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PEDAGOGICAL DECISION-MAKING IN ONLINE COURSES: A LOCALIZED THEORY

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JENNIFER PORTER

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Submitted by:

Jennifer Porter

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The examination committee certifies that the dissertation
and the oral examination is approved

Supervisors:
Dr. Rory McGreal
Athabasca University

Dr. Susan Bainbridge
Athabasca University

Committee Members:
Dr. Paul Kellogg
Athabasca University

External Examiner:
Dr. María Soledad Ramírez-Montoya
Tecnologico de Monterrey

February 24, 2025

1 University Drive, Athabasca, AB, T9S 3A3 Canada
Toll-free (CAN/U.S.) 1.800.788.9041 (6821)
fgs@athabascau.ca | fgs.athabascau.ca | athabascau.ca

Dedication

To the relentless pursuit of understanding—the unyielding desire to ask ‘why’ and seek deeper truths in the world around us. May curiosity always guide the way.

And to my family and friends, whose unwavering support, patience, and encouragement have carried me through this long and demanding journey.

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Abstract

This research study developed a localized theory describing what factors influenced pedagogical decision-making in online courses and how these factors might be related. Using a Critical Realist Grounded Theory methodology, this research project developed the Contextually Grounded Decision-Making theory to explain decision-making structures, mechanisms, and the relationship between these components. This study used interview data, product reviews, and focus group data from full- and part-time faculty to ensure the emerging theory was meaningful to the research site and data participants. This theory will open areas for faculty reflection and empowerment, institutional change, and further research into understanding the tensions of digital transformation in higher education, identifying points of influence to intervene in pedagogical decisions through the structural components or mechanisms. Although the specific structural components and mechanisms of the resulting theory are limited to the research site, the contribution to the scholarship of this project is the general critical realist-based theoretical model and a process for developing a localized theory across areas of decision-making (including pedagogical) within any given institution.

Keywords: Online Course Design, Critical Realism, Grounded Theory, Decision-making, Pedagogy, Higher Education, College

Table of Contents

List of Tables and Figures

Glossary

Academic-Humanist Perspective – Concerned with the citizenship and collective benefits of education. This perspective on the purpose of higher education positions learning as emancipatory, critical, and progressive, disrupting the dominant social, political, and economic values (also called the Essential Good perspective). (Clark et al., 2009)

Digital Logic - Embraces the complexity that has emerged because of the local, national, and international boundary collapses made possible by information technologies and the critical questioning of the long-held norms of modernity. (Mansell, 2021)

Economic-Utilitarian Perspective – Means to an end perspective on education. Positions learning in higher education as being in service to the dominant social, political, and economic values (also called Instrumentalist perspective). (Clark et al., 2009)

Epistemology - How we believe we can come to know the world - the means of the scientific process. The processes of knowledge generation or acquisition we have agreed most accurately represent what can be known and represent the relationship between the subject and object in knowledge claims (Moon & Blackman, 2014).

Industrial Logic -Emphasizes a linear cause and effect and structural understanding of societal boundaries and interactions. (Mansell, 2021)

Learning Paradigm - Used to describe the collected answers to what is the nature of learning, what is the process of learning, what contextual features set learners up for success, and how these are informed by a learning theory. (Dede, 2008; Kivunga, 2014)

Learning Theory – Used to describe the distinct combinations of ontological and epistemological perspectives specifically related to how and why learning occurs.

Ontology - Our understanding of the nature of the world around us. Sets the boundaries of and defines reality; what there is that can be known (Moon & Blackman, 2014)

Worldview – Used to describe the combination of an ontological, an epistemological, and an axiological perspective reflected in an individual's perspective on the world around them.

Chapter 1: Introduction

Overview

In the current ideological, social, economic, and political climate, understanding pedagogical decision-making for online courses may provide insights into the digital transformation of higher education. Higher education has been called on to respond to both the digital revolution of the knowledge age and the leaps forward in the adoption of online education brought about by the COVID-19 global pandemic lockdown. The transition from industrial to digital logic that underpins current ideological, social, economic, and political trends provided the philosophical impetus for higher education to digitally transform, and the COVID-19 pandemic has provided the practical impetus for the necessary entrance of all institutions of higher education into the digital space. As higher education navigates its place in the digital space, the call of digital logic is to avoid the simple digitization of the industrial model of education (often referred to as Emergency Response Teaching since the COVID-19 pandemic lockdown but had long before existed as a pedagogical approach). Instead, higher education needs to advance, revolutionize, and transform into institutions capable of supporting the types of ideological, social, political, and economic savvy required of the 21st-century citizen to succeed in the current era and to influence what is still to come. (Garrison, 2000; Jenlink, 2001; Guri-Rosenblit, 2014; Seldon, 2018; Cheng Y. C., 2019)

This chapter will briefly describe the history and trends in higher education leading to the changes expected of institutions as they respond to socio-cultural and economic-political trends. It will also explore trends related to the evolving zeitgeist and institutional behaviour and highlight the complexities of institutional transformation. Understanding the significant impact of the social, political, economic, and ideological trends on the transformation of higher

education institutions in Ontario and the current tensions in these areas will help the reader appreciate the potential impact of the proposed research.

Background

To understand the forces and factors that influence pedagogical decision-making, it is important to situate ourselves in the more extensive system that often constrains these decisions. This section will briefly trace the historical development of the Ontario post-secondary system (a term used interchangeably with higher education in Ontario) before outlining the system-wide forces that have historically shaped and continue to influence the behaviour of post-secondary institutions. These forces are conceptualized under the following organizing contexts: 1) funding trends, 2) quality trends, and 3) trends related to the evolving zeitgeist.

History of the Ontario Higher Education System

The history of Ontario higher education can trace back to 1635 New France (comprising territory which includes portions of modern-day Quebec and Ontario) and the establishment of the Jesuit schools. In 1663, the secondary school of the Jesuits introduced coursework that would be considered the first of a higher education level. This system (including its higher education coursework) persisted through the transition to British rule in 1760, and the Roman Catholic Church was allowed to continue its role in education. (Lawson, 1991)

The American Revolution (1765-1791) was the next significant influence on the system's development. The migration of the United Empire Loyalists to the area significantly impacted the social, economic, and political agendas of these communities. It helped make higher education part of the broader agenda. The American settlers saw education as an essential system through which to instill and perpetuate their beliefs and values. An activity of significance to them given the context of the American Revolution. (Jones, 2014) It should be

acknowledged here that these efforts were also used to extinguish existing cultures in the area with the most significant and lasting impact felt by the indigenous peoples.

The colonial legislatures officially created the first universities (called colleges at the time) in Nova Scotia (1789), New Brunswick (1800), and York (now Toronto, 1837). These institutions existed alongside those with direct denominational connections within the Presbyterian, Baptist, and Methodist communities. King's College in (now) Toronto became the first secular post-secondary institution in Ontario. (Usher, 2018) This remained the structural state of post-secondary education until the end of the century.

The creation of the Dominion of Canada under the British North America Act would significantly impact education as it established two levels of government: the federal government to whom responsibilities such as foreign relations, trade, and defence were entrusted, and the provinces to whom education and healthcare were entrusted. The university system continued as a self-governed and unchallenged system in Ontario until the development of community colleges in the 1960s. It should be mentioned that universities at this time were not the research institutions of today. They strongly focused on undergraduate baccalaureate education and a minor focus on graduate studies and research agendas. (Jones, 2014) The funding mechanisms of these institutions would transform them over time; however, those influences are explored more explicitly in a subsequent section. For now, it is helpful to acknowledge that the funding and enrolment mechanisms at this time served to keep higher education as an elite system.

Ontario universities would experience (and survive unchanged) a funding and enrolment threat during the years surrounding the First World War; however, the years surrounding the Second World War would significantly impact the structure and further development of the higher education system. In 1945, the Toronto Training and Re-establishment Institute was created to serve the needs of WW2 veterans. Nine of these institutions were established in

Ontario, creating a significant pool of human and technological teaching and learning resources. By 1948, when service to the veteran population was complete, the Department of Education determined that the soon-to-be surplus of human and technological resources should be re-missioned to provide similar types of education to other populations. Collectively, these resources would become the first Institute of Technology (Ryerson, now Toronto Metropolitan University), and the model would expand to the Eastern Institute of Technology (Ottawa, 1957), the Western Ontario Institute of Technology (Windsor, 1958), and the Northern Institute of Technology (Kirkland Lake, 1962). (Skolnik, 2021) Universities continued relatively unchanged and unthreatened during this time.

From the 1940s to the 1960s, the Institutes of Technology continued offering 2-year diplomas where there was evidence of labour-market need as determined by a program advisory committee (PAC) from the industry. When the industry asked the institutions to incorporate more humanities into otherwise technique-heavy 2-year diplomas, the 3-year advanced diploma was created and became another standard of education at the Institutes of Technology. (Skolnik, 2021)

During the 1960s, all the Canadian provinces began establishing community college systems. Outside of Ontario, many provinces developed systems that would connect to their university system. For example, Quebec took the opportunity to re-sequence their entire kindergarten to the post-secondary system and create the CEGEP (*collège d'enseignement général et professionnel)*, which offered both 2-year vocational credentials and 2-year general arts and science curricula designed as the equivalent of the first 2-years of a university degree. The Western provinces adopted the junior college system prevalent in the United States and were designed to support both the vocational and university transfer functions. (Clark et al., 2009)

In 1965, with arguably a less strategic focus, Ontario developed a community college system that operated independently, not overlapping with the university system. The college system served a strictly vocational function and did not consider any transfer arrangement with the universities. In 1968, the provincial government transferred academic upgrading and skill training programs from secondary schools to colleges, thus "*firmly establishing the colleges as the main provider of adult and vocational education in the province*" (Skolnki, 2021, p. 22). The realization of the community college system effectively transitioned Ontario higher education from an elite system to a mass system (more than 15% of young people attending higher education) and put it well on its way to a universal system (more than 50% of young people attending higher education). (Clark et al., 2009)

At this point, Ontario had established its higher education system in the form that would remain until the *Vision 2000* review of the 1990s. This report reviewed the mandate of Ontario colleges and suggested a revision to the system to support access, quality, and transfer options, which would alter the college system's trajectory. At the same time, a series of reports and task forces suggested that the university system should bring itself in line with government objectives and establish a formal transfer credit mechanism with community colleges. These reports critiquing the university and college system set the stage for the governmental assent for colleges to offer baccalaureate degrees in 2000 and for formal reporting mechanisms from colleges and universities to the government (Strategic Mandate Agreements) in 2014. (Clark et al., 2009)

These pivotal moments capture the significant systemic changes that shaped Ontario's higher education system and represent the system's current structure. However, in addition to structural changes to the system, higher education in Ontario has been shaped by funding,

quality, and other drivers, which have moved Ontario's higher education from a mass system to a near-universal system. These trends are explored in more detail below.

Trends Influencing the Higher Education System in Ontario

Funding Trends. Funding trends have had some of the most significant influence on how institutions of higher education have developed and shifted their mandates over time. Although most of these trends would occur post-WW2, one significant pre-war funding trend exists in Ontario. Almost immediately upon confederation, when the provincial governments were tasked with funding higher education, the Ontario government introduced a policy that would see government funds only supporting secular institutes of higher education. At the time, this policy decision would have little impact on higher education as funding was provided at the federal level directly to institutions by way of direct operating grants. However, in 1956, the provincial governments were wary of the level of federal influence. They launched a constitutional challenge to the post-secondary direct operating grants, arguing that they violated the province's constitutional rights to control overall health and education-related matters. The provinces were successful in their challenge, and the direct operating grants to institutions were changed into transfer payments to the provinces, which would determine how the money was distributed. In Ontario, this caused a significant shift in institutional structures as many denominational institutions (previously receiving direct operating grants) transitioned into secular institutions to continue accessing funding. (Jones, 2014)

From 1959 to 1973, funding was trending at an all-time high. This financial situation was mainly due to the Gordon Commission, the demand from a coming-of-age Baby Boom population, and the prevailing notion that Canadian citizens ought to own and operate Canadian businesses and resources, thus the demand for skilled labourers and academics alike. (Usher,

2018) The higher education system expanded through the creation of the community college system, and they, along with universities, were brought under a single operating ministry. Due to high funding levels, low tuition levels, and significant operational autonomy, it was the "*golden age for higher education*" (Usher, 2018, para.1) in Ontario, a state that would not last beyond the mid-1970s.

The economic recession of the mid-1970s marked a funding trend that would force institutions to make organizational-level decisions from which they are still recovering. The realities of the recession limited institutional growth as the province moved to enrolment-based funding. The federal government signalled a withdrawal of interest in higher education by introducing the Established Programs Financing model, which tied any increases in funding to economic growth at the national level (which was currently in a severe recession). During the 1980s, the provincial government cut education budgets under the guise of system management by introducing the funding formula to the post-secondary system. (Jones, 2014)

The economic aftermath of the recession was exacerbated by other national challenges, which served to increase massive deficits and stall any economic recovery. The actions of the federal government to balance the budget would devastate higher education. Most significantly, the federal government targeted the transfer payment system by first combining the system from two packets (social welfare and health/education) into one health and social transfer and then by decreasing the overall funding to that packet. As a result, the provincial governments dramatically decreased funding for higher education (as they attempted to balance the significantly lower transfer payment across more social institutions) and instigated a massive raise in tuition caps to offset the cuts. The resulting impact on the system was "*inflation-exceeding tuition increases and the elimination of most of non-repayable grant aid available to*

students" (Kirby, 2008, p. 3), layoffs and restrained hiring trends (Picot & Lin, 1997), and exit of talent (Zhao et al., 2000). Although the colleges fared slightly better than the universities, it was, in essence, the perfect decimation of the system. (Usher, 2018)

The higher education system never bounced back to pre-recession funding trends. Upon balancing the budget, the federal government returned funding to the province for the health sector via transfer payments but did not return the education funding. Instead, the federal government invested in student financial aid programs, research infrastructure, and research talent, thus providing direct funding to individuals rather than institutions. This funding shift served to alter universities from teaching institutions to research institutions as it incentivized institutions to invest in their graduate programs and (as a result) underfund their undergraduate programs. (Jones, 2014)

Ontario higher education institutions have been left to find other innovations to cover the system's actual costs. They have begun to experiment with marketization strategies, public-private partnerships, internationalization, and year-over-year enrolment growth. To this day, the Ontario system continues to struggle with the aftereffects of the funding trends resulting from the 1970s recession. New provincial actions (such as corridor funding, tuition freeze, and performance-based funding) further restrict the higher education system. These funding restrictions require the community colleges, in particular, to do more with less as they also try to fulfill the demands of other emerging trends, which tend to fall mainly within the community college mandates.

Quality Trends. During the golden age of higher education, institutions were left to define and measure quality. Unsurprisingly, the definition of quality was closely linked to resources and funding, establishing the narrative that academic quality could only be achieved by

a properly publicly funded higher education system. In the post-recession funding restructuring (when higher education went from publicly-funded to publicly-assisted status), the provincial government took a more significant interest in quality assurance. The institutions and the government took up competing definitions of quality, thus creating a significant degree of conceptual confusion in this area. In essence, institutions defined quality one way, and the provincial government operationalized it differently via the required reporting metrics; however, they did share an overarching focus on operational quality over teaching and learning quality.

