes sense of our practice (Pithouse-Morgan et al., 2022). The themes point to our curiosity and motivation to learn, which can result in altered ways of thinking or perceiving reality (Kiley, 2009). The collaboration enabled us to crucially examine our change together. Such liminality involves wavering between two worlds after the separation from the previous identity but before the point of incorporation into a new one (Keefer, 2015).

As we spent time together face-to-face, we began further examining the liminal space between each of our newly discovered contexts, cultures and practices. As trust built among us, we shared increasingly freely about our responses to each other and our practices. We increasingly had critical conversations that would not be had in our own institutions. The subsequent increase in criticality enabled us to see ourselves and our practice in new ways, amplified by the rare, honest critique of our collaborators. This is not the case in collaborations within our institutions, where all collaborators noted the risk in such critique.

Researchers observed that cultural exchange and diversity altered their perspectives, with value noted to set aside one's usual habitus in favour of a practice, which is both an intellectual discourse and an emotional experience. This generated curiosity, which has fuelled the collaboration. We examined rigidity and polarity in our educational contexts. For example, ethical permission to publish the findings of this work required a significant ethical process in NZ, yet not so in Denmark. In another example the idea of learner agency is implemented widely differently across the contexts. In Canada, it meant having a choice of paper to take, and in NZ, it meant the learner co-constructing the curriculum. This highlighted the cultural positions around learning and the learning facilitator in different countries. From these and other examples, it became increasingly clear that a new criticality required a liminal space to be enabled. A study with teachers by Sannino (2010) has indicated how resistant and disruptive discourses and activities can be modified, becoming constructive and (positively) agentive within the group. In the liminal space we created, we were able to engage in dialogue where we shared disruptive concepts more freely and constructively than we were able to do at our own institutions.

We discussed how stretching ourselves to meet each other and share has created an opportunity for each of us to go deeper into our learning together. Firstly, there was a clear need to get over our own misconceptions and assumptions about each other's contexts. Easley & Kleinberg (2010) suggested that within networks, there are structural and interpersonal dimensions to connection, with weak ties being the key to bypassing strong nodes. Our network has occurred because each party in our shared learning system is able to behave more like allies by stretching towards novelty through new connections as we let go of our assumptions of the other.

This sense of heightened researcher agency is different from our usual practices as researchers. We gained more than we expected in areas we did not expect.

Researchers shared more about their personal lives than expected. During our visit, we met family members and planned future conferences together in hopes of including other colleagues and family members. Two of the authors completing doctoral studies commented on the special value of collaboration for the sensemaking of their chosen research. In a study of doctoral learners, Atkinson et al. (2022) pointed to a need to enhance spaces of agency in the graduate research experience to reflect the multidimensionality of students' lives.

The collaboration was carried out in English, which is a second language for the Danes present.

In a study examining international collaboration in higher education research, Avdeev (2021) concluded language is not a significant factor in the formation of collaboration for North American and Asian researchers. Our experience was of the delight to share and learn a new language that had special meaning, such as *Dannelse* (becoming/formation) in Danish, or the *Mana* (prestige, authority) of learners in NZ Māori, or the significance and meaning of innovation in the Canadian context.

As the collaborators have been carrying out research together, the differences in our approach have often been unveiled unexpectedly. For example, we are studying the experience of learner agency across our institutions using the same approach of a semi-structured interview with common questions. Gaining ethical consent for this research to proceed from our institutions was very different in each of our contexts, and this alone has raised a rich dialogue about examining our own agency as researchers.

All researchers noted the therapeutic value of collaboration as a recurring theme. The notion of therapeutic benefits aligns with Richardson's (2006) perspective on the inherent value of doing what one loves being therapeutic. We have experienced a collective agency in this professional community as we exert influence, make choices, and take stances in ways that affect our work and professional identities (Hökkä et al. 2017). All researcher authors have been surprised by the value of the collaboration. Our

collective agency was transformed from a marginalized feeling of invisibility (Hökkä et al., 2017) to a sense of increased motivation and belonging to a research programme that is validated by our institutions and consequently less on the margins. We found what Vähäsantanen (2015) calls the importance of agency in our practice for our organizational commitment, satisfaction, well-being and professional identity.

Going forward, we plan to carefully involve a wider group of researchers to capture a broader range of experiences and perspectives for each country. We will keep having our monthly online meetings and are looking forward to meeting face-to-face again in mid-2025. Before that, we will keep researching learner agency and involve more colleagues through a speaker series.

## Summary

The collaborative research highlights the transformative potential of liminal spaces in learning, where researchers critically examine their practices and undergo significant shifts in perception. Grocott (2022) emphasizes the necessity of an embodied, cognitive, and social experience for transformative learning. Liminality, described by Thomassen (2016), facilitates transitions between identities, fostering critical reflection and action (Mezirow, 2000). The researchers found that trust and cultural exchange in their collaboration allowed for more honest and constructive critiques, enhancing their understanding and practice. This dynamic created a heightened sense of agency, differing from typical institutional collaborations, and underscored the value of reflexive, critical engagement in educational research.