Historically, quality has been defined by the institution (specifically universities) in relation to either input (resources and admission selectivity) or educational processes. This definition has established high-quality institutions as "*those that admit the smallest proportion of applications, have the greatest volume of resources per student, and employ traditional processes of education.*" (Clark et al., p. 118) This resource definition of quality positions quality, funding, and accessibility (conceptualized strictly as enrolment) in relation to each other. A change in one would result in changes in the others. This definition allowed institutions to build the narrative that if funding is altered, quality and accessibility will necessarily be impacted. Ultimately, this narrative places accountability for quality on the provincial government's funding and enrolment decisions.

Dissatisfied with the institution's definition of quality and its use as fodder for constant criticism of government policy, the provincial government decided it was time for the institutions to account for what they did with their funding and move accountability back to institutions. As the provincial government defined quality, they moved to an accountability framework that provided the boundaries by which quality could be measured. Although the government does not outright reject notions of inputs and educational processes as being important to the definition of

quality (in fact, they would help to cement particular perspectives on educational process into the mechanisms of program development and approval), they broaden the definition by including learning outcomes as a metric by which to evaluate learning gains, and the student experience as a metric by which to capture consumer satisfaction. These values are enacted through the province's shift to performance-based funding, which ties institutional funding to skills and job outcomes (including graduate employment earnings, employment rate, graduation rate, etc.) and economic and community impact (including research funding and industry partnerships). These changes have shifted quality to the institution's purview rather than the professorate's purview. The quality system now serves to reward the status quo. There is little room within quality assessment mechanisms for institutions or individuals who want to improve quality in ways that do not pursue enrolment expansions or pursue teaching and learning outside prescribed educational processes. (Clark et al., 2009)

The move from an elite system to a universal system has necessitated changes in how academic institutions engage with modernizing educational processes and shifting conceptualizations of accessibility beyond enrolment. The practices that arise from these changes have found themselves in tension with (and at times antithetical to) definitions and measurements of quality, often unsupported by funding mechanisms. A universal system of higher education will also find itself more susceptible to the trends of the evolving zeitgeist. Some of these trends are discussed below.

Evolving Zeitgeist. Funding and quality are not the only trends to which institutions find themselves beholden. Below, the current major socio-cultural, economic-political, and ideological trends impacting institutional behaviour are discussed.

Socio-Cultural Trends. With university participation rates being more closely tied to higher incomes and generational history of educational attainment, community college institutions have tended to absorb the responsibility for educating historically excluded populations. (Kirby, 2007) Providing compelling educational experiences for underserved populations has required community colleges to expand their operations and quality assurance responsibilities to include initiatives such as universal design for learning, anti-racism, decolonization, queer pedagogy, dis/ability justice, and effective and timely accommodations.

The democratization of higher education speaks to the notion that all members of society should have equal and meaningful contact with higher education and the resources required to access it. In fact, there is an "*expectation that organizations given public funding and granted special privileges will behave in ways that further the objectives for which such funding and privileges are given.*" (Clark et al., p. 18) With increasing class sizes and the diversion of attention to administrative and research tasks, the faculty's role in advising students outside class has disappeared. This task has since mostly transitioned to non-academic staff, a move often referred to as the "professionalization of student life" (Skolnik, 2010)

The increase in the number of learners and the complexity of their identities and learning needs signals the necessity for a significant pedagogical shift. Higher education in community colleges abandons the notion that learning is strictly the responsibility of the students and is achieved via the didactic philosophy of previous pedagogical approaches. Many institutions have created centers for the Scholarship of Teaching and Learning and Instructional Design to support these changes. Community college mission statements have always tended to include statements about helping individuals achieve personal and social mobility goals and to help communities thrive. However, the increased focus on globalization, as outlined in the economic-political

trends below, has made it difficult to continue to support environments that promote these more altruistic goals. (Clark et al., 2009)

Economic-Political Trends. In 2004/2005, many provinces commissioned comprehensive reviews of their higher education systems. These reviews highlighted the growing influence of globalization and neoliberal effects, such as marketization and privatization/commercialization, on the purpose and delivery of education. (Clark et al., 2009) In addition, the notion that a more educated workforce is crucial to global economic competitiveness tends to drive governmental interest in higher education access and student success. This perspective, also called the economic-utilitarian approach (Kirby, 2007), continues to come up against the more academic-humanist ideology (concerned with the citizenship and collective benefits of education), often creating conflicting pulls on institutional behaviour.

Privatization/commercialization in higher education refers to the adoption of policies that require individuals to pay a larger portion of the costs associated with their own education and institutions to seek out private donations and partnerships to offset their costs. This redefines students as consumers with the expectation that their providers deliver a high return on their investment. (Mintz, 2021) Privatization dovetails into other neoliberal values that are taking root in academic systems. Knowledge as a commodity, competition, profiteering, and other drivers that "*require individual human beings to engage in new forms of risk, to transform one's being into self-regulated, self-directed, entrepreneur who values self as human capital*" (Cannella & Mirka Koro-Ljungberg, 2015, p. 155) are some other ways neoliberalist values show up in academic spaces and place demands on institutional behaviour.

Marketization occurs in higher education when the values of the academic-humanist approach are displaced by market values such as competition and profit. These influences have

redefined higher education as a commercial enterprise rather than a social good. Applying these models within education produces tensions, not only due to the conflicting narratives between operational staff and educators about the purpose of education but also because the higher education environment is often too complex and unpredictable to be effectively explained and managed by market-based strategies. (Kirby, 2007) Marketization in higher education "*includes the adoption of customer-oriented attitudes, inter-institutional diversity, emphasises the importance of external relations, systems of quality assurance, inter-organizational competition, and marketing-led management*" (Oplatka & Hemsley-Brown, 2010, p.1) and has left its mark on all areas of institutional behaviour.

Ideological Trends. The role of higher education in knowledge production has become a critical public policy focus of the post-industrial information age. However, government interference with curiosity-driven research via funding incentives threatens to produce thinkers who can only perform in the current underlying logic systems rather than those who can embrace digital logic and change systems accordingly. (Kirby, 2007) Digital logic embraces the complexity that has emerged because of the local, national, and international boundary collapses made possible by information technologies and the critical questioning of the long-held norms of modernity. Digital logic departs from linear industrial logic, which emphasizes cause and effect, by embracing complex systems and the ensuing ambiguity (Mansell, 2021).

The initial shift from industrial to digital logic in society occurred due to the knowledge explosion and technological revolution brought about with the rise of the internet. This shift in thinking is sometimes referred to as the fourth industrial revolution, as introduced by Klaus Schwab at the 2016 World Economic Forum.

> *We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. We do not yet know just how it will unfold, but one thing is clear: the response to it must be integrated and comprehensive, involving all stakeholders of the global polity, from the public and private sectors to academia and civil society. (para. 1)*
>
> *There are three reasons why today's transformations represent not merely a prolongation of the Third Industrial Revolution* [electronics and information technology to automate production] *but rather the arrival of a Fourth and distinct one: velocity, scope, and systems impact. The speed of current breakthroughs has no historical precedent. When compared with previous industrial revolutions, the Fourth is evolving at an exponential rather than a linear pace. Moreover, it is disrupting almost every industry in every country. And the breadth and depth of these changes herald the transformation of entire systems of production, management, and governance. (para. 3)*

Despite the calls of futurists like Schwab, industrial logic continues to dominate institutions of higher education. When higher education became increasingly market-driven, educational technology was introduced to replicate the industrial focus on efficiency, quality, and accountability in the digital space. Higher education has embraced the digital space; however, its emphasis has been on digitizing the underlying industrial, economic-utilitarian model and "*while marginal improvements have been made, fault lines in the very engineering of the industrial model of education have stood in the way of more profound change*" (Seldon, 2018, p. 53).

More recently, conflicts have emerged as the operational structure, funding mechanisms, and established faculty ideology continued to embrace the guiding principles of industrial logic,

while the futurists and student population began to see the emancipative and disruptive potential of technological innovation and digital logic thinking. The scale of change the system faces is reminiscent of the advent of the industrial age, where no feature of society remained unchanged. For the first time, there is a single universal technical system that allows instantaneous access and hastens all our operations and interactions (Peters M. A., 2017). Higher education is struggling to leap from industrial to digital logic.

The introduction of new technology often undergoes a "lag time" before the sustaining influence of that technology is known (Pemprase, 2018). Institutions of higher education have suffered from a more significant lag time than other types of societal institutions. Arguably, the requirements of Schwab's fourth industrial revolution cannot accommodate this prolonged lag time as no aspect of the current educational model will remain as digital logic continues to disrupt all social, political, and economic institutions (Pemprase, 2018). As Clark et al. (2009) point out, "*while the present design may have been suitable for the conditions of the 1960s when it was introduced, changes in both the internal and external environments of post-secondary education since then have made it obsolete.*" (p. 4) Institutions of higher education will need to change in significant and meaningful ways, down to the underlying logic of the system itself and adopt a guiding philosophy that is increasingly unstandardized and unplanned (Seldon, 2018; Cheng Y. C., 2019).

The relative autonomy in which institutions of higher education once thrived has been eroded by the increasing interference of government funding and accountability models and the pervasive social, cultural, economic, political, and ideological trends of our time. These tensions highlight the need for significant changes in institutional behaviours. Where and how these changes should be made is laid open to inquiry.

Statement of the Problem

With so many changes on the horizon for the higher education system and institutional behaviour, where would intervention have the most profound impact? Approaches to academic change have often focused on change management strategies at the institutional level, relying on the assumption of a trickledown effect to impact the teaching and learning space. Arguably, the culture of education is developed at the program and course level and then supported at the institutional level. With the academic freedom entrenched in the higher education systems, course design and delivery are the responsibility of the faculty, and institutional management does not have the standing to influence curricula at this level (see OPSEU CAAT-A collective agreement, Article 13). With such autonomy afforded to faculty, it can be challenging to change the institutional culture from the top-down. The existence of academic freedoms and enactment of these freedoms in course design and delivery can prevent institutional-level initiatives or even socio-cultural changes from impacting the curriculum. Understanding the seats of change is necessary for any transformational change (Fullen, 2003). Therefore, pedagogical decision-making at the course level is a seat of potential change (whether revolutionary or stepwise) in the higher education system. Producing change and increasing flexibility within a complex system without understanding the micro-level change dynamics that tend to significantly influence institutional change typically meets with resistance and often failure.

Recent history has seen the years between transformations become exponentially smaller while the number of innovations grows exponentially larger. Without some means to adapt more quickly to the lag time, educational institutions may be rendered, at best, ineffective and, at worst, obsolete. Alternately, embracing change and quickly adapting might put higher education institutions in a position to shape the social, economic, and political landscape and lead the

solutions to post-modernity's "wicked problems" (Seldon, 2018). The ability of institutions of higher education to support learners in quickly changing social, political, economic, and epistemological environments will require proactive flexibility. Whether higher education is headed for significant disruption or not, an understanding of pedagogical decision-making would contribute to the ability of any institution to succeed in the face of any unknown complexities to come.

Purpose of the Study

This study aims to explore factors that impact pedagogical decision-making and develop a framework for understanding if and how they might interact to influence pedagogical decisions in online course development in community college institutions. The literature, explored further in Chapter 2, has identified some factors that appear to impact pedagogical decision-making in isolation but has not looked at these factors in interaction with one another and how those interactions might impact pedagogical decision-making. In addition, most of the literature in these areas has taken a deductive approach, seeking to investigate a pre-identified factor and its impact. This study will take a retroductive approach to explore whether these factors are identified when pedagogical decision-making is explored in context without predetermined variables. The retroductive approach allows for additional factors that may have yet to be studied in the existing literature and new causal theories to emerge from the data.

Developing a conceptual framework for pedagogical decision-making will open areas for potential research in developing theoretical models of institutional change, understanding the digital transformation of higher education, identifying points of influence to intervene in pedagogical decisions, and professional development research.

Methodology

The methodology, which is expanded on in Chapter 3, reflects the research study's epistemological, ontological, and axiological positioning. The ontological position of this study was situated in realism. The epistemological position of this study was situated in relativism. The axiological position of this study was situated in functional contextualism. Given these perspectives, the most appropriate research methodology chosen for this study was Critical Realist Grounded Theory.

In adherence to the Critical Realist Grounded Theory methodology, the research questions presented below represent a broad area of inquiry rather than a specific set of questions. The questions below set the boundaries of the research study but allow additional areas to emerge through the inductive and retroductive approaches of the methodology.

Critical Realist Grounded Theory methodology permits a broad review of the literature in the research area prior to the collection of data. This review is presented in detail in Chapter 2; however, additional research was consulted in the data collection process and used in the constant comparison process to ensure the theoretical saturation required of a Critical Realist Grounded Theory methodology.

Research Questions

The primary research questions were:

1. What factors influence online pedagogical decision-making in community college programs?
    a. How do beliefs about learning impact pedagogical decision-making?
    b. How do beliefs about learning theories impact pedagogical decision-making?

c. How do beliefs about the purpose of education impact pedagogical decision-making?
d. How do beliefs about technology impact pedagogical decision-making?
e. How do contextual factors impact pedagogical decision-making?

2. Can any relationships between influential factors be identified?

These questions guided the research project while holding space for additional factors to emerge during the process.

Research Questions Expanded

Each question is briefly expanded below, with the supporting literature explored in Chapter 2. This study explored the perspective of the educator because even in a student-centred learning environment, the pedagogical decisions made by the educator provide the boundaries of the educational experience for the learner through the establishment of the program outcomes, course outcomes, assigned resources, and evaluation mechanisms.

Learning and Pedagogical Decision-Making. Learning as a phenomenon of study has been explored by various disciplines. How these disciplines have defined learning varies significantly. As a result, the perspective an educator ascribes, amongst the numerous available, may impact their pedagogical decisions. (Etmer & Newby, 1993; Saljo, 2009; De Houwer et al., 2013; Barron et al., 2015; Alexander et al., 2015; Hoadley, 2018; Uncapher, 2019; Limet al., 2019; Cheng K.-M., 2019; de Royston, 2020)

Learning Theories and Pedagogical Decision-Making. An educator's underlying ontological and epistemological position is often reflected in their approach to teaching and learning. (Fives & Buehl, 2012) Learning theories provide a framework for how knowledge is constructed, perceived, processed, and evaluated during the learning experience. Learning

theories represent what is valued as a learning experience and which theory guides an educator may impact their pedagogical decisions. (Skinner, 1968; Keller, 1968; Todd & Morris, 1983; Siemens, 2005; Fox, 2006; Anderson R. E., 2008; Ally, 2008; Saljo, 2009; Anderson, 2010; Dron & Anderson, 2014; Bíró, 2014; Lewin & Lundie, 2016; Kraglund-Gauthier, 2019)

Purpose of Education and Pedagogical Decision-Making. Perspectives on the purpose of higher education typically fall into two categories: instrumentalist or essential good. Educators who hold an instrumentalist perspective on the purpose of higher education position learning in higher education as being in service to the dominant social, political, and economic values. Educators who hold an essential good perspective on the purpose of higher education position learning as emancipatory, critical, and progressive, disrupting the dominant social, political, and economic values. The educator's position on the purpose of higher education may impact their pedagogical decisions. (Kanuka, 2008; Ade-Ojo & Duckworth, 2015; Cheng, 2019; Osberg & Biesta, 2021)

Technology and Pedagogical Decision-Making. Perspectives on technology in higher education often revolve around two central debates: the neutrality debate and the natural debate. Whether an educator sees technology as a neutral tool or one laden with social, political, and economic values may impact their pedagogical decision-making when designing for the digital space. Additionally, if an educator positions face-to-face as the natural type of learning and 'others' digital learning spaces as inferior and less authentic, their pedagogical decisions for online courses may be impacted. (McLoughlin & Lee, 2008; Kanuka, 2008; Bojesen, 2016; Seldon, 2018; Kraglund-Gauthier, 2019; Osberg & Biesta, 2021; Gallagher et al., 2021).

Contextual Factors and Pedagogical Decision-Making. Experiential and environmental influences may play a role in pedagogical decision-making for online courses. Experiential factors include previous experiences as a learner, previous explicit pedagogical

training, feelings of competence in the digital space, and identity as an educator or member of their discipline. Environmental influences include time or workload, institutional incentive and disincentive structures, logistical classroom constraints, the nature of the course content, and reporting and funding mechanisms. These factors may impact pedagogical decision-making or affect the potency of other potential influences. (Natriello, 2005; McLoughlin & Lee, 2008; Kali, et al., 2011; O'Brien & Brancaleone, 2011; Brownell & Tanner, 2012; Cox & Prestridge, 2020; McMinn, et al., 2020)

Summary

This chapter briefly outlined the history of the Ontario higher education system and the trends influencing that system. The tensions and commitment explored in this chapter highlight the need for change in the higher education system and the necessity to understand further how pedagogical decisions are made in context. This understanding may lead to the development of hypotheses and research questions related to changing pedagogical decision-making to support higher education's digital transformation and other pedagogical goals. The research questions presented here represent the broad area this research explored. The following literature review explores some of the factors influencing pedagogical decision-making, from philosophical positions and experiential history of the educators to environmental factors of the organization.

Chapter 2 – Literature Review

Introduction

Educational researchers have studied several factors hypothesized to impact pedagogical decision-making. These research studies span many publications, each prioritizing different epistemological and ontological positions, resulting in a wide array of research methodologies. In

alignment with a Straussian approach to grounded theory, the literature reviewed below represents a broad scan of factors and concepts related to pedagogical decision-making. This review will demonstrate that the factors impacting pedagogical decision-making are varied, complex, and likely interrelated. It is necessary to identify which factors have already been acknowledged in the literature as a foundation from which to begin the grounded theory research process. Against this backdrop, the information collected in this research project will be compared, contrasted, integrated, and re-mixed.

Definitions of Learning

The empirical approach to the study of learning traces to the beginning of the 20th century. Many disciplines began to work in parallel to formulate their epistemologies and methodologies to undertake the study of learning. These disciplines explored questions of description, prediction, control, and application (Hoadley, 2018). The definition of learning varies based on the discipline that has claimed it as their phenomenon of study. Cognitive psychology, neuroscience, behaviour analysis, evolutionary theory, computer science, developmental psychology, adversity science, social science, and the science of the individual, to name a few, have all claimed learning as part of their research domain (Barron et al., 2015; Uncapher, 2019). At best, the research agendas in each of these disciplines have produced definitions of learning that are often mutually incompatible and result in a further siloing of learning research along theoretical and discipline-specific lines. Each silo perpetuates the use of its definition and doggedly considers it to be a fulsome, stand-alone description of the complexities of learning (Alexander et al., 2015). At worst, the research agendas in each of these disciplines fail to adequately operationalize learning as the phenomena of study or unit of analysis while making claims about learning, learning processes, and appropriate application of

theory (De Houwer et al., 2013). Focusing on any singular process resulted in important insights but often failed to explain the variations in learning. The attempts to understand learning as part of a complex system, the phylogenic and ontogenic components, and the influence of culture have contributed to the increasingly expanded and dissimilar definitions of learning (Hoadley, 2018).

An analysis of the definitions of learning in the literature highlights the following tensions: Learning is a process or a product; learning is behavioural (a change in behaviour) or mental (a change in mental constructs); learning is based on empiricism or rationalism; learning is the uncovering of an innate individual capacity, or it is constructed through the individual's interaction with their environmental context; learning is strictly a human endeavour or learning is now a human-technology relationship; learning is individual, or learning is collective, cultural, and social. Research methodologies grounded in incompatible epistemological and ontological foundations support the multiple pathways available to navigate these tensions.

Issues With Multiple Learning Definitions

The variance in definitions reflects both theoretical differences and differences in the units of analysis. These differences promote distinct methodologies for studying the phenomena of learning and prevent the development of a conceptually systematic understanding of learning required for an iterative basic and applied research agenda (Barron et al., 2015). The lack of a conceptually systematic evidence base supports many beliefs and understandings about learning evident in educational research and practice. These "*contrasting and contentious views of learning dot the educational landscape and hinder the progress in this domain for researchers and practitioners alike*." (Alexander et al., 2009**,** p. 177) This perpetuates the disconnect between the diverse basic science disciplines and the practice of education and educational research (Lim

et al., 2019). The lack of communication and dissemination between the various research and practice areas is one of the reasons "*why longstanding complex problems about learning continue to elude our understanding and why research findings have not found traction and adoption in educational policy and practice.*" (Lim et al., 2019, p. 19) The methodological contexts further complicate these gaps between discipline-based basic science and educational practice. Basic science research environments are seen as controlled, whereas educational research environments are classrooms with uncontrollable confounding variables expected in real-world contexts. These variations result in an actual or perceived disconnect between any scientifically derived principles of learning and the ability to capitalize on them when designing in the educational context. The basic research environment also supports a strict operationalization of learning, whereas educational research environments often support a broader, messier definition of learning. The notion that the different fields of study seek to understand learning from different perspectives and towards different ends, as Uncapher (2019) says, "from cells to systems," opens the opportunity for a conceptualization of learning that might allow for the reconciliation of the definitions.

Reconciling the Definitions of Learning

Discussions about the reconciliation of the definitions of learning have moved in two directions. The first continues to acknowledge the inherent incompatibility of discipline-situated understandings of learning based on competing epistemological and ontological perspectives. This literature argues that any number of learning definitions can be defended as foundational and ultimately not reducible to each other (Saljo, 2009). The second direction is moving away from one of combative dominance to one of interdisciplinary understanding and acknowledging that the complex phenomenon of learning can support inquiry from various lenses, each

revealing something different about this foundational human activity. As Alexander et al. (2009) assert, "*fracturing along theoretical lines is unproductive and there is a need for more vibrant debate between perspectives regarding basic assumptions, methods, and aims*" (p. 177). Literature focused on a compatibilist perspective presents a unit of analysis framework to justify a congruency between definitions of learning. Taking the unit of analysis perspective holds space for various definitions of learning to exist alongside one another and, when taken together, produces a comprehensive understanding of learning at the phenomenon's micro-, macro-, and meta-levels. Although some units of analysis may be compatible across perspectives, the reconciliation of these perspectives is not necessary.

Importance of Definition of Learning to Pedagogical Decision-Making

Learning is the business of education. How learning is defined impacts both practitioner decision-making and the likelihood of the discipline of education to formulate a useful theory of itself. How educators define learning impacts and influence their everyday decisions, and a useful theory enables model building a conceptually systematic basic and applied research (Alexander et al., 2015). Without some insight into one's perspectives on the nature of learning or a comprehensive evidence base, assumptions are often made about the nature of learning, and these assumptions find their way into pedagogical decision-making and begin to make up the hidden curriculum that moulds learning free from critique (Cheng K.M., 2019).

When we consider the tensions described earlier in the chapter, curriculum design could vary greatly depending on which side of these tensions an educator's beliefs about learning lay. Course design and delivery could be very different if designed through the lens of learning as a behaviourist, empiricist, realist/positivist, human, and individualistic versus a lens of learning as a mentalist, rationalist, constructed, integrated with technology, and social – or any of the other

possible combinations of these tensions. To this end, how an educator has come to define learning is an important contributor to their pedagogical decision-making framework.

Summary of Definitions of Learning

The definitions of learning have not remained consistent over time, and "r*ecent scientific breakthroughs reveal new and consequential insights about the brain, the complexities of thinking, and the intertwining of learning and the environment that challenge much of what we thought we know about learning and much of the science our current educational structures, program, policies and practices are built upon."* (de Royston, 2020, p. 485). Currently, there are elements of learning that would not have contributed to any definition of learning even a few years ago. Behaviours and cognitive constructs are no longer adequate as the foundations of a comprehensive understanding of learning (Saljo, 2009). And yet, the way we define learning impacts our pedagogical decision-making framework. Awareness of one's definition of learning can be a key insight into pedagogical decision-making. It can not only assist in the ability to articulate practice but also can open space to help people challenge and change what they know and do (Etmer & Newby, 1993).

Learning Theory and Associated Pedagogical Approaches

Our understandings of the nature of the world around us (ontology) and how we believe we can come to know that world (epistemology) combine to produce a variety of philosophical perspectives or worldviews. In education, these worldviews are expressed as learning theories which impact our pedagogical decision-making (Etmer & Newby, 1993; Tam, 2000; Kanuka, 2008). Learning theories are positioned on both the ontological continuum (realism to relativism) and the epistemological continuum (objectivism to subjectivism). The resulting philosophical positions are categorized according to their underlying purpose (to predict, understand,

emancipate or liberate, or deconstruct). They are important for their role in translating theory to practice (Moon & Blackman, 2014).

The learning theory literature assumes that pedagogical decisions are based, consciously or otherwise, on the learning theory to which the educator subscribes. It argues that not only are course design and delivery decisions based on theory, but they should be based on some theory of learning. (Kanuka, 2008) However, many educators operate from a place of theoretical ignorance or egoism (Etmer & Newby, 1993).

Reflecting the debate in the literature surrounding the definition of learning, Saljo (2009) argues that the underlying ontology and epistemology of learning theories often produce incompatible worldviews. They argue, however, that these differences should be acknowledged and valued because "*the richness in our knowledge about learning (and development, perception, etc.) lies in the consideration of the ontological and epistemological differences between traditions*" (p. 203) When academics argue about which learning theories are relevant and productive, they assume to be arguing a fair comparison. In fact, the fundamentals of the theories (assumptions, methods, relevant premises, and perspectives) vary across distinct and contradictory lines, including the purpose of theories (correspondence or explanation) in general (Saljo, 2009).

A theoretical foundation provides guidelines for pedagogical decision-making to ensure consistency between and across course design and delivery elements. This theoretical foundation also captures those elements that reflect the theory's underlying assumptions and what is considered important learning (Mayes & de Frietas, 2007). Without theory, educational trends (such as digital transformation) threaten to overwhelm educators with possibilities and run the risk of *"technology superseding pedagogy at the latter's expense."* (Gookool-Ramdoo, 2008, p.

6) They argue that in the absence of a theory, the importance of the tool becomes a heavily weighted element in pedagogical decision-making.

Channelling technology into high-quality learning environments requires a foundation of theory and research (Anderson R., 2008). A theory helps educators understand and take committed action when faced with disruptions or revolutions in the teaching and learning space. A theory to ground decision-making permits exploration of the increasing problematization of teaching and learning spaces, resulting in predictable generalizations (Gookool-Ramdoo, 2008). Pedagogical decision-making can be more effective if educators are aware of all learning theories and can articulate those they intend to use. This insight also serves to identify the embedded values in curriculum design and draws stronger relationships between pedagogical decision-making and learner outcomes (Kanuka, 2008).

Learning theory influences learning paradigms. A learning paradigm represents the connection between all the elements of the learning environment and *"postulates on the nature of learning, relationships involved, the principles that underpin those relationships, and the structural and cultural dynamics responsible for the cause and effect of what happens."* (Kivunja, 2014, p. 82) The learning paradigm is built on three interconnected questions informed differently by the various learning theories. What is the nature of learning? What is the process of learning? What contextual features set learners up for success? (Dede, 2008; Kivunja, 2014) The most commonly entrenched learning theories and the corresponding features of their associated learning paradigms are described below and summarized in Table 1.

Pre-Internet Learning Theories

Behaviourism, Cognitivism, and Constructivism are the three most common pre-internet theories influencing the development of distance and online learning environments (Siemens,

2005). Of these theories, only the behaviourist learning theory ascribes to a behaviourist ontology and epistemology. In contrast, the others all ascribe to a mentalist ontology and epistemology, even if that epistemology is further refined or classified within the description of the learning theory.

Mentalistic Behaviourism. In 1913, John Watson popularized the behaviourist perspective on human behaviour in Psychology as a Behaviorist Views It. This approach to human behaviour, later referred to as methodological behaviourism, has remained the dominant understanding of a behaviourist learning theory in educational literature (Todd & Morris, 1983). BF Skinner (1938, 1945, 1950, 1953) introduced operant conditioning and brought operant and respondent learning under the same roof (as radical behaviourism). He moved the understanding of human behaviour closer to that of natural evolutionary science.

Even after this evolution of behaviourism, Watson's reductive perspective remains a constant in education and psychology, perpetuated in the literature and teachings of those disciplines (Todd & Morris, 1983). Psychological and educational literature will often present behaviourism as a single point of view rather than presenting the nuances in the philosophy as "*different forms of behaviorism, including some forms to which applying the label behaviorism is questionable.*" (Moore, 2011, p. 146) The questionable attributions stem from the interpretations of behaviourism adopted by cognitive psychologists and incorporated into modern models of human behaviour and learning. Which aspects of these models are emphasized (behavioural or cognitive) determines whether it is presented as a behaviourist learning theory or cognitive learning theory. Here, we term this mentalistic behaviourism to identify the compatibility of this approach with the constructs and processes proposed by cognitivism and distinguish it from the modern behaviourist approaches to learning.

Description of the Approach. Methodological behaviourism is rooted in a positivist approach to understanding human behaviour. Learning is defined as changes in observable and measurable behaviour, and the *mind* is positioned as a black box that cannot be measured and, therefore cannot be understood. However, the introduction of mental constructs inside the black box is completely avoided in this understanding of learning, positioning methodological behaviourism as a non-representational understanding of human behaviour and learning. In this approach, learning behaviours are elicited by the environment.