We have gained more than we bargained for, by discovering how this investigation and collaboration enriched us, which implies that we can do something similar for learners in a relationship of reciprocal learning. We have learnt more about our own agency than expected—this is the unveiling of the unforeseen—that every researcher is a learner, and every learner is a researcher.

## Note on Contributors

**Steve Henry** works for Otago Polytechnic in New Zealand, supporting learners to gain degrees based on learning from their experience. His current doctorate focus is exploring transformational learning in vocational learning in Aotearoa/

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# Humber Polytechnic's Applied Research Program: An Autoethnography Of Participants' Reflections And Experiences

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## Abstract

As a group of 10 applied researchers, faculty, and essential support staff at Humber Polytechnic, we share our enlightening experiences, working together in a collaborative setting to acquire knowledge on applied research practices. Our work is a testament to the power of collaboration, as we have used a collaborative and engaging autoethnographic model to disseminate our experiences of seven weeks. Although our reflections are independently composed pieces of work, they are observations of the collective work we completed during our participation in the Applied Research Program designed and hosted by Humber Polytechnic in Toronto, Canada.

## Introduction

**The Applied Research Program (ARP) at Humber Polytechnic, designed and hosted by the Office of Research & Innovation,** has intentionally departed from traditional methods of examining applied research and delivery of research methodology, which have long held a prominent position within the field of research. New and innovative techniques have led to the inception of the inaugural ARP program, sparking a new era of research.

Traditionally, research methodology was monolithic, as was the culture of research, which held strict rules that were adhered to by academics. The success of academics was heavily based on learning these rules and using them as tools for conducting conventional research (Bochner, 2016). This autoethnography demonstrates the remarkable shift away from conventional research and towards the interpretive voice, a concept Geertz (1980) objected to. He suggested that an observer is not permitted to hold an interpretive position or voice. This shift in perspective is a key aspect of the ARP program.

This autoethnography sheds light on the transformative journey of 10 diverse ARP participants from various departments and disciplines within Humber Polytechnic, who have immersed themselves in developing their skills and knowledge in

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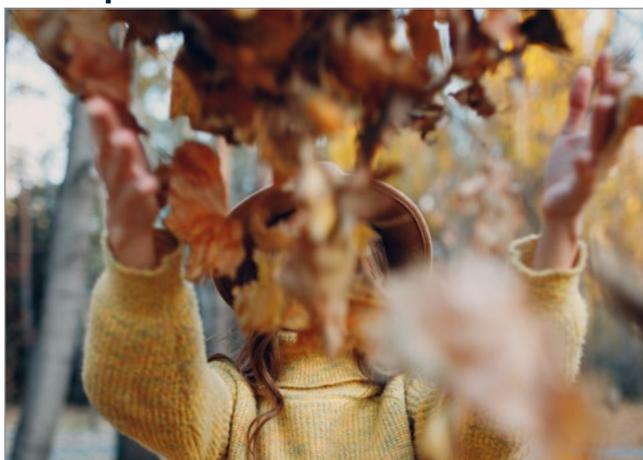
\*Essays advance a new idea, summarize a development, or initiate or engage in discussion. They may be narrower in scope than the above categories, but the subject matter should be of general scholarly interest.

applied research over a period of seven weeks. Although autoethnographies take many forms, such as short stories, poetry, fiction, and prose (Ellis & Bochner, 2000), this autoethnography takes the form of a collection of reflections that vividly portray the observations and interpretations of the 10 participants of the ARP program. The autoethnography demonstrates a deep reflection of the experiences and observations during seven weeks and offers a pathway to observe and evaluate the ARP program's effectiveness from the participants' lens. With patterns and recurring themes emerging from the reflections provided by each participant, this pilot program was developed to foster deep learning in the field of applied research and provide an opportunity for individuals to engage in transformative learning methodologies.

## Theoretical Framework

This autoethnography has been produced based on Dewey's (1933) reflective paradigm, which suggests that individuals can acquire knowledge when interacting with their environment through a trial-and-error process. Through this learning, they can synthesize concepts and reflect on areas of improvement. The term "deep learning," established by Segú Odriozola (2023), is directly connected to developing values and self-reflection beyond the confines of a classroom. This was not just a theoretical concept but a practical application within the ARP group through reflective practices and an examination of applied research practices.

## Autoethnography Reflections Participant 1: Priscilla Enetomhe



*A person throwing leaves in the air.*

Embarking on the Applied Research Program (ARP) initially filled me with a sense of uncertainty. As someone whose role

had no direct engagement with students, I struggled to see how the program could benefit me or align with my current responsibilities during the first few days. However, as the program unfolded, I experienced a shift in perspective that ultimately made the journey worthwhile.