Examples of Associated Learning Paradigm-Pedagogical Approaches. Mentalistic behavioural learning environments view the learner as a responding organism and focus on arranging the environment to elicit pre-identified behaviours. Knowledge claims are objective and external to the individual, promoting a rote presentation and memorization approach to learning. Contingencies of extrinsic motivation are arranged to promote effective learning behaviours and disincentivize behaviours that interfere with learning. The educator arranges learning environments and learning pathways, and the learner is responsible for following the learning plan. Feedback to the learner is a focus of this pedagogical approach. It is most effective if both are delivered as close in time to the learning behaviour as possible and individualized to the learner.

Behaviourist Learning Theory. In 1938, BF Skinner advanced the behavioural understanding of human behaviour as a selectionist activity at the individual, group, and cultural levels. He positioned human behaviour as something to be studied and understood in the individual's social and physical context. Skinner redefined behaviour to include overt and covert psychological events and attributes their occurrence and development to the same set of causal mechanisms. He argued against covert and overt events having different causal mechanisms

(dualism) and instead identified them all as behaviour subject to the same causal mechanisms (monism). Skinner's work solidified behaviourism as the foundational philosophy of science underpinning the science and practice of behaviour analysis. As behaviour analysis evolved over the next 80 years, the influencing philosophy evolved by incorporating many of the tenets of radical behaviourism with a renewed ontological and epistemological perspective and new research on language and cognition (relational frame theory). The result is an understanding of human behaviour and a behaviourist learning theory underpinned by contextual behavioural science and functional contextualism (Fox, 2006; McHugh, et al., 2016).

***Description of Approach*.** Behaviourist learning theory is rooted in a functional contextualist approach to understanding, predicting, and influencing human behaviour. The learner is understood as having current and historical histories that shape their response to various learning environments. These learning histories inform the learner's reliance on intrinsic or extrinsic motivation, often requiring some of each to reach their learning goals. Knowledge claims are pragmatically oriented, and the learning process is defined by the mutual influence between the learner and their social and physical environment. The educator is concerned with both the overt and covert behaviours associated with learning, taking a holistic view of the learner. Learning environments can be individual- or group-based and timely (immediately where possible), and individualized feedback is a key feature of the learning environment.

***Examples of Associated Learning Paradigm-Pedagogical Approaches*.** The most important guiding feature in a behaviourist learning environment is personalization. Learning activities and resources are individualized, and learning outcomes are determined collaboratively, with learner and discipline goals considered. Measurements of learning outcomes are designed to be used by the learner to shape their learning towards their goals. Where possible, evaluation is

embedded in the course structure as the natural outcome of engaging in the learning activities. Assessments are presented as iterative opportunities to develop competencies and achieve mastery of the learning objectives. Learning is competency-based rather than time-bound. (Skinner, 1968; Keller, 1968; Fox, 2006)

Cognitivism. In the 1950s, the concept of Cognitive Learning Theory (CLT) was introduced to the educational landscape. CLT focuses on understanding mental processes, including how humans learn and emphasizes complex cognitive processes such as problem-solving, language, concept formation, information processing, and ultimately all things we would label as thinking.

***Description of Approach*.** Based on Cognitive Science, the underlying assumption is that these mental processes are amenable to scientific study. The role of overt behaviour in CLT is as a representative demonstration of an internal mental process and the proxy unit of analysis for the mental processes assumed to produce them (Etmer & Newby, 1993). Although CLT identifies the importance of an active learner and engagement with the environment, the emphasis on internal mental constructs as the mechanisms of learning aligns CLT with the more constructionist side of the epistemological scale (Etmer & Newby, 1993; Kivunja, 2014). Cognitive theories of learning lean ontologically toward an objective reality (likely structural realist) that is processed through various mental constructs that help form a representation of this reality (Dede, 2008; Moon & Blackman, 2014). When applied to the phenomenon of learning, CLT conceptualizes learning as changes in the state of knowledge and the unit of analysis trends toward understanding how information is received, organized, stored, and retrieved. Learning is, first and foremost, a mental activity constrained by the learner's processing capacity (Ally, 2008).

Examples of Associated Learning Paradigm-Pedagogical Approaches. Cognitive learning environments incorporate the learner's previous learning experiences into the development of strategies intended to organize and structure the learning artifacts and activities to tap into these previous experiences. Learning activities are arranged as a series of practice and feedback opportunities aimed at helping learners assimilate or accommodate the new information into their existing schemas (Etmer & Newby, 1993; Dede, 2008). The primary purpose of the cognitive approach is to influence the learner by supporting them in using various learning strategies depending on the environmental context. Motivational strategies will focus on intrinsic motivation and categorize it as a mental construct (a way of thinking) innate to the learner. This approach sees motivational issues as a failure to capitalize on this existing construct rather than as a set of behaviours that can be learned and shaped through the design of the learning environment. Learner behaviours such as problem-solving, critical thinking, self-regulation, self-direction, etc., are posited as skills and abilities internal to the individual, often seen as prerequisites to successful learning at the post-secondary level.

Constructivism. Constructivism has developed within itself, producing three distinct modifications of Constructivist learning theory. Beginning with the application of Piaget's theory of cognitive development to education in 1972, constructivism also includes von Glaserfeld's radical constructivism and Vygotsky's social constructivism.

Description of Approach. Constructivism was set apart from previous learning histories by embracing the other side of the epistemological and ontological continuums, positioning itself within bounded relativism or relativism ontology and a subjectivist epistemology (Moon & Blackman, 2014). Piaget's contribution became known as Cognitive Constructivism due to the emphasis on the alignment between cognitive development and learning. It embraced bounded

relativism and subjectivism to construct a worldview and guide its applications to human conditions. It retains a more individualistic approach to learning. (Tam, 2000). In 1974, Ernst von Glaserfeld's Radical Constructivism moved Constructivism further along the ontological continuum, embracing a pure relativist ontology and subjectivist epistemology. von Glaserfeld posited that learners construct knowledge in its entirety and there is no real-world correlation. Each individual uniquely constructs knowledge; nothing is discovered. The learner's previous learning experiences make it impossible to construct truth. They can only interpret the information around them. Radical Constructivism informs a variety of pedagogical movements, including critical and open pedagogy.

In 1978, Vygotsky combined Cognitive Constructivism with the societal and social necessities of learning. Termed Social Constructivism, this theory posits that knowledge is a social artifact and only develops through collaboration with others. Social Constructivism returns to a bounded relativistic ontology and subjectivist epistemology and positions the interaction with people, groups, and culture as a necessary condition of learning (Tam, 2000; Kivunja, 2014; Moon & Blackman, 2014). The Constructivist theories hold general similarities in their claims about learning. Learning occurs through observation and cognitive processing, and the learner interprets information from the physical and social world around them according to their experiences. This approach creates a subjective understanding of the world. Thus, knowledge claims are created through the complex social dynamic to which the information is being brought to bear. A learner must be able to justify their position through social negotiations and agreement to establish it as a viable knowledge claim (Tam, 2000; Ally, 2008; Hickey, 2014).

Examples of Associated Learning Paradigm-Pedagogical Approaches. A constructivist learning environment privileges the learner's role over the educator's role. These environments

include interaction with concepts (knowledge and content), practice opportunities (learning activities, practical applications, case studies, etc.), and a specific context within which to work with the information (culture or problematization). Learning is facilitated by authentic learning activities and assessments that promote using technologies such as simulation (Etmer & Newby, 1993). Constructivist learning environments promote active learning and a requirement to participate in the learning process (Voogt, 2008).

Summary of Pre-Internet Theories

These pre-internet learning theories have all adapted to the new technologies and continue to provide relevant and valuable direction to educators during the fourth industrial revolution (Ally, 2008; Anderson, 2010). However, it is also argued that these theories have been most relevant to industrial priorities of producing good employees. Although they can adapt to existing technologies, they are not capable of incorporating all the affordances of a digital learning space. The post-industrial, particularly the knowledge society, requires education to engage learners from an entirely different perspective. Moving away from engaging learners in the 'know-what' and 'know-how' paradigm to the 'know-where' paradigm is not just a change in tools and tactics but ultimately a change in epistemological purpose (Kivunja, 2014). Uncapher (2019) argues that with such a drastic change in underlying conditions, retrofitting pre-Internet theories for a post-Internet world only serves to hold us back from capitalizing on the affordances of the digital space and transforming higher education.

Post-Internet Learning Theories

Pre-internet learning theories focus on how and what a person learns. Among other commonalities, they all posit that learning occurs within the learner and is a change in their aptitude specifically and intentionally brought about by their interaction with the physical and

social learning environment. The call from post-Internet learning theorists is that educators *"must begin to develop new data sets and new theoretical perspectives to guide inquiry"* and *"be open to the possibility of radical change when that change is likely to destabilize the conditions under which they operate."* (Natriello, 2005, p. 1899) Post-internet or net-informed learning theories emphasize emergence and generativity and are meant to include learning that occurs and is stored outside of the individual. With knowledge growing exponentially and technology impacting learning processes with an intensity not experienced in previous industrial revolutions, many of the learning processes described in pre-net theories are now increasingly provisioned by technology. The influence of the digital medium on the learner positions learning as an external event that emerges from the learning system and necessitates different engagement and navigational skills from the learner (Siemens, 2005). As Anderson (2010) points out, "*theories that have evolved since the development of the web and deliberately exploit the affordances of this new context for teaching and learning*" and "*creates an environment that is radically different from the pre-Net contexts, yet of course carries evolutionary genes from previous cultures and technologies*. (p. 30) The capability for far-reaching and cost-effective communications, the sudden shift to a large quantity of easily accessible information, and the real and automated agents that create, accrue, curate, and parcel information have produced a brand-new learning landscape that might require new theories to navigate.

Connectivism. Connectivism grew quickly as a potential learning theory when technology became ubiquitous in teaching and learning spaces. Our relationship with information and knowledge changed as we entered what some have called the fourth industrial revolution (Schwab, 2018). Although Connectivism's learning theory status is debated, it does exist within a unique ontological and epistemological space which would give the emerging perspective a distinct place among the learning theories.

***Description of Approach*.** Arguably constrained by a structural realist ontology and an objectivist nested in a constructionist epistemology, Connectivism aims to accept the complexity of the system rather than struggling to dismantle it. It promotes using behavioural data, such as learning analytics and social network analysis, to determine the impact of the learning environment on learner behaviour. These large data sets provide insight into the complexity of the learning system and allow for a holistic rather than structural understanding of that system (Moon & Blackman, 2014). Connectivism borrows from the principles of heutagogy, distributed cognition, activity theory, chaos theory, network theory, complexity theory and complex adaptive systems, and other self-organizing theories to position learning as an emergent and generative occurrence equally achievable by learners and organizations, specifically through their utilization of technology and digital affordances (Siemens, 2005; Dron & Anderson, 2014). In Connectivism, learning is no longer positioned as an individual experience resulting in individual changes in their ability to act; instead, our knowledge and competencies exist in our connections with others. Others become the proxy for knowledge and competencies. Learning can exist outside the self and replicate and compound through the small efforts of many. Siemens (2005) highlights that it is *"this amplification of learning, knowledge, and understanding through the extension of a personal network is the epitome of connectivism.*" (p. 4). The goal of Connectivist

learning is not about the transmission of information or the transformation of information into knowledge through meaning-making, the goal is to be able to identify, traverse, and generate connections between nodes in the network (Anderson, 2010).

***Examples of Associated Learning Paradigm-Pedagogical Approaches*.** Pedagogical approaches focus on building systems and connecting networks where learning can emerge. Learners develop the skills to continually expand these networks. This skill set positions learners to grow exponentially, without biological limits, and to have the capacity to know more than they currently do (Anderson, 2010). The learning environment for connectivists is developed across three distinct contexts. First, the group, often a familiar closed environment such as the classroom or Learning Management System (LMS). There is a hierarchical structure of leader (teacher) and followers (students), and participation in the group only occurs when the group is actively engaged with its organizing system (course, semester). Participants engage in learning both independently and collectively. Second, the network extends learning beyond the closed system into a voluntary community where membership changes often and is less temporally bound. Members of the community are typically purpose-focused and engage the network when there are specific problems or challenges they are trying to solve (for example, a Community of Practice). However, rather than accessing this community upon some mastery of knowledge or skills, the learner would connect with this network as a means of building their knowledge and skills. The community then becomes an extension of the learner. Third, the collective, which represents the largest and loosest connections, gathers and integrates activities across the Internet to both solve problems and form new nodes and pathways to facilitate easier connections and foster dialogue (Anderson, 2010; McHugh, et al., 2016).

A Connectivist pedagogy designs environments in which learners participate simultaneously in each of these contexts, creating a dynamic system that supports learning and strengthens knowledge and understanding through the extension of personal networks (McLoughlin & Lee, 2008). The influence of complexity theory can be seen in the Connectivist's pedagogical emphasis on the individual and the learning system. At the individual level, learners are supported in achieving self-identified learning goals by helping them identify social and physical structures and influences that may act as support or barriers to the emergence of effective adaptive behaviour. This ability to navigate the learning environment equips and empowers learners to survive and influence complex learning systems, some of which might be less than helpful.

At the organizational level, the physical and social structures created to manage learning are exposed so that any attempt by this system to inhibit, constrain, or eliminate the emergence of effective adaptive behaviour can be challenged and corrected (Lemke & Sabelli, 2008). Digital Pedagogy connects to Connectivist learning theory by intentionally using digital tools and platforms to actively shape the digital environment. Shaping these environments is done through creating, sharing, mixing, and remixing the knowledge stored in the nodes and networks of the internet. Digital pedagogy emphasizes the notions of openness, collaboration, play, practice, student agency, and identity in the creation of learning environments and activities (Davis et al., n/d). This change in outlook and approach ensures learners develop and practice the skills needed to survive and thrive in the knowledge society.

Gamification. The digital transformation of society has highlighted the relevance of some existing theories in exploring and explaining learning in the digital world. Game-based learning environments have typically been designed using pre-Net learning theories as their base. However, as gaming became more mainstream, theorists (such as James Paul Gee, 2007) began connecting gaming theory and learning, and gamification moved from an applied technology to a theory of learning (Bíró, 2014).

***Description of Approach*.** As a learning theory, Gamification positions itself within a structural realist ontology and objectivist epistemology, sharing close ties with both behaviourist learning theory and connectivism (Moon & Blackman, 2014). Gamification focuses on individualized learning pathways created through the achievement of learning tasks. The connections between learning tasks are not an important feature in the learning process. The learning tasks capitalize on various dimensions of the learner (cognitive, psychomotor, and affective) to provide the highest degree of choice to access knowledge. The learning tasks can be stacked in multiple ways to achieve the learning goal. The social structures of learning communities are necessary for Gamification as they provide motivation and feedback mechanisms. Gamification views the learning process as an overlapping relationship between individual-level activity and the community-level performance management required to promote idiosyncratic engagement.

Examples of Associated Learning Paradigms-Pedagogical Approaches. Pedagogical approaches privilege "*the visual dimension of the learning process* […] *especially the visualization of the advancement in the learning process and the chosen learning path".* (Bíró, 2014, p. 149) The diversified learning paths are constructed through the chunking of learning into small units scaffolded across multiple-choice points. A learner's progress through an

individualized pathway accesses immediate feedback (positive reinforcement) to increase motivation and engagement (Bíró, 2014). Pedagogical decision-making emphasizes the creation of a specific learning environment and the role of the educator. Learning environments are designed to include mechanisms to record learner progress, provide feedback on progress, and encourage risk-taking and mastery. The role of educators is to motivate persistence, influence learners to move from extrinsic to intrinsic motivation, promote transparency in assessment, and encourage reflection (Ramirez & Squire, 2014).

Summary of Post-Internet Theories

The broad view of post-Internet theories reflects a societal understanding that the arrival and swift rise of technology and the new relationships and performances required in the digital world cannot help but change the very nature of human social and physical relationships. As the fourth industrial revolution researchers posit, the changes occurring now have produced a world that is ceasing to reference the past and its previous iterations, making us all strangers in our own spaces. These changes have revolutionized the learner and our relationship with them in the educational space. These changes have happened so quickly that the learner has become a stranger to us and, as Bojesen (2016) says, *"our conception of who is learning is not at all clear"* (p. 269) and *"how the educational subject can be negotiated in the digital age is, therefore, one of the many philosophical tasks for digital pedagogy."* (p. 270) Although there has been some argument about the legitimacy of post-Internet theories as something more than a repackaging of their pre-internet predecessors (Kop & Hill, 2008; Goldie, 2012), their inclusion serves to bring the drastic changes in the teaching and learning environments of the fourth industrial revolution to the forefront. This work will either serve to construct new theories of learning or help the pre-Net theories embrace the differences and affordances of the digital learning environment.

Table 1
Comparison of Learning Theories

Components of Learning	(Mentalistic) Behaviourist learning theory	Behaviourist Learning Theory	Cognitivist learning theory	Constructivist learning theory	Connectivist learning theory	Gamification
The learner	Instinct-driven individual	Conscious and Instinct-driven individual	Conscious individual	Conscious individual	Conscious individual	Conscious individual
Motivation	Extrinsic	Intrinsic or Extrinsic (based on learner history)	Intrinsic	Intrinsic	Extrinsic	Intrinsic or Extrinsic
Knowledge	External	External	Internal	Internal	External	Internal/ external
The learning process	Environment-driven	Organism-Environment interaction (mutual influence) / Contextual	Ad hoc personal processing	Systematic personal processing	Ad hoc network processing	Systematic personal processing
The teaching focuses on	The environment and the behaviours (overt) of learners	The environment and the behaviours (overt and covert) of learners	The cognitive process of learners	The cognitive process of learners with a special view to prior knowledge	The dynamics of networks with a special view to knowledge - allocation	The environment and the cognitive process of learners
Engagement	Individual	Individual- or Group-based	Individual	Individual	Network-based	Group-based
The learning path is guided by	Teacher	Learner-environment (social and physical) interaction	Teacher	Teacher	Learner (discover different paths), and the teacher (choose one path)	Teacher (establish different paths) and the learner (choose one path)
The attitude of teacher	Active	Proactive	Active	Reactive	Reactive	Proactive
The attitude of learner	Reactive	Proactive	Reactive	Active	Proactive	Proactive
Feedback	Individual	Temporal	Individual	Individual	Network-based	Group-based

(Adapted and modified from Biro, 2014, p. 150)

Reconciling Theories of Learning

Differences in learning theories result from divergent views on the nature of knowledge and knowing. Incompatibilist descriptions of learning theories in the research typically present

them as irreconcilable understandings of the nature of knowledge and knowing – epistemological and ontological differences. Claims in this literature base often play up some perspectives as a complete understanding of the phenomenon while simultaneously downplaying the competing perspectives as conceptually incomplete or epistemologically reductive. Compatibilist descriptions of learning theories tend to position the differing perspectives as descriptions of different levels of the learning experience or as explaining two different aspects of the phenomenon (Mayes & de Frietas, 2007). For example, research from a realist ontology might play a role in the development and implementation of learning interventions, while research from a relativist ontology can help explain why specific interventions were successful under certain contextual factors (Moon & Blackman, 2014).

Mayes & de Frietas' (2007) presentation of the learning theories as associationist, cognitivist, and situative highlights the compatible and often overlapping principles of the most common learning theories. An associationist analysis positions learning as the building of patterns and associations by connecting the learner's mental and behavioural productions as a sequencing of events that are preceded by a trigger or cueing event and followed by feedback on the fitness of the learner's response to the current context. This feedback then ripples through other similarly constructed patterns, which are, in turn, adjusted based on this new information. This perspective on learning is represented in pedagogical decision-making across pre-internet and post-internet learning theories. A cognitivist analysis positions learning (which includes perception, language, thinking, and reasoning) as the output of mental processes such as attention, memory, and schema formation. Beginning with cognitive learning theories, this perspective also includes Piaget's cognitive constructivist learning theory and Vygotsky's social constructivist learning theory.

Pedagogical decision-making in the cognitivist tradition involves creating learning environments and activities that assist learners in constructing concepts and meaning through active engagement with their environment and a metacognitive opportunity to explore and resolve their role in this dynamic. A situative analysis positions learning as social and socially distributed. It is a repositioning of learning as situated in the specific contexts of the communities in which knowledge is learned and used. The outcomes of learning allow the learner to participate successfully in the practices of the community. Situated pedagogical decision-making emphasizes reconnecting learning to the social contexts that are meaningful to producing and consuming knowledge.

These perspectives encompass most of the current learning theories and view them as either different levels or mechanisms of analysis of learning. An associationist position describes overt activities and the outcomes for an individual; a cognitivist view describes the structures and processes that underlie individual outcomes, while the situative position describes groups of learners and the outcomes of the learning community. In summary, these perspectives can be seen as the complementary analysis of *"learning as behaviour, learning as the constructions of knowledge and meaning, learning as social practice."* (Mayes & de Frietas, 2007, p. 20).

Like the compatibilism described in Mayes & de Frietas (2007), Steffens (2015) argues that behaviourism, cognitivism, and constructivism are learning theories that describe learning at the individual level and, as such, are incomplete. The author refers to these theories as nano- and micro-level theories of learning, and a complete understanding of learning requires a macro-level theory. This level of theory (present in descriptions of connectivism, generativism, self-regulation, and heutagogy) will help surmount the incompatible nature of learning represented in the more granular level theories. The compatibilist approach allows individuals to learn along a

continuum. This continuum represents how the learner's knowledge has progressed from basic fact and concept learning to being able to extrapolate the generalities of these facts and concepts to specific case scenarios, culminating in the ability to develop new conceptualizations when previous ones fail, and problems remain to be solved.

Depending on the position of the learner on the continuum, the pedagogical decision-making should be guided by whichever learning theory is most appropriate (Etmer & Newby, 1993; Dede, 2008). This compatibilist approach is also represented as the *what, how, why* framework, which positions the learning theories as emphasizing the different depths of learning (Greary, 2009). This perspective supports overlapping ideas and principles (translating to similar practices), and the taxonomy is presented as follows: Mentalistic Behaviourism is the *what* of learning (facts), Cognitivism is the *how* of learning (processes), and Constructivism is the *why* of learning (context) (Ally, 2008). A behaviouristic worldview would remove behaviourism from the reductive position of most compatibilist literature but would not renew incompatible arguments concerning pedagogical decision-making. A behaviourist view would encompass the entire *what, how, why* framework as belonging under a behaviourist explanation. However, this would not necessarily lead to significant variations in pedagogical decision-making. The difference would lie only in the causal mechanisms of the decisions, not in the decisions themselves.

The eclectic approach of compatibilism requires educators to know a lot about many different learning theories rather than confining themselves to a single perspective that may not be able to account for all learning (Dede, 2008). When designing for digitally transformed educational spaces, best practices in instructional design highlight that no single learning theory should be used as the sole set of guiding principles. Considering the fast-paced changes inherent

in the knowledge society, theories should be consistently reviewed, and emerging theories should be continually evaluated for relevance (Ally, 2008).

Importance of Learning Theories to Pedagogical Decision-Making

An educator's epistemological and ontological beliefs drive every pedagogical decision they make and create the boundaries of the learning environment for the learner. The reflection of these beliefs in the learning artifacts not only teaches learners discipline-specific concepts but also teaches them the acceptable practices to question those concepts and how they should seek out other concepts in the world. The hidden curriculum transfers an educator's epistemological and ontological beliefs to learners. If an educator has not examined these beliefs, their impact on pedagogical decision-making remains outside the educator's sphere of influence. If one assumes that a single learning theory drives educators and shapes learning, then how this theory shapes pedagogical decisions should be part of the active decision-making process.

Constructing learning environments that align with a specific learning theory should be an active process on the part of the educator and represent a considered alignment. If one takes a more pragmatic approach to learning theory (that the nature of the learning should select the guiding theory), then understanding the various learning theories would be necessary. A robust understanding of the epistemological and ontological underpinnings of each of these theories and the resulting pedagogical approaches would promote purposeful decision-making and align the conceptual learning with the appropriate learning theory.

Summary of Learning Theories

Learning is a diverse and complex process that learning theories attempt to position as invariant across people and contexts. This positioning promotes the adoption of a single learning theory and the related tools to use as universal means for effective and efficient learning (Dede,

2008). Arguments evaluating the legitimacy or value of particular learning theories should be set aside. Instead, the focus should emphasize how an educator's understanding of learning theories and their view on the compatibility between theories impact their pedagogical decision-making. From a pragmatic perspective, designing effective learning environments cannot be restricted to a single theoretical position, as these positions are shaped by the educator's past experiences, beliefs, content, and academic discipline (Etmer & Newby, 1993; Moon & Blackman, 2014). Some pedagogical discussions have moved away from describing the influence of learning theories and towards a simple two-concept paradigm: teacher- or teaching-centred and student- or learning-centred (Knowlton, 2000). The move away from learning theories in this way serves to ignore or remove their impact from the conversation of pedagogical decision-making.

To avoid ontological and epistemological leanings becoming part of the hidden curriculum, educators need to develop an understanding of these influences. Understanding one's theory of learning promotes ongoing personal and professional development. If it is the *"explicit intention to embed within one's instructional practices those activities that help students develop and refine their skills and knowledge [this] requires a deeply individualized examination of the philosophies of teaching that instructors bring to their practice within postsecondary classrooms,"* (Kraglund-Gauthier, 2019, p. 5) and *"failing to understand the implications of our own actions is a concern, but embedding that blindness, making that blindness a structural feature of inattentive and procedurally focused systems of education threatens to reinforce and extend that myopia."* (Lewin & Lundie, 2016, p. 236). Learning theories provide a cohesive touch-point for purposeful, reasoned, and conceptually integrated pedagogical decision-making.

Positions in Educational Philosophy

Some of the questions educators explore with educational theory and pedagogical decision-making are as follows: What does education entail? What are the purposes of education? And Is neutrality inherent in technology? The possible responses to these questions vary greatly, and their answers lead to significant variation in pedagogical decision-making. These beliefs are often deeply rooted and inform many parts of an educator's life inside and outside their profession. Adherence to these beliefs in pedagogical decision-making guarantees that we teach the most meaningful skills and that education meets its moral purposes. (Kivunja, 2014)

Purpose of Education

When college educators design learning activities and environments, the pedagogical decisions are entwined with the ideological, economic, social, cultural, political, and religious forces of their time and place (Cheng, 2019). Based on these societal forces, educators evaluate the purpose of education somewhere on the continuum of instrumentalist (based on a means to an end philosophy) or libertarian (based on equality and justice philosophy), and these evaluations drive pedagogical decision-making (Kanuka, 2008; Ade-Ojo & Duckworth, 2015). The current focus of the educational system to develop the individual as a good employee has only been relevant since the mid-19th century, reflecting the social, political, technological, and economic changes that made up the Industrial Revolution and have persisted long into the 20th century.

This focus runs counter to the pre-industrial purpose of education to develop the individual as a good person (Cheng, 2019) and the emerging post-industrial purpose of education to encourage

personal growth and preservation and promote a safer, fairer, and healthier society. Literature in educational philosophy outlines seven distinct purposes of education:

- The perennial approach derives from the earliest Greek philosophers. It emphasizes the questioning of all things, the search for truth, and the development of good and moral citizens. The relationship between the learner and the institution is one of receptacle and expert, where learners are guided through transforming information from knowledge to wisdom through investigation, criticism, and communication;
- The utilitarian approach emphasizes developing skills for employment and participation in the economy while teaching learners the behaviours required to work together successfully to minimize suffering and maximize survival. The relationship between the learner and the institution is transactional. Pursuing any other purpose is considered an abandonment of responsibility on the part of the educator;
- The socialization approach emphasizes teaching learners to participate completely in the public sphere through their economic labour and as an upstanding member of social and civic life. Personal growth is valued as a means of achieving democratic participation, as personal improvement leads to societal improvement. The relationship between learner and institution is one of indoctrination to the status quo of academic and public life;
- The cultural transfer approach emphasizes developing an understanding of a historical narrative to broaden the learner's perspective before they specialize in a particular area. Discipline-specific education traces its specific history and highlights prominent historical thinkers and ideas that have shaped the progression of the field. The relationship between learner and institution is one of historical transference as a means of preparation for modern participation within a discipline;

- The flourishing approach emphasizes freedom, autonomy, trust, and the development of innate human potential, unrestrained by the concerns of societal or economic participation. The relationship between the learner and the institution is that of the provision of a formal opportunity to develop any knowledge or skills the learner elects to pursue.
- The curiosity approach emphasizes providing space and guidance to help students develop wisdom and humility. Learners develop and hone their skills in both rationality and knowledge generation. They deconstruct moral, social, and political truth claims and see this work as a lifelong pursuit. The relationship between the learner and institution is one of partnership in inquiry and the support of the learner in achieving self-actualization and individuality.
- The radical approach emphasizes social, political, and economic action. Education is not a values-neutral system; the oppression of the learner's autonomy and consciousness within it is seen as a form of violence. The relationship between the learner and the institution is for the institution to problematize society's values, structures, and practices and support the learner to transform knowledge into power. (Kanuka, 2008; Osberg & Biesta, 2021)

Education as a coherent identity or practice struggles against the external societal needs and expectations that permit this fragmentation of the purpose of education. These philosophical ideas regarding purpose within education often exist simultaneously within institutions and departments. The particular purpose an educator ascribes to influences their pedagogical decision-making.

Perspective on Technology

Alongside a philosophy on the purpose of education, educators tend to also ascribe to a philosophy of technology concerning its use and its place in the physical and social world. Positions on technology in teaching and learning vary greatly between naïve enthusiastic adoption and ideologically driven refusal. These positions are supported by philosophies of technology that are either instrumentalist (technology is a neutral tool of the user) or essentialist (technology is infused with absolute characteristics) and are often explored in the neutrality debate literature (Gallagher et al., 2021). Another perspective on technology that influences pedagogical decision-making is captured in the literature that debates the natural versus the artificial positioning. This debate explores the privileging of the direct human-to-human experience in the teaching and learning space over experiences mediated by technology. The experience educators create for students through the pedagogical decisions they make is based, at least in part, on what they believe should happen in education. These beliefs manifest in why, how, and if educators choose to use technology (Kanuka, 2008).