In the early sessions, I struggled with feelings of inadequacy and questioned my ability to contribute meaningfully. Yet, amidst the mixed emotions, a subtle but profound change began to take place. I found myself increasingly drawn to the idea of making an impact, of uncovering solutions that could address real-world challenges. This transition was accompanied by moments of intense curiosity—what I've come to affectionately refer to as "popcorn brain"—as I sought out more information, data, and insights to guide my journey.

A significant aspect of this transformative experience was the vibrant learning environment cultivated by the diverse team participating in the ARP. Interactions with fellow learners during sessions and informal lunch break walks sparked numerous insights and personal revelations. It was during one such wellness walk that the seeds of my research interest were sown. A casual conversation about retirement and social isolation led to a collective reflection on the importance of cultivating meaningful hobbies. This discussion resonated deeply with me, igniting a curiosity about ways to alleviate feelings of isolation among retirees.

The journey of defining and refining my research interest was further enriched by the guidance of guest speakers like Bradley Schurman, whose insights provided valuable context and direction. His presentation not only deepened my understanding of the research landscape but also inspired me to explore innovative solutions to societal challenges.

However, translating my research interest into tangible outcomes for my department remained a daunting task. The session on storytelling and research was all I needed. A little backstory: from observation, I noticed the underutilized potential of the International Development Institute (IDI) at Humber. During this session, I saw an opportunity to bridge the gap between academia and practice. By partnering IDI with initiatives like SPARK/JIPE, we could showcase success stories and case studies from our fieldwork, thereby raising awareness about the Institute and creating valuable placement opportunities for students.

I really enjoyed the session where we had different researchers coming to share their experiences and lessons learned. It was such an enlightening moment. I am grateful to have experienced this session. Throughout the ARP, the insights gained from guest speaker sessions and interactions with fellow participants have been invaluable. These experiences have not only expanded my understanding of applied research but also instilled a deep sense of excitement about the possibilities for future collaborations.

In conclusion, the ARP has been an instrumental journey of personal and professional growth. As I look ahead, I am eager to remain connected with the ARP community and contribute to the ongoing pursuit of innovative solutions to real-world challenges. I am grateful for the support and mentorship received throughout this journey and excited about the opportunities that lie ahead.

## Participant 2: Natasha Frank



Popcorn.

### Popcorn Brain

Dr. Ginger Grant introduced the term “Popcorn Brain,” which is fitting to describe my state of mind. Someone with a plethora of research ideas and an eagerness to jump on board new projects, like popcorn bursting in a pan. Balance, focus, managing setbacks, disappointments, and shifting priorities have been some of the challenges in my novice research experience. Like the popped kernels, it crowds the mind when too many ideas and projects are going on at the same time. Journaling throughout the ARP SEDA certificate program has been beneficial in capturing ideas and helping prioritize projects. The beauty of the ARP SEDA group is the ability to draw ideas and inspiration from the different faculties in our diverse group. Having representation

in different faculty at Humber Polytechnic allows for an interdisciplinary perspective on a research phenomenon. Innovative approaches and thinking outside of the box are pillars of Humber’s future strategic goals. However, it is challenging to do so when we have been working in silos so far long. Breaking down the silos and barriers within Humber and allowing for this inaugural opportunity has been no small feat for the Office of Research & Innovation team. It is an honour to be part of this community of practice, harvesting the energy and inspiration of all the members of this community.

### Specialized Tools

While having access to advanced tools and technology can certainly enhance the capabilities of a researcher, there are other factors that contribute to being a better researcher. Participating in the clay creation activity facilitated by Emma Smith, PhD, and Doug Thomson, PhD, made it evident that having access to specialized tools did not guarantee a better product or experience. Emma and Doug instructed the class to create clay figurines, approximately four inches tall, with faces. One group was provided with specialized clay tools, another had basic wooden skewers, and the last had no tools. Upon examining the finished product of the group with the specialized tools and basic skewers, the completed clay creations were all unique and beautifully constructed. The group with basic skewers were able to improvise and explored creative ways to express their art without a perceived disadvantage. The group without tools at all had an added layer of complexity to the experiment. When a group member completed a clay figurine, the facilitators destroyed it. Unknown to all group members, a tally of the number of finished products was recorded. The group with no tools and facilitator-induced destruction of the completed product was the group to which I belonged. The destruction of our finished product by the facilitators evoked strong emotional responses from my group members. We expressed our frustration, disappointment, and hurt at the unexpected setback. As a result of learning the outcome of our product, our work became less polished, sloppy, and meeting the bare minimal requirement of the specifications. However, our team persevered and continued with the task—creating the most figurines despite the destruction of the finished product. This activity was pivotal to my understanding of the journey of a researcher. There will be setbacks and challenges with research. Sometimes, it might even feel hopeless, but every experience is paramount to the collective understanding and

appreciation of the research process. Sometimes, it is not merely about the finished product but the learning from the process itself. Learning from these experiences will help one navigate the challenges of research. Tools and technology can assist in the research process, but they cannot replace the creativity and drive one puts into one's work.