The Neutrality Debate. Beliefs about the use of technology revolve around the degree of neutrality an educator assumes of technology. On the one hand, technology can be seen as a set of agnostic tools which are incapable of exerting influence over the learning space. On the other hand, the tools of technology carry an inherent bias that positions the world in a particular way. That positioning is often based on what is valued. According to Kanuka (2008), the degree of neutrality is captured in one of three technological orientations that, although not specific to use in educational settings, inform pedagogical decision-making.

- Use determinism conceptualizes technology as neutral tools that simply extend the human condition. From this perspective, the user determines the effect of the technology

and technology does not originate from social or political space. Rather, technology is viewed as inhabiting a neutral and objective space. Use determinism places control for the use and impact of technology entirely in the hands of the user. In education, this perspective assumes any educational problem can be fixed with the right technology, which itself does not inherently impact the learner or learning space.

- Social determinism highlights the social and cultural influence on the development and use of technology. Before use, social determinists evaluate technology according to metrics such as circumstances of production, surveillance, values, control, and access. In education, this perspective promotes how technology shapes what is learned and how learning occurs.
- Technological determinism assumes that the technologies of a society influence social and cultural development. Technology is viewed as pervasive, and technological changes alter human life in both perceptible and imperceptible ways. Technology is value-laden, and although those values can be realized through either a positive or negative impact, the technology determines our use. In education, technological determinism can be leveraged for either its positive or negative impact. Technology use can be reclaimed and serve an emancipatory purpose, or it can perpetuate the dominant ideology and be, at best, distracting or, at worst, destructive.

The Natural Debate. Concerning technology, the philosophical position of an educator on the natural to artificial continuum will impact pedagogical decision-making. At the natural end of the continuum, educators privilege lessons typically associated with face-to-face learning environments and consider these lessons superior and more authentic. They often have a dualist outlook on the real versus artificial, in which the human condition gets distorted and splintered

into the real and online persona. Educators on this end of the continuum will often view technology with skepticism and disparage its use in the educational space, arguing that *"replacing the natural should be done as little and as late as possible"* (Bojesen, 2016, p. 273). On the other end of the continuum, educators who embrace the artificial accept the digital space as an equal extension of face-to-face learning environments. They perceive the boundaries of real and artificial to be permeable and take a monist outlook on the human condition across environments, arguing that there is only one persona, regardless of the environment in which it operates (Bojesen, 2016). The natural versus artificial debate is realized in pedagogical decision-making through the educator's willingness to embrace the digital learning space as equal but unique, requiring a re-conceptualizing of teaching and learning rather than the simple digitization of a natural lesson.

Importance of Educational Philosophy to Pedagogical Decision-Making

When disconnected from their philosophical leanings on the purpose of education and technology, educators run the risk of being coerced and convinced by social and cultural trends. This oversight permits these leanings to become part of the hidden curriculum, preventing educators from fully understanding pedagogical decision-making and the resulting learning experience. The stance an educator takes on the purpose of education directly impacts the content selected, delivery modality, learning activities, and assessments they make available to learners. This draws a boundary around the learning potential as well as the critical and civil engagement of the learner.

An educator's technological perspective is also important to pedagogical decision-making as it limits or expands the educator's available resources and tools for course design and delivery. It impacts their critical appraisal of tools, the tool's influence on learner autonomy, the ability to

transform pedagogy, and the impact on the learning environment (McLoughlin & Lee, 2008). Without a grounding philosophy to help guide pedagogical decisions, pedagogical strategies may be unconsidered and inconsistent. As Herrington and Herrington note, *"the disruptive nature of the integration of new technologies in education often result[s] in practitioners relying upon tried and proven pedagogical approaches, leading to one step forward for technology and two steps back for pedagogy*." (as cited in Kraglund-Gauthier, 2015, p. 3) Understanding the philosophical purpose of education and technology is important to pedagogical decision-making because these positions will define for the learner what the world can be and what they can do in it.

Summary of Educational Philosophy

Seldom is it common practice for educators to consider educational theory or how it drives pedagogical decision-making (Kanuka, 2008; Seldon, 2018; Osberg & Biesta, 2021). However, whether an educator believes the purpose of education is towards perennial, utilitarian, socialized, cultural transfer, flourishing, curiosity, or radical ends informs pedagogical decision-making in drastically different ways. The tension between preparing learners to succeed in the current social and economic reality and teaching them the skills to critique that reality while being able to act for change has always existed in higher education. When unexamined, where an educator falls on this continuum will influence pedagogical decision-making, resulting in those decisions living in the hidden curriculum. When examined, educators can purposefully direct their teaching and learning activities to achieve these ends.

Perspectives on technology (use determinism, social determinism, technological determinism) impact pedagogical decision-making and should be considered at the design stage of course development. An unexamined adoption of technology is often driven by social and

cultural trends, ignoring the collateral benefit or damage of technology use on learners. Educators are obligated to examine their beliefs about the neutrality of technology and whether they privilege the natural over the artificial to understand how their pedagogical decisions regarding technology shape the learning experience. An educator's agenda lives in their educational theory and needs to be examined for its impact on pedagogical decision-making.

Contextual Factors

The literature on the relationship between definitions of learning, learning theory, and educational philosophy on pedagogical decision-making assumes what Kali et al. (2011) calls a "theory-like" understanding of an educator's pedagogical approach that can be traced directly to underlying epistemological and ontological positions. This theory-like understanding of pedagogical approaches also assumes that these positions tend to be unwavering, persistent, and foundational to all pedagogical decision-making. The literature that focuses on the contextual factors influencing pedagogical decision-making challenges the theory-like position proposing a "knowledge-in-pieces" framing of all the factors that influence an educator's pedagogical approach (Kali et al., 2011). The emphasis on contextual factors leaves space for idiosyncratic experiential and environmental features to influence pedagogical approaches. This adds to the complexity of developing a comprehensive understanding of pedagogical decision-making.

While the literature exploring pedagogical decision-making and gender, years of experience, and access to professional development has shown no relationship (Cox & Prestridge, 2020), the literature on many other contextual factors (described below) has produced some evidence of a relationship to pedagogical decision-making. These findings open a possibility that contextual factors are not necessarily independent contributors to pedagogical decision-making. Instead, their existence mediates the degree to which the other pedagogical

decision-making factors are realized in any given context. The role of contextual factors unlocks the potential for a situation-specific pedagogy to embrace the true complexity of this phenomenon.

Experiential Influences

The idiosyncratic experiences of individual educators strongly influence pedagogical decision-making. The literature has identified six experiential areas that influence an educator's pedagogical beliefs and can impact pedagogical decision-making.

- An educator's previous experiences as a learner have been strongly linked to the decisions they make in their teaching environments. They tend to recreate the way they were taught, using their learning success as a justification for the overall validity of this approach. (McLoughlin & Lee, 2008; Cox & Prestridge, 2020)
- The opportunity for an educator to create courses from the ground up will influence the pedagogical decisions they make. Upon inheriting a course, they will often perpetuate the pedagogical decisions of the previous course designer. (Brownell & Tanner, 2012)
- An educator's previous formal education in pedagogy and learning principles exposes the educator to a broader array of perspectives on learning and learning theories, which they can then draw upon when making their pedagogical decisions. (McMinn et al., 2020)
- The beliefs an educator has about their competence with various pedagogical approaches and educational technologies will influence their pedagogical decisions. The more competent an educator feels they are with pedagogical practices and associated technologies, the more likely they are to incorporate them into their course design. For example, many educators feel proficient in face-to-face course design and delivery and

will use this to legitimize approaching online course design and delivery as an attempt to replicate the face-to-face experience (Natriello, 2005; Cox & Prestridge, 2020)

- Whether an educator identifies primarily as an educator or as a discipline subject matter, expert and professional will impact pedagogical decision-making. Educators who see themselves as primarily educational professionals tend to attend more purposefully to their pedagogical decisions over those who see themselves as discipline professionals and ambassadors. Subject matter expertise is an irrefutable necessity in course development; however, better pedagogical decisions are made if educators see themselves as true dual-professionals. This factor can also be an environmental influence if institutional values privilege one identity over the others. In these instances, it is typically the discipline identity that is valued. (Brownell & Tanner, 2012)
- Experienced educators will rely on their experience in the teaching space to make future pedagogical decisions. If they have enacted practices that were successful in previous courses, they are more likely to rely on repeating those pedagogical decisions. (Kali, et al., 2011; McMinn et al., 2020)

Environmental Influences

Pedagogical decision-making is influenced by contextual factors that exist outside the educator and potentially outside their sphere of influence. The literature has identified six environmental areas that impact an educator's pedagogical beliefs and pedagogical decision-making.

- Time or workload has been identified as a significant factor in pedagogical decision-making. Keeping appraised of pedagogical advances and implementing pedagogical changes in the course design and delivery impacts workload. When educators cannot

adjust their workload according to the pedagogical decisions they make, the pedagogical options available become limited and thus impact the pedagogical decisions educators will make (Cox & Prestridge, 2020).

- The availability of cultural and institutional incentives (such as financial benefit and recognition from peers, managers, and the larger community) for engaging in progressive pedagogical decision-making will shape the types of decisions educators will make (Brownell & Tanner, 2012). Disincentives for engaging in progressive pedagogical decision-making are often more available than incentives, or their impact far outweighs that of the incentives. Educators who make pedagogical decisions that do not conform to institutional and departmental norms may experience peer pressure from their colleagues. Institutional and departmental pressures towards conformity will limit the pedagogical options and confine the decisions educators can make. (Brownell & Tanner, 2012)
- Perceived classroom constraints will mitigate the available pedagogical options and impact pedagogical decisions (Cox & Prestridge, 2020). For example, educators tend to view class sizes and online delivery as limiting influences on available pedagogical options. They will then make pedagogical decisions from within the resulting smaller set.
- The nature of the content of a course of study and discipline areas will influence pedagogical decisions. When considering content, the type of learning required (i.e., understanding complex relationships versus fluency with terms and concepts) will impact pedagogical options and shape decision-making (Kali et al., 2011). This type of pedagogical decision-making can vary within departments and across courses in the same discipline. Alternately, the nature of the discipline areas (hard versus soft disciplines) can have an overall effect on pedagogical options educators deem appropriate (McMinn et al.,

2020). Educators will be more likely to make pedagogical decisions that align closely with the epistemological and ontological foundations of the discipline.

- Systemic influences such as institutional strategic directives, availability of teaching and learning resources, government regulations, reporting and funding mechanisms, accountability mechanisms and collective agreements all serve to shape the types of pedagogical decisions available to educators (O'Brien & Brancaleone, 2011). For example, the outcomes-based learning approach is embedded in the Ontario college system from government directives through credential validation services, institutional expectations, and available professional development. This removes the opportunity for educators to make decisions around the presence or absence of learning outcomes. Available areas for pedagogical decision-making related to learning outcomes are thus limited to the content and context of the outcome.

Importance of Contextual Factors to Pedagogical Decision-Making

Contextual factors play an important role in pedagogical decision-making as they often account for the discrepancies between how educators talk about their pedagogical decision-making and how they design courses and direct their practices. Educators often demonstrate in discussions that they contact progressive ideas of teaching and learning in the digital space. However, when reviewing their design artifacts, these ideas have not become part of their enacted practice. These results, though, are limited by a reliance on self-reported beliefs and very little observational data. McMinn et al. (2020) point to some translation barriers between an educator's knowledge of pedagogical options and their pedagogical decision-making.

These barriers have been identified as either experiential or environmental factors that mitigate other beliefs the educators might hold. This mediating view is often referred to as folk

pedagogy. It represents a knowledge-in-pieces perspective of pedagogical decision-making (Kali et al., 2011), where educators select from a limitless menu of options. These pedagogical decisions, however, are mitigated by contextual factors. Given that, these contextual factors should be acknowledged for their contribution to course design and delivery. Contextual factors often sway educators away from pedagogical decisions they consider to be high quality, forcing a compromise of the ideal teaching and learning experience (Cox & Prestridge, 2020). An understanding of the true impact of contextual factors on pedagogical decision-making brings the obligations of the system as a pedagogical partner to the forefront.

Summary of Contextual Factors

Contextual factors fall into experiential and environmental categories, and each has equal potential to influence pedagogical decision-making. The complexity of the pedagogical decisions educators make has yet to be accounted for by a single unifying theory or philosophy. It is possible that the impact of contextual factors on pedagogical decision-making may be interfering with the enactment of theory or philosophy in those decisions. The discrepancies between an educator's purported philosophy about teaching and learning and their course design and delivery practices may be accounted for in the experiential and environmental contextual factors.

Summary

As shown by this literature review, several factors and concepts have been identified that impact pedagogical decision-making. While these factors highlight some important considerations for pedagogical decision-making, some gaps exist with respect to the interrelated nature of these factors and if or how these factors are realized and influence each other when considered in context as part of a complex system of potentially competing and complementary variables each exacting influence on pedagogical decision-making.

Chapter 3 – Methodology

Problem Statement

This research project explored factors that impact pedagogical decision-making and developed a theory for understanding if and how they interact to influence pedagogical decisions in online course design and delivery in community college institutions. The literature explored further in Chapter 2 identified some factors that appeared to impact pedagogical decision-making in isolation but had not been looked at in interaction with one another and how those interactions impacted pedagogical decision-making. In addition, most of the literature in these areas took a deductive approach, seeking to investigate a pre-identified factor and its impact on decision-making. This study took a Critical Realist Grounded Theory approach and explored whether these factors were identified when pedagogical decision-making was researched in context without predetermined variables. This approach allowed for additional factors to emerge that had not yet been studied in the existing literature and for the nature of the relationship between factors to be explored. This approach allowed for the development of a localized theory of decision-making.

Developing a localized theory for pedagogical decision-making opened areas for potential research in (a) developing frameworks or models of institutional change, (b) understanding the complexity of the digital transformation of higher education, (c) identifying points of influence to intervene in pedagogical decisions, and (d) professional development research.

Research Questions

The guiding research questions were:

1. What factors influence online pedagogical decision-making in community college programs?
    a. How do beliefs about learning impact pedagogical decision-making?
    b. How do beliefs about learning theories impact pedagogical decision-making?
    c. How do beliefs about the purpose of education impact pedagogical decision-making?
    d. How do beliefs about technology impact pedagogical decision-making?
    e. How do contextual factors impact pedagogical decision-making?
2. Can any relationships between influential factors be identified?

These questions guided the research project and held space for the additional factors that emerged during the process.

Research Questions Expanded

Each question is briefly expanded below, with the supporting literature explored in Chapter 2. This study explored the perspective of the educator because even in a student-centred learning environment, the pedagogical decisions made by the educator provide the boundaries of the educational experience for the learner.

Learning and Pedagogical Decision-Making. Learning as a phenomenon of study has been explored by various disciplines. How these disciplines have defined learning varies significantly. As a result, the perspective an educator ascribes, amongst the numerous available, may impact their pedagogical decisions. (Etmer & Newby, 1993; Saljo, 2009; De Houwer et al., 2013; Barron et al., 2015; Alexander et al., 2015; Hoadley, 2018; Uncapher, 2019; Lim et al., 2019; Cheng K.M., 2019; de Royston, 2020)

Learning Theories and Pedagogical Decision-Making. An educator's underlying ontological and epistemological position is often reflected in the learning theory to which they ascribe. Learning theories provide a framework for how knowledge is constructed, perceived, processed, and evaluated during the learning experience. Learning theories represent what is valued as a learning experience and, as such, which theory guides an educator may impact their pedagogical decisions. (Skinner, 1968; Keller, 1968; Todd & Morris, 1983; Siemens, 2005; Fox, 2006; Anderson R. E., 2008; Ally, 2008; Saljo, 2009; Anderson, 2010; Dron & Anderson, 2014; Bíró, 2014; Lewin & Lundie, 2016; Kraglund-Gauthier, 2019)

Purpose of Education and Pedagogical Decision-Making. Perspectives on the purpose of higher education typically fall into two categories: instrumental or essential good. Educators who hold an instrumentalist perspective on the purpose of higher education position learning in higher education as being in service to the dominant social, political, and economic values. Educators who hold an essential good perspective on the purpose of higher education position learning as emancipatory, critical, and progressive, serving to disrupt the dominant social, political, and economic values. The position an educator takes on the purpose of higher education may impact their pedagogical decisions. (Kanuka, 2008; Ade-Ojo & Duckworth, 2015; Cheng, 2019; Osberg & Biesta, 2021)

Technology and Pedagogical Decision-Making. Perspectives on technology in higher education often revolve around two central debates: the neutrality debate and the natural debate. Whether an educator sees technology as a neutral tool or one laden with social, political, and economic values may impact their pedagogical decision-making when designing for the digital space. Additionally, if an educator positions face-to-face as the natural type of learning and 'others' digital learning spaces as inferior and less authentic, their pedagogical decisions for

online courses may be impacted. (McLoughlin & Lee, 2008; Kanuka, 2008; Bojesen, 2016; Seldon, 2018; Kraglund-Gauthier, 2019; Osberg & Biesta, 2021; Gallagher et al., 2021)

Contextual Factors and Pedagogical Decision-Making. Experiential and environmental influences may play a role in pedagogical decision-making for online courses. Experiential factors include previous experiences as a learner, previous explicit pedagogical training, feelings of competence in the digital space, and identity as an educator or member of their discipline. Environmental influences include time or workload, institutional incentives and disincentive structures, logistical classroom constraints, the nature of the course content, and reporting and funding mechanisms. These factors may impact pedagogical decision-making or affect the potency of other potential influences. (Natriello, 2005; McLoughlin & Lee, 2008; Kali, et al., 2011; O'Brien & Brancaleone, 2011; Brownell & Tanner, 2012; Cox & Prestridge, 2020; McMinn, et al., 2020)

Research Paradigm

Worldview-Axiology

As a Behaviour Analyst, the researcher was steeped in the functional contextualism worldview. According to Stephen Pepper's (1942) book *World Hypotheses: A Study in Evidence*, contextualism, as a worldview, ascribes to act-in-context as its root metaphor and successful working as its truth criterion. This perspective influences research to understand variables without separating them from their current and historical contingencies and environments. It also embraces a philosophically pragmatic approach to the relationship between ideas and truth. This approach also identifies the role of the researcher as a perspective and value-laden actor whose influence cannot be isolated from the research process. As B.F. Skinner (1957) stated, *"In any case, the logician or scientist is subject to the limitations imposed upon him by his role as a*

behaving organism…" (p. *252*). For the functional contextualist, ideas must be verified by human experiences and, therefore, are amenable to a selectionist epistemology where *"ideas are 'selected' (to be retained as valid or true) if they lead to successful action, just as in natural selection traits are selected (to be retained by the species) if they lead to reproductive success."* (Fox, 2006, p.10)

The addition of the functional qualifier to contextualism further defines this worldview through its analytical goals. Functional contextualism seeks not only to understand phenomena (as in descriptive contextualism/constructivism) but to "*predict and influence events with precision, scope, and depth using empirically-based concepts and rules."* (Fox, 2006, p. 11) Therefore, the knowledge valued in functional contextualism is *"general, abstract, and spatiotemporally unrestricted (e.g., a scientific principle)."* (Fox, 2006, p. 11) In functional contextualism, it is not enough to only be able to predict events; the understanding of events must also be such that the process or conditions under which they can be influenced are articulated. The emphasis on influence coveys the values of improvement, change, and possibly even emancipation. These analytical goals of functional contextualism represent the axiology of researchers who hold this worldview. Axiology outlines what is valued in the scientific pursuit; the understood ends of the scientific process.

Ontology

If axiology is considered the purpose of the scientific process, then ontology would be considered the foundation of the scientific process. Ontology sets the boundaries of and defines reality, what there is that can be known (Moon & Blackman, 2014). According to Patterson and Williams (1998), a researcher's axiological and ontological positions must be congruent (see Figure 1).

A realist ontology, specifically critical realism, supports the axiology of functional contextualism in that an element of realism must be assumed to find scientific principles that generalize beyond a single spatiotemporal space. There must be some object, event, or relationship that exists independent of our experience of it. A critical realist ontology posits that reality can be captured by broad examination and can be communicated as a scientific theory but not necessarily reduced to a simple direct representation of an object, event, or relationship. Reality is stratified across a set of domains which together help explain the complexity of the interplay between the objects, events, and relationships that make up reality (Moon & Blackman, 2014; Haigh et al., 2019).

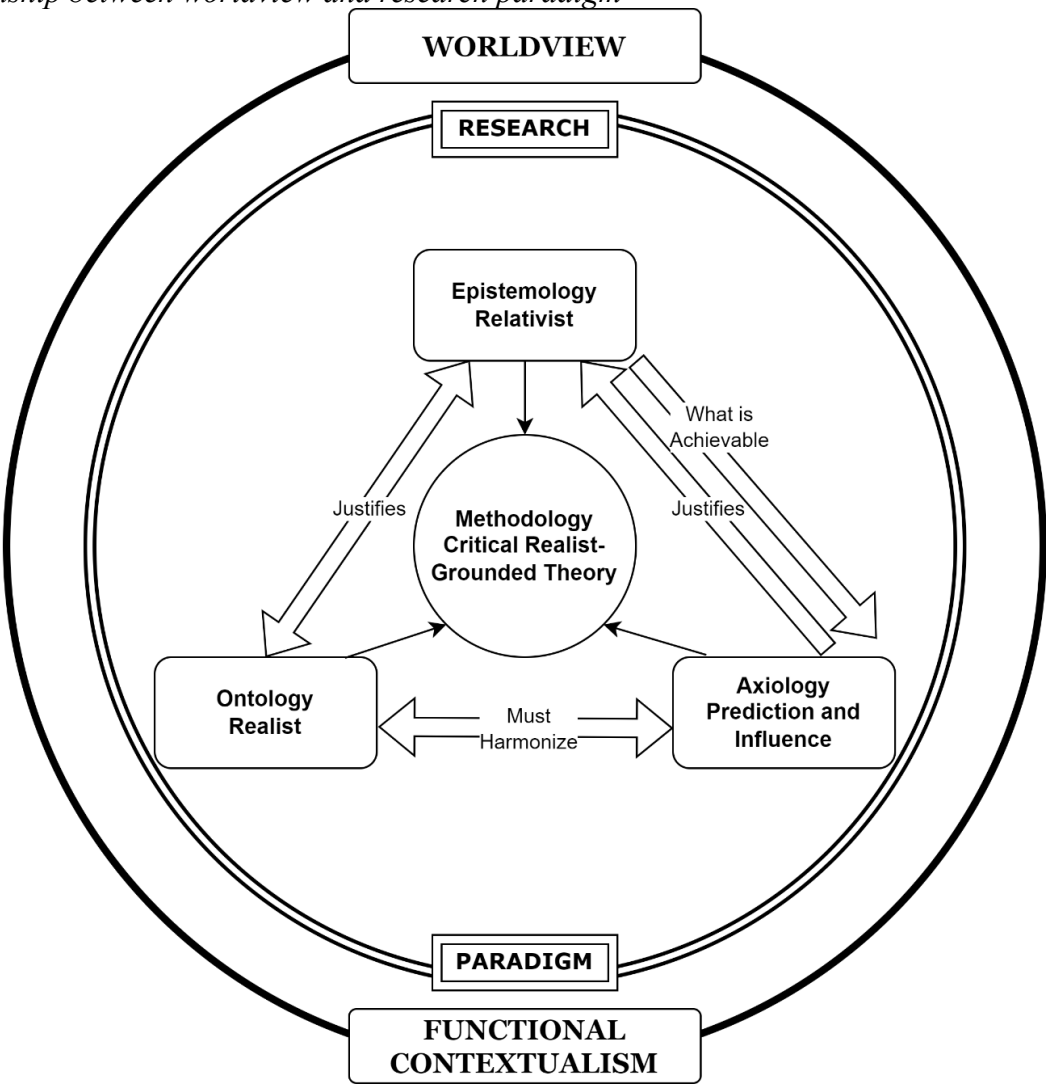
Epistemology

Epistemology is the means of the scientific process; the processes of knowledge generation or acquisition we have agreed most accurately represent what can be known and represent the relationship between the subject and object in knowledge claims (Moon & Blackman, 2014). Serving the act-in-context root metaphor of the functional contextualist worldview requires a relativist epistemology. A relativist epistemology respects a subjective relationship between subject and object, positioning the researcher as a participatory actor in the construction of knowledge claims.

Although these epistemological and ontological approaches appear incongruent, they have been successfully combined into a research philosophy called Critical Realism

Figure 1

Relationship between worldview and research paradigm



(adapted and modified from Patterson and Williams, 1998)

Critical Realist Research Philosophy

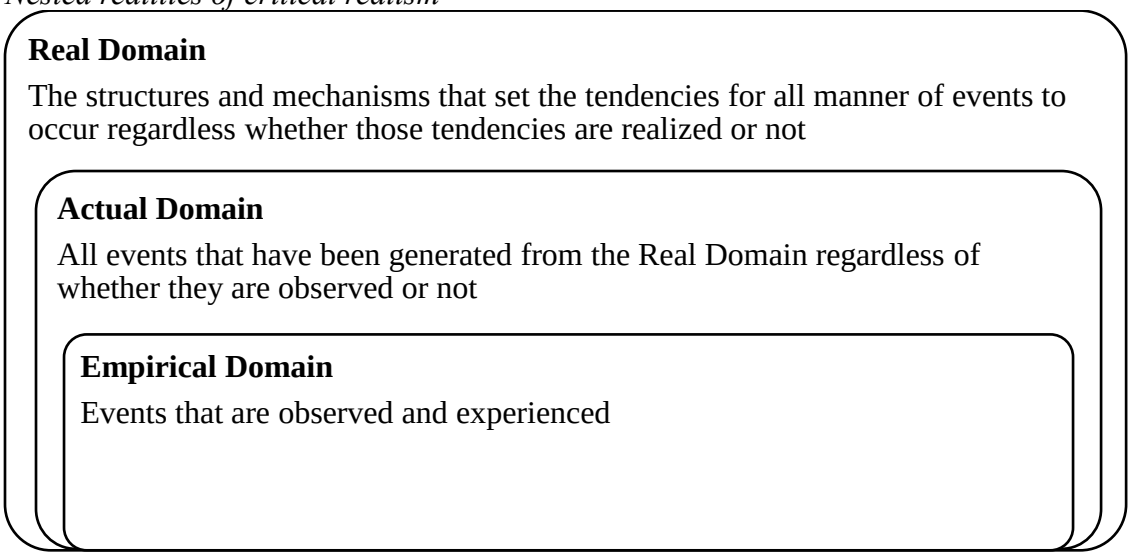
Although referred to as an 'ontology,' critical realism is defined by its ontological and epistemological relationship (namely, that it is ontologically realist and epistemologically relativist) and, as such, served appropriately as the philosophical influence for this grounded theory research study.

Critical realism was initially defined by Bhaskar (1975) as a philosophy of science in which there exists a reality outside of our thinking and perceiving of it but also respects that our knowledge of this reality is transitive and potentially fallible because we can use only those instruments available to us to observe, experience, and communicate reality (our senses, mind, and language). The knowledge we build about various phenomena is not a direct representation of that reality but rather an interpretation of it and, as such, can be misconstrued, misunderstood, flawed, and unstable/ever-changing. According to critical realism, reality is static and unchanging; however, our theories about reality are not (Haigh et al., 2019).

Critical realism presents reality not as a single construct but as a set of three nesting domains of events: the Real domain, the Actual domain, and the Empirical domain. The Real domain represents the structures and mechanisms that set the tendencies for generating events regardless of whether those events are realized or not. The Actual domain represents the events that have been generated from the Real domain regardless of whether those events are observed or not. (see Figure 2) The Empirical domain represents those events from the Actual domain that are observed and experienced. The Real is the encompassing domain in which both the Actual and Empirical domains are nested. In turn, the Empirical domain, containing the smallest set of events, is nested within the Actual domain (Oliver, 2012).

Figure 2

Nested realities of critical realism



(adapted and modified from Partington, 2000; Hoddy, 2019)

Critical realism views the social world as a complex and open system. The nested domains allow for events and entities to be present or not present and activated or not activated. They provide an explanation for these events and entities without reducing them to the Real domain (Oliver, 2012). The critical realist perspective was positioned to capture and explain the nuanced multilevel factors that influence pedagogical decision-making for online courses and the conditions in which these factors may or may not be realized.

To address the research questions in a manner that respected the stated axiological, ontological and epistemological positions while developing an explanatory theory that encompasses the critical aspects of the phenomena and is congruent with a functional contextualist worldview, a critical realist grounded theory approach (CRGT) was taken.