### Participant 3: Mira Kapetanovic



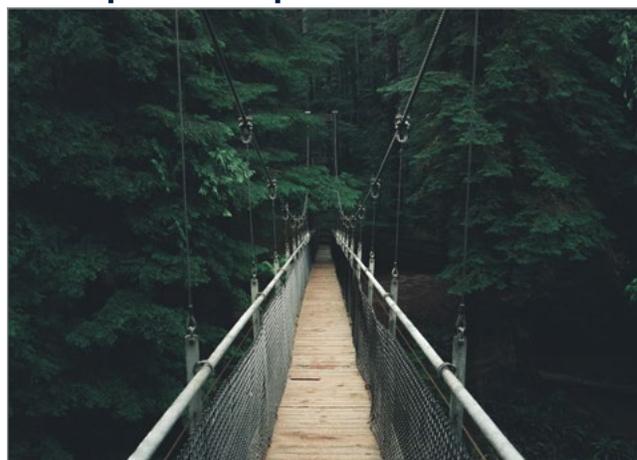
*Road stretching into horizon. Photo courtesy of Mira Kapetanovic.*

Being one of the 10 inaugural ARP group members and embarking on the SEDA certificates journey has been a truly unique and privileged experience. A recurring theme that has beautifully threaded its way through the ARP is storytelling. In light of this, I believe my reflection should be my story. As I set foot on this research journey, I was filled with curiosity about what this program was about. By the end of the first week, scattered crumbs lured us into the realm of research.

The overall atmosphere of our ARP environment was not just positive but uplifting. It was a space where we were accepting, supportive, and deeply engaged. All the participants, including myself, showed innovation and enthusiasm for our research projects and each other's. Our ARP environment was not just growing but flourishing, and our research interest began to blossom. By the end of the program, we all seemed to have developed a strong, organic, and natural culture with minimal transitional seams; instead, we became a cohesive group of 10 individuals who had come together and begun to develop a community. The conferences and roundtable discussions were insightful and eye-opening, with revelations about the future of industry and employment and applied research. The time used for reflections was overwhelming yet enriching as concepts began to saturate my thoughts and lead my research in

many directions. This program provided me with a road map marked with many directions and destinations. My mind was brimming, seeping and spilling with ideas. My thoughts were quickly recalibrated when preparing my presentation to focus on only one direction, yet I was still drawn to the number of research ideas in my head. Aside from research, I began to observe our group moving from 10 participants in a program into a cohesive community of like-minded researchers. I have developed a connection with my peers and fellow ARP team members, which I hope will flourish well past ARP's last day and ride into the future.

### Participant 4: Gurpreet Kaur



*Suspension bridge in the forest.*

Once upon a time, there was an important program designed for faculty and staff to explore the multifaceted nature of applied research. Faculty and staff from different departments at Humber Polytechnic participated in it with their varying levels of experience in research. Personally, entering the ARP Program was an emotional rollercoaster—confused, nervous, yet excited due to my lack of research experience. Then, on the first day, the program's introductory sessions, including a warm welcome and insightful presentation by Dr. Ginger Grant, eased some anxieties. Gradually, what started as a disparate group of participants began to coalesce into a supportive community. Throughout the program, I learnt about several tools and methods required to conduct and disseminate research. For instance, Camila Perez Peña's session on diversity and the 4MAT framework felt like unlocking a secret to engaging learners effectively. The assignment to uncover my strengths through friends' perspectives was nerve-wracking yet heartwarming, revealing surprising insights. The library field trip, discovering the Idea Lab and Humber Polytechnic Archives, ignited a new

eagerness for research. Anju Kakkar's storytelling techniques and Camila Perez Peña's session on audience connection emphasized clear, relatable communication. The values session by Kenton Hyatt and Cheryl De Ciantis highlighted our diverse yet cohesive group dynamics. Learning about research ethics was eye-opening for me. A significant milestone was achieved when a thematic review presentation on a micro-credential for Applied Research, developed in collaboration with classmates Fatima Momin and Akshay Khosla, garnered positive feedback and instilled a sense of accomplishment. Completing SEDA Certificate 1 brought relief and a sense of accomplishment, readying me for SEDA Certificate 2. In SEDA Certificate 2, learning about challenges in conducting research; Equity, Diversity, Inclusion, and Belonging (EDIB) practices; academic IP and supervising research was transformative. From the supervising research session, one phrase resonated with me, echoing through the corridors of my mind. It was a quote shared by Emma Smith—a mantra from her supervisor: "Research doesn't have to be great; it has to be done." This simple truth struck a chord within me, for I, too, had been ensnared by the pursuit of perfection, often at the expense of progress. All in all, the Applied Research Program was a journey of learning and self-reflection. It compelled me to navigate the complexities of research while reflecting on my own growth and evolving understanding of the field. The attached image encapsulates my experience. The long suspension bridge symbolizes the adventurous path of learning and discovery, while the dense forest signifies the vast and rich knowledge I gained during the program. The single individual on the bridge emphasizes the personal journey and the focus required to traverse this path.

### **Participant 5: Akshay Khosla**



*A plant growing in the hand palm.*

Just like the picture, I see my journey through ARP as one that involves me discovering a sense of belonging, growth, and collaboration as the sapling also establishes its roots and grows.

Unlike most other days, this morning was not rushed. I had woken up on time and was on my way without having to worry about arriving late and apologizing. That's how my first day at ARP started. I was very excited about this program because I am in the initial stage of my career, and this was a great learning opportunity for me to base my career as a researcher upon. I remember feeling intimidated yet inspired when everyone introduced themselves. We were a group of 10 individuals. I knew two of them because they were my colleagues, but these seven new people with tons of life and work experience and amazing qualifications made me feel like an imposter. I wanted to stay in my comfort zone and just interact with the people I had known before, but the very first day, Ginger Grant instructed the three of us never to be in the same group.

There were different sessions with research experts such as Ginger Grant, Camila Perez Peña, Müge Abac, Barath Roy Michel, Emma Smith, Doug Thomson, Anju Kakkar, Cheryl De Ciantis, Kenton Hyatt, and many others. Each session had a lot of value and had group activities which encouraged people to interact. Every day, I tried to be a part of a different group and gradually started getting to know others. I was humbled to know that none of the people had an ounce of ego or pride in them. I feared that no one would want to interact with me because I was a project assistant while they all had been professionals for a much longer time frame. However, I was proven wrong, and the resulting conversations created a sense of belonging for me.

I received a major confidence boost when our group was given our first major activity, which was to build a team charter. Usually, I am not someone who would take the lead. I would rather follow what others say, especially when I know they are much more experienced. But this time, I tried contributing to it and was applauded by others for it. I really became a part of the group that day. Also, I noticed that I was not alone, as my colleagues began recognizing each other's strengths and areas of expertise, and ideas for research started bouncing off among them. Real collaborations started to bloom through these group activities.

## Participant 6: Kehinde Ladipo



Original painting used with permission. Credit: Jacob Ladipo.

### **Research ideas Come in Waves: Seize the moment and ask the right questions**

Yes, I know! I expressed interest and took the steps to enroll in the ARP. No doubt, I cherish this unique opportunity to participate, but I went into the first session with a lot of anxiety. I began to imagine the value I might contribute to the multi-disciplinary research group with this autoethnography deliverable. My only research knowledge has always been in Mathematics related to computational fluid dynamics and numerical analysis.

Any time I was asked the question, “What are you doing this summer?” my response has been, “I am participating in an applied research program.” This was always followed by the question, “What is applied research?” I determined that, if nothing else, I would immerse myself in the learning so I can take back the meaning of applied research and this new term, “autoethnography.”

As I understand it, applied research is phenomenon-driven research that is conducted with the specific objective of providing solutions or innovative improvements to practical, real-world problems, practices, or services. Applied researchers identify a gap in current practice, design a project to gather data, and propose evidence-based strategies to modernize and improve services based on quantitative or qualitative tools. This seven-week applied research program has harnessed my current skills and has equipped me with tools that open doors to other research opportunities at Humber Polytechnic. As there is no forest with only one tree, collaborative interdisciplinary research is necessary to build a strong, inclusive and cohesive

community. It is my hope that my participation in this program will lead to a new, engaging learning experience among the diverse, mature learners at Humber Polytechnic.

From the first week, I was challenged to find my area of intersection with other researchers in the team. As I listened to the chatter of team members who already have experience in collaborative research, it was difficult to picture how my mathematics skills might be useful in studies related to palliative care, disaster management policies, etc. As the conversations continued, I asked a nursing professor at my table: “How might a nurse practitioner use mathematics to carry out their duties?” Our conversation led to the discovery that mathematics is needed to calculate medication dosage for patients. Studies conducted by many researchers in the past have stressed the importance of computation skills among nurse practitioners, as dosage calculation errors often lead to serious medical consequences. According to the nursing professor, there is currently no stand-alone mathematics course for the nursing programs at Humber. Rather, dosage calculation is embedded into one of their core courses. I understand this may be due to the proven mathematics anxiety among learners. We have started exploring an interdisciplinary project to incorporate dosage calculation training into Humber’s Nursing program in the form of a low-stakes micro-credential. We envision a micro-credential that focuses on computer-based problems that simulate real-life scenarios in clinical settings.

In this paragraph, I reflect on two of the research tools that I have learned in this program. The first tool is the 4MAT Model, which I am curious to learn more about. The 4MAT Model is an instructional design that summarizes four different learning styles in four quadrants of what is referred to as a learning “wheel.” A good lesson plan design that uses the 4MAT model would simultaneously cater to learners in each quadrant of the learning “wheel.” As the lesson progresses through the four quadrants, the 4MAT design lays emphasis on activities that activate learners’ left and right brain functions while addressing the questions of Meaning (Why?), Concepts (What?), Skills Acquisition (How?), and Adaptation (If?). According to the original inventor, 4MAT was intentionally designed to cater to diverse sets of learners at the same time (Bernice McCarthy, 1987). The right-left brain activation in each quadrant distinguishes the 4MAT model from the popular 4As model. The left brain is responsible for breaking down or analyzing information. The

right brain synthesizes or consolidates the information. In the 4MAT model, the learning outcome must be a thread in each quadrant, and the switching between the right brain and left brain in each quadrant is necessary to stimulate higher-order thinking. Another new tool is auto-ethnography. Here is my understanding: Autoethnography is a form of qualitative enquiry that uses self-reflection on a research project. It can be a written personal narrative of my journey or a form of photo journaling. This is exactly what I am doing in this reflection. I have also applied an autoethnography design tool called “Empathy Journey Mapping,” which helps me articulate my thoughts and feelings to structure my next project in order to implement an engaging and effective learner-centred Hybrid-Flexible (HyFlex) learning space.

The research facilitators have challenged me to pay close attention, ask the right questions, select a project with deliverables that will lead to change, and equip learners with 21st-century skills. I am seizing the moment, taking advantage of this unique opportunity to look for ways to contribute to knowledge and excitedly looking forward to exploring ways to integrate the new tools into the design of interdisciplinary collaborative research projects that will move my community forward in the right direction.

### Participant 7: Georges Livanos



*A hiker on a mountain.*

Little did I know about SEDA certification when my colleagues and I embarked on this course in May 2024, but certainly, I was confident it was going to be a major benchmark along my journey to help advance applied research in our polytechnic setting. This journey for me started some 22 years ago when colleges in Ontario were, for the first time, allowed to introduce research, which was the privilege of universities

up until then. I happened to be in the right place at the right time, so, as I had a project to propose and an industry partner waiting, I applied for a grant and at the same time, I was invited to sit on the first advisory committee to the President. Within two years, we established the framework for applied research and set the terms of reference for the Research Ethics Board.

In the years that followed, we saw tremendous growth in research, but at the same time, we went through some growing pains. Centres of Innovation got planted and are now blooming. Young faculty brought in brilliant new research ideas. Many new faculty brought with them projects they had started elsewhere and continued them at Humber, transplanting technology, knowledge, and expertise into the institution. However, it did not take long for some new questions to arise. How many of us have time for research these days? How many of the new faculty members who brought in projects have continued to do research, and how many of them went into plain teaching after the completion of the project they brought in? Finally, are long-time faculty finding any incentive to do research, or do they think that research is only for part-timers and newcomers? These are real questions that I wrestled with in the last few years, and I must say from the onset that the prospects of addressing them are encouraging.

Right from the start, I felt that research was the greatest opportunity for professional development. I encouraged younger colleagues to get involved, and I made it a point to introduce them to the Office of Research & Innovation (ORI).

Hand in hand with the questions raised above goes the following challenge for the future: Can we grow and sustain our own research at Humber? Will our research be homegrown, or will it be just a series of unconnected transfusions from other institutions? To address this challenge, ORI has established a system of small grants, such as Seed and Cultivate Research & Innovation funds. It was great to learn more about them in this program. However, the researchers who receive these grants must be a part of a nurturing ecosystem. There must be genuine support for research. Hours must be allocated by the faculties for preparation because even applying for a grant takes time. Recruiting Research Assistants (RAs), searching for industry partners, organizing meetings, etc., takes time, too. Fortunately, I feel that there is a recent increase in awareness

and recognition of the many benefits of research. The offering of this inaugural ARP is itself proof.

This program has been an amazing experience for me. I joined a vibrant cohort full of energy, talent, and intelligence. My peers demonstrated impressive educational achievements, professional distinctions, and competence in everyday skills and communication abilities. Right from the start, I could see leaders emerging among my classmates who will provide guidance to the Humber research community in the coming years. Several of them are already in leadership roles, such as program coordinators and project leaders.

As far as the leadership of ORI goes, I am indebted for this concise way of packaging a wealth of useful materials everyone needs these days to succeed in research. They provided answers to many questions I had, which had been bothering me for years, and I had no time to ask. It may sound funny, but in a way, I feel I went through another Teaching Excellence Program (TEP) 22 years later—we called it New Faculty Orientation back then. I am discovering that there is a wealth of new information and new skills one needs. ARP provided me with the specific skills to do research—from learning how to apply for grants to writing for an academic journal to approaching research assistants and building communities.

These seven intensive weeks were a unique experience not only because of the many exciting activities but also because we built a community. Indeed, the bonds we built as a class in these short weeks will last a long time. We are a tight group of people, full of contagious enthusiasm, and we will make everyone at Humber feel more at ease with research, champion it and espouse it as an integral part of Humber life. Yes, we have built a community. The months of July and August will feel empty in comparison, but as all Humber faculty are, I am looking forward to the September revival!

## Participant 8: Susan MacGregor



*Hand palm marks in colour.*

The experience of studying with individuals from diverse personal and professional backgrounds and from across all areas of the institution has been like a breath of fresh air.

Through the learning of applied research fundamentals and delving into my values and the values of the group, I have discovered much about myself. These realizations have prompted an examination of where I would like my teaching and research to grow in the coming years. I am inspired by my peers who have managed to carve time outside of their full-time jobs to publish articles and do original research. I hope to be able to accomplish this in the next phase of my career as well.

Course facilitators through the SEDA 1 certificate have done much to demystify some of the challenges that have made it difficult for me to engage in research in the past. Doug Thomson's simple whiteboard method of showing project achievement is something that will work for me as a visual person to ensure that tasks get accomplished. Hopefully, this will open more emotional and intellectual 'space' for me to engage in more research and writing in the coming academic year. Anju Kakkar's enthusiasm and optimism have inspired me to send her a piece of my research for consideration for JIPE.

The presentations of my peers at the end of SEDA 1 were so exciting to watch as they were the culmination of a few weeks of rumination and discussions. The ideas were great, and the processes were organized and thought out, but it was the spark in the eyes of my peers that was so rewarding to see. Our group is vastly different in age, ethnicity, experience and

fields of study, but the experience has been very supportive and engaging. I think we have all grown and learned from each other through the experience.

The experience has been positive, but there have also been some revelations that I have found disheartening. Learning that not all my peers have institutional support in their desire to become researchers and that some are dealing with active resistance has left me feeling frustrated and annoyed. As well, learning that others have had their ideas co-opted by colleagues and/or superiors does put a damper on attempting to engage in my own research at Humber.

The SEDA 2 certificate has been an enriching experience to date. Our peer group has reached a state of maturity where we are comfortable with each other, and the group has established its own set of norms. We know who will need a plug (as their computer battery does not hold a charge) and are sure to leave a spot for them near a plug and who will want/need to get a coffee first thing. We went for a walk in the Humber Arboretum and were able to vamp for the camera and poke fun at each other more like a 'family' than a group of work colleagues. We solidified this relationship when learning about 'community' from Sharon McIntyre as we expressed a desire for a lasting physical reminder of our time as a community in the form of a plaque.

What I have noticed as a result of the ARP is that I am approaching opportunities at Humber in a new way. In watching 'Showcase' presentations, I was thinking about ways to gather data and learn and/or be able to prove things. For example, the keynote speaker spoke a great deal about AI and ChatGPT. In past years, I would have found this interesting, but this year, I am thinking of running an experiment in my Fall class whereby I have the students complete their major assignment in a typical way and then, after submission, have them attempt to do the same assignment using ChatGPT. I am interested in seeing the differences in the final product. I think this would be interesting SoTL research as it is, but it could also lead to research on how to teach students to understand ways to prompt AI tools correctly in order to elicit quality output. I am excited to try this out in the Fall.

## Participant 9: Fatima Momin



*Roller coaster.*

When I was told I was enrolled in the Applied Research Program (ARP), I was excited. The prospect of learning new tools and acquiring knowledge in research was thrilling. Since I am so passionate about research, the thought of learning new skills and tools in research was incredibly exciting. Initially, the lack of structure for tasks and deliverables felt uncomfortable and challenging. However, this ambiguity ultimately allowed me to tap into my creative thinking skills and taught me to handle uncertain situations where outcomes are not always predetermined. I also learned that this autonomy has sparked my confidence.

Learning tools like 4MAT, Human-Centred Mindset, Tableau and the Agile project board were incredible. Gaining knowledge in 21st-century skills, values we practice, Indigenous research methods, storytelling techniques, building online communities, gamification, and visiting the Idea Lab proved invaluable for both professional and personal development. I also discovered that connecting emotions to the learning process can transform it into lifelong learning. What made this course particularly interesting was that every session was activity-based and highly engaging, ensuring that everyone was fully involved.

Beyond the learning experience, I was struck by the positive group dynamics. The group quickly became comfortable with each other, and the level of trust that developed was remarkable. Despite their seniority and extensive experience, all the group members were humble and encouraging. The stories and personal experiences shared by the group members were also memorable, each offering valuable lessons. The time we spent together as a cohort is a lifetime

memory that has created a special bond among us, forged through the discussions we had, the laughter we shared, and the emotions we experienced together. This journey has been transformative, enhancing my skills and broadening my perspective in different ways.

Taking part in the research course has been like riding a roller coaster, an exhilarating journey filled with ups and downs of emotions. Just as a roller coaster begins with anticipation, I started the course eager to delve into new topics and methodologies. Despite occasional moments of uncertainty and the rapid pace, the overall experience has been thrilling and immensely rewarding. This roller coaster ride of learning has not only expanded my knowledge but also ignited a deeper passion for research, leaving me eager for the next adventure.

### Participant 10: Meshanda Ellison



*A path winding through the green. Photo credit: Saachi Kaur Bedi.*

“Don’t be sad because it’s ending; smile because it happened.” –Dr. Seuss

Starting off my reflection with a quote from Dr. Seuss feels apt as I have a deep appreciation for quotes—it’s just who I am: a quote enthusiast!

First and foremost, I want to express my gratitude to my wonderful peers in the inaugural Applied Research Program. Being part of this journey with this cohort and meeting such inspiring individuals has been truly remarkable. Each one of you has made this experience exceptional, and I will miss our daily interactions. Let me borrow and tweak a few lines from Halestorm’s lyrics in ‘Here’s to Us’ to capture the essence of our time together:

Here’s to us, here’s to [research and building community]

All the times that we [laughed and supported each other]

Here’s to [me], [here’s to us]

‘Cause the last [7 weeks] have [flown by too fast]

Wish[ing] everybody well, here’s to us, here’s to us,  
[ARP Originals!]

Reflecting on the program itself, I must admit that I felt intimidated initially, especially because I don’t have a Master’s or PhD degree. I had doubts about keeping up. Although I’m relatively new to research, having worked on my thesis a few years ago and having researched mature learners’ experiences in undergraduate programs, all my fears vanished on the first day.

I knew this experience would be unforgettable, so I decided to document my journey through a scrapbook journaling approach. Being visually oriented, I believe pictures can convey a multitude of words, helping me reflect on important topics, presentations, and tools for future reference. Throughout the program, I’ve thoroughly enjoyed various topics and activities. From learning about 4MAT and autoethnography to exploring narrative storytelling, each session has been insightful and practical. I’ve already started incorporating these tools into my work, such as using the storyboard example for student experience mapping and multidimensional journals to not only engage but also get a better understanding of our transfer students’ journey.

Another topic that resonated with me was the discussion on Equity, Diversity, Inclusion, and Belonging (EDIB) in research. As someone who works through an EDIB lens, I found the session valuable in broadening my perspective on incorporating these values into research practices.

I was also pleasantly surprised by the vast resources available, including funding opportunities like the Seed and Cultivate Research & Innovation funds through the Scholarship of Teaching & Learning (SoTL) and the many other ways in which Humber’s Office of Research & Innovation (ORI) can support the research journey. This experience has been truly rewarding, and the facilitators from the ORI team have been exceptional. I will genuinely miss this program and

highly recommend it to aspiring researchers.

Leaving this program, I feel more confident in my research skills and equipped with tools to enhance my event planning and student engagement strategies. I know that the friendships and connections we've formed will endure beyond this program, continuing to support and inspire us in our future endeavours. As we move forward, I encourage all of us to carry the lessons we've learned and the memories we've created into our next chapters. Let's remain curious, stay compassionate, and continue to challenge ourselves and each other.

To my peers: thank you for your camaraderie, your insights, and your unwavering support. To the facilitators: your guidance and enthusiasm have been invaluable, and I am deeply grateful for the wisdom you've shared. In closing, let's remember that this ending is not really an end but rather a new beginning. The skills, knowledge, and relationships we've cultivated here are the foundation for the incredible journeys that lie ahead.

So, here's to us—the ARP Originals—may we go forth and make a meaningful impact on our Humber community and beyond. And may we always find reasons to smile because it happened. My heart is full, and as we part ways, tears of gratitude and nostalgia fill my eyes.

## Conclusion

In concluding our autoethnography of reflections on applied research practices, we have come to appreciate the intricate relationship between theory and practice. This journey of introspection and analysis has not only deepened our understanding but also sparked a sense of inspiration and motivation. We have learned that applied research is not just about following a set methodology but about embracing the complexities and nuances of real-world contexts, a lesson that we believe will resonate with our fellow researchers and academics. This journey has underscored the significance of collaboration and dialogue within research communities, particularly the enriching environment that diversity brings. Engaging with diverse perspectives and sharing insights have enriched our approach and broadened our appreciation for the multifaceted nature of knowledge production.

As we conclude this autoethnography, we realize that applied research is as much about the journey as it is about

the destination. It is a continuous learning experience that demands humility, adaptability, and a commitment to contributing meaningfully to academia and society. We believe that this emphasis on continuous learning will challenge and engage our fellow researchers and academics, inspiring them to keep pushing the boundaries of their knowledge and understanding. Ultimately, this collection of reflections serves as a testament to the iterative nature of research and the transformative power of critical self-reflection. It is a reminder that each study, no matter how small, has the potential to contribute to a larger understanding and bring about positive change in the world.

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