Research Methodology

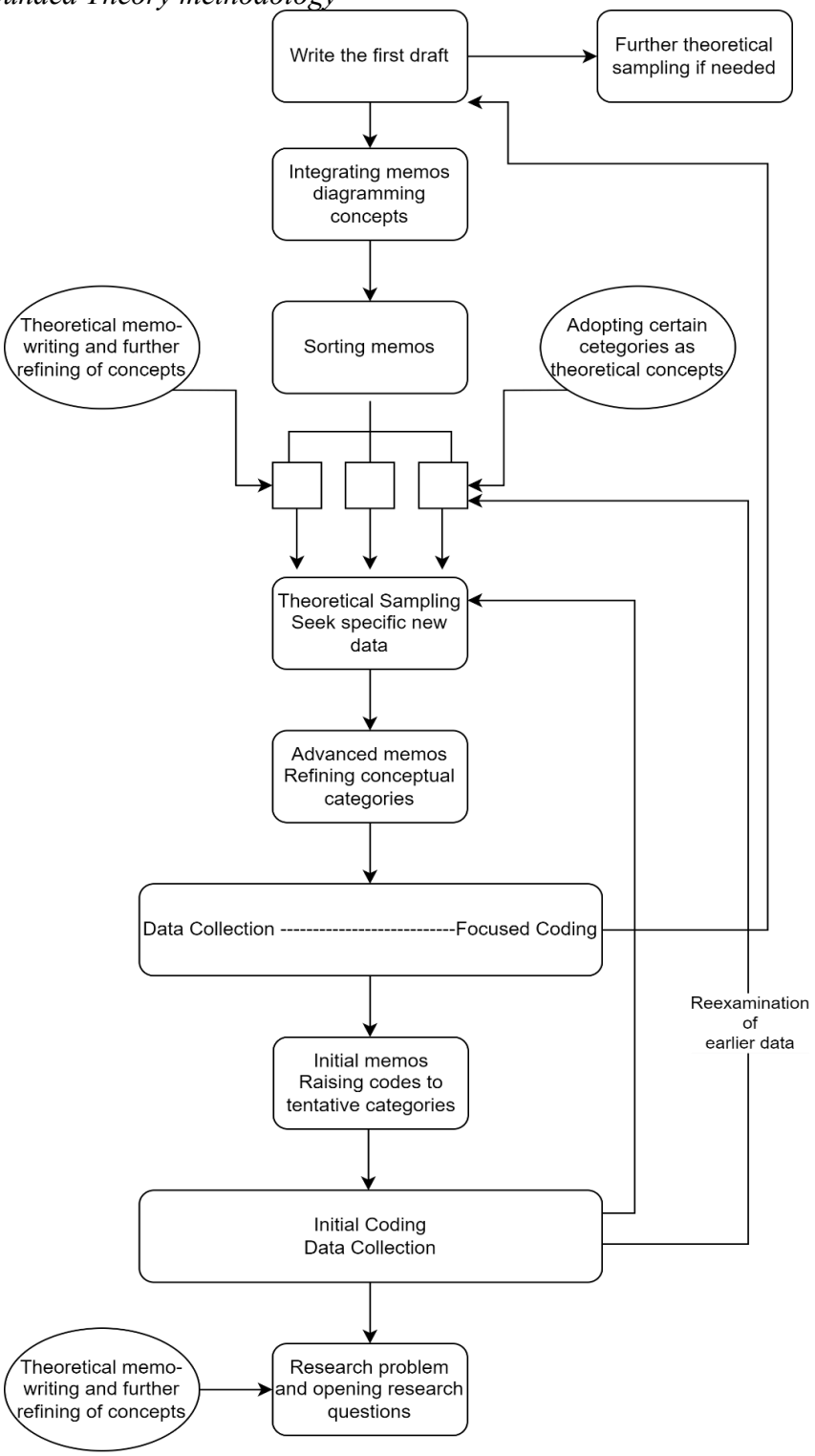
Grounded Theory Methodology

Grounded Theory Methodology is an inductive and retroductive qualitative research method that supports the emergence of explanatory theory from the research data (Birks & Mills,

2011). It is more accurate to refer to Grounded Theory as a family of methods. The variations discussed below differ in philosophical orientation. However, all embrace the core tenets of grounded theory methodology: theoretical sensitivity, theoretical sampling, constant comparison, coding, consistent verification strategy and measure of rigour, development of a core category, and memoing and diagramming (see Figure 3) (Mills et al., 2006). They all develop theory from grounded observation rather than presumptions or hypotheses, and the emerging theory adheres to a common set of criteria. Grounded theories must (a) have correspondence with the real world, (b) be able to accommodate the broad range of perspectives and situations present in the data, (c) be meaningful to the research participants and others in the localized context, and (d) be amenable to change in response to evolving data (Partington, 2000).

Figure 3

Traditional Grounded Theory methodology



(adapted from Charmaz, 2006)

This section will present a short history of grounded theory and trace the variations thereof, including their significant contributors and distinguishing features. In addition to the original grounded theory, there are five variations of grounded theory used in research, which differ in ontological or epistemological positioning, the process used to derive theory from data, and/or the model of inference used in data analysis (see Figure 4). This research project used the Critical Realist Grounded Theory variation.

Variations of Grounded Theory Methodology

Inductively Oriented Grounded Theory (IOGT). Barney Glaser and Anselm Strauss introduced this original grounded theory methodology in their work *The Discovery of Grounded Theory* (1967). This methodology became most closely associated with Barney Glaser's (Glaserian approach) method when he outlined it in *Theoretical Sensitivity* (1978). Glaser continued to separate his methods from Strauss' in his response to Anselm Strauss and Juliet Corbin's (1990) work and his publication *Emergence vs. Forcing: Basics of Grounded Theory Analysis* (1992) (Reichertz, 2019; Charmaz, 2004). When using grounded theory in research, IOGT requires the research question to emerge from the data collected and, as such, argues against the researcher contacting any literature before the emergence of the research question or problem. IOGT relies on an inductive model of inference in data analysis.

This approach embraces a realist ontology and positivist epistemology. The process of data collection begins with the researcher's first exposure to the literature about a specific phenomenon and proceeds through the iterative process of theoretical sampling in which the collection of data, in terms of methods and participants, is guided by the emerging theory and constant comparison (Partington, 2000). Constant comparison is made by coding the data into categories and comparing and contrasting data entries in the same categories to produce

conceptual properties and dimensions of those categories. This process continues until theoretical saturation is met. Theoretical saturation is met when the boundaries of the emerging theory become clear. Memoing is used to document the constant comparison process. The IOGT approach is less concerned with procedural conventions, focusing instead on the empirical nature of the data and the innovation of the researcher to set the conditions for theory to emerge (Scott, 2004).

Classic Grounded Theory (GT). This grounded theory variation was proposed in Anselm Strauss in *Qualitative Analysis for Social Scientists* (1987) and Anselm Strauss & Juliet Corbin's work *Basics of Qualitative Research: Grounded Theory Procedures and Techniques* (1990) (Reichertz, 2019). Classic grounded theory is often attributed to the work of Glaser and Strauss; however, it was Strauss and Corbin who clearly laid out the procedure for conducting grounded theory research and further defined the processes and terms unique to the approach. The work by Strauss & Corbin (1990) served to prescribe the procedures for researchers interested in using grounded theory as a research methodology (Straussian approach). This introduced the ideological split between the Glaserian and Straussian approaches to grounded theory.

Glaser (1992) argued for a less rigid procedure to protect the emergent nature of grounded theory and avoid the pitfalls of forcing theory that can come about with a highly prescribed procedure. In contrast, Strauss & Corbin (1990) argued that the prescriptive method was important to ensure researchers engaged in the grounded theory method and not simply a generic inductive qualitative method (Partington, 2000; Birks & Mills, 2011). When using grounded theory in research, GT supports narrowing a research problem through a review of the literature but also requires the researcher to revisit the literature as a source of data during the

constant comparison process. GT posits that a researcher needs to understand the landscape of the research area to set the foundation for the category development process (Birks & Mills, 2011). The distinguishing features of this variation are the operationalization of the method and the position of literature in the process.

This approach embraces a realist ontology and post-positivist epistemology. The process of data collection and analysis is an iterative process using constant comparison through memoing until theoretical saturation is met. According to the more prescribed GT procedure, the researcher first collects and codes data on the phenomenon. These coded instances are constantly compared to identify the properties of emerging categories (open coding). The researcher continues with theoretical sampling, building out categories through constant comparison, further abstracting the categories from the sampling data, and exploring the relationships between the categorical properties (axial coding). Finally, the researcher will continue combining and recombining categories and categorical properties until theoretical saturation occurs and a core category emerges. This core category is then compared and related to all other subcategories that emerged from the data (selective coding). The core category and its relationship to subcategories are reflected in the memoing process, which in turn creates the narrative of the grounded theory (Partington, 2000). Strauss and Corbin (1998) also developed analytic tools for the researcher, which guide them through defining categories and building relationships between categorical properties (e.g., conditional matrix). GT relies on an inductive model of inference in data analysis.

Code Oriented Grounded Theory (COGT). This grounded theory variation mirrors the Classic Grounded theory approach in philosophical underpinning, data collection process, and model of inference. The feature that defines this approach is its reliance on coding software

rather than on researcher intuition and analysis for the categorization of data (Reichertz, 2019). This approach is most closely linked to Juliet Corbin (2008) in the third edition of *Basics of Qualitative Research* which is the first edition to list Corbin as the first author over Strauss. The distinguishing feature of this variation is the use of digital data recording and coding software.

Constructionist Grounded Theory (CGT). This grounded theory variation was proposed by Kathy Charmaz in *Discovering Chronic Illness: Using Grounded Theory* (1990) and furthered by Antony Bryant in *Re-Grounding Grounded Theory* (2002) and by Bryant and Charmaz (2007) in *The SAGE Handbook of Grounded Theory*. The distinguishing features of this variation are the shift in ontological and epistemological positioning and the move from induction to abduction.

This approach embraces a relativist ontology and subjectivist epistemology. The data collection and analysis process adheres to the iterative process outlined in Classic Grounded Theory. Given the ontological and epistemological shift in this variation, the defining features of CGT are the perspective of the researcher, their role in the research process, their relationship with the research participants, and the knowledge claims being made by the emerging grounded theory.

Unlike the IOGT and GT variations, CGT does not suppose that the theory emerges (or is discovered or uncovered) from the data collected. Instead, CGT posits that the researcher constructs the theory through the repositioning of the experiences represented in the data (Mills, Bonner, & Francis, 2006). This removes CGT from the IOGT/GT debate on emergence or forcing by positioning theory development as neither; theory, in CGT, is constructed. CGT relies on an abductive model of inference in data analysis, a diversion from previous variations.

Postmodern Grounded Theory (PMGT). Sometimes referred to as Situated Grounded Theory, this grounded theory variation was proposed by Adele Clarke in *Situational Analyses: Grounded Theory After the Postmodern Turn* (2003). The base methodology is Straussian (GT). However, PMGT embraces the ontological and epistemological positions of CGT. PMGT highlights the need for a data analysis process that accurately captures the complexities of a postmodern social world (Clarke, 2003). The distinguishing features of this variation are the focus on using situational analyses rather than constant comparison in the data analysis process.

This approach embraces a relativist ontology and subjectivist epistemology. The data collection and analysis process mirrors the iterative process outlined in CGT. However, PMGT replaces the constant comparison procedure with situational analyses and introduces situational maps, social maps, and positional maps as a tool for data analysis. The perspective of situated analyses serves to steep grounded theory in the social and political nature of research, aligning the methodology with postmodern assumptions and critical inquiry axiology (Clarke, 2003).

Critical Realist Grounded Theory (CRGT). This grounded theory variation was proposed by Carolyn Oliver in the work *Critical Realist Grounded Theory: A New Approach for Social Work Research* (2012). The base methodology is Straussian (GT), but the purpose of the theory in CRGT is to develop an account of the phenomenon that comes as close as possible to describing the objectively real world without reducing its complexity to just the generative mechanisms of the real domain. As Oliver (2012) identifies, *"the goal of critical realist grounded theory is explanatory theory tracing the line of a tendency from its deepest known generative mechanism to its realized effect in an open social system."* (p. 383) CRGT seeks to link events together to produce categories, but also connect those categories back to the events themselves and not just to the meaning made of them.

The distinguishing features of this variation are the introduction of the concepts of the empirical, actual, and real domains into the data coding and analysis process and a reliance on the retroductive model of inference in data analysis. The emphasis on retroductive inference means that it will not be core theoretical categories that emerge in data analysis; rather, it will be possible causal mechanisms (PCMs) connected to the real domain that become apparent (Looker et al., 2021)

Figure 4

Variations in inferencing used in data analysis

Deduction	Induction	Abduction	Retroduction
• Thought Operation: to derive individual phenomena from universal laws. • Cental Issue: what are the logical conclusions of the premises? • Provides rules for data analysis, but cannot claim anything new beyond what is in the data.	• Thought Operation: to derive law from knoweldge of a number of observations of the phenomenon. • Central Issue: What is the element common for a number of observed entities and is it true also for a larger population? • Provides guidance in connecting acts to generalizations, but cannot claim anything new beyond what is in the data.	• Thought Operation: to interpret and recontextualize individual phenomena within a conceptual framework or a set of ideas. • Central Issue: what meaning is given to something interpreted within a particular conceptual framework? • Provides guidance for the interpretative process by which we can make claims beyond the data, but can't validate these conclusions.	• Thought Operation: from a description and analysis of concrete phenomena to reconstruct the basic conditions for these phenomena to be what they are. • Central Issue: what qualities must exist for something to be possible? • Provides knowledge of conditions, structures and mechanisms that cannot be directly observed and make claims beyond the data, but can't validate these conclusions.

(modified from Danermark, Ekstrom, Jakobsen & Karlsson, 2002)

This approach embraces a realist ontology and a relativist epistemology. The critical realist philosophical underpinning permits an objective reality but qualifies our knowing of that reality as fallible, given that it is mediated through language and our socio-location (Birks & Mills, 2011). Rather than aligning its ontological and epistemological positions, CRGT rejects the *epistemic fallacy* (which combines the nature of reality and our knowledge of it), allows for the individual and the system to exist on different ontological levels, and accepts the possibility that "*the gap between the real world and our knowledge of it can never be closed.*" (Oliver,

2012, p. 374) Whereas the GT approach seeks to produce a theory that is grounded in data and stable over time, the introduction of the critical realist domains in data analysis serves to ground the theory in data and the stability of the connection to the generative mechanisms of the real domain (Oliver, 2012). It explores the relationship between agency (social actors engaging in events and relationships) and structure (interconnection of embedded events and relationships formed from historic causal arrangements and precede the social actor) (Oliver, 2012; Kempster & Parry, 2014).

The relationships between agency and structure are causally reciprocal. In each stage of the data coding and analysis process (open coding, axial coding, selective coding), CRGT also codes and analyzes the data according to the domain of reality (empirical, actual, real), attempting to always trace data back through the stratified reality to its generative mechanisms in the real domain (see Figure 5). It can then be identified in the theory whether the causal generative mechanism exists and has an impact, exists and does not have an impact, or does not exist (Kempster & Parry, 2014). As Looker et al. (2021) explain, "*critical realism places a greater emphasis on being than knowing and thus requires a framework where observed, epistemologically framed, actions can be worked backwards to try to establish a natural or social, ontologically framed, object which led to the action."* (p. 147)

Figure 5

Example of the domain of reality coding in CRGT

Critical Realist Domain – Open Coding Approach	
Domain of Reality	Open Coding Approach
Empirical	Participant recalls experiences or phenomena which they witnessed or were a part of. There is no analysis by the participant, solely recall. Can also be anything directly observed by the researcher during data collection.
Actual	The participant suggests reasons or analyses to explain the phenomena The participant is making inferential comments.
Real	Will not be coded during open coding. The researcher aims to identify the causal mechanism or mechanisms in the substantive theory during comparison of conceptual categories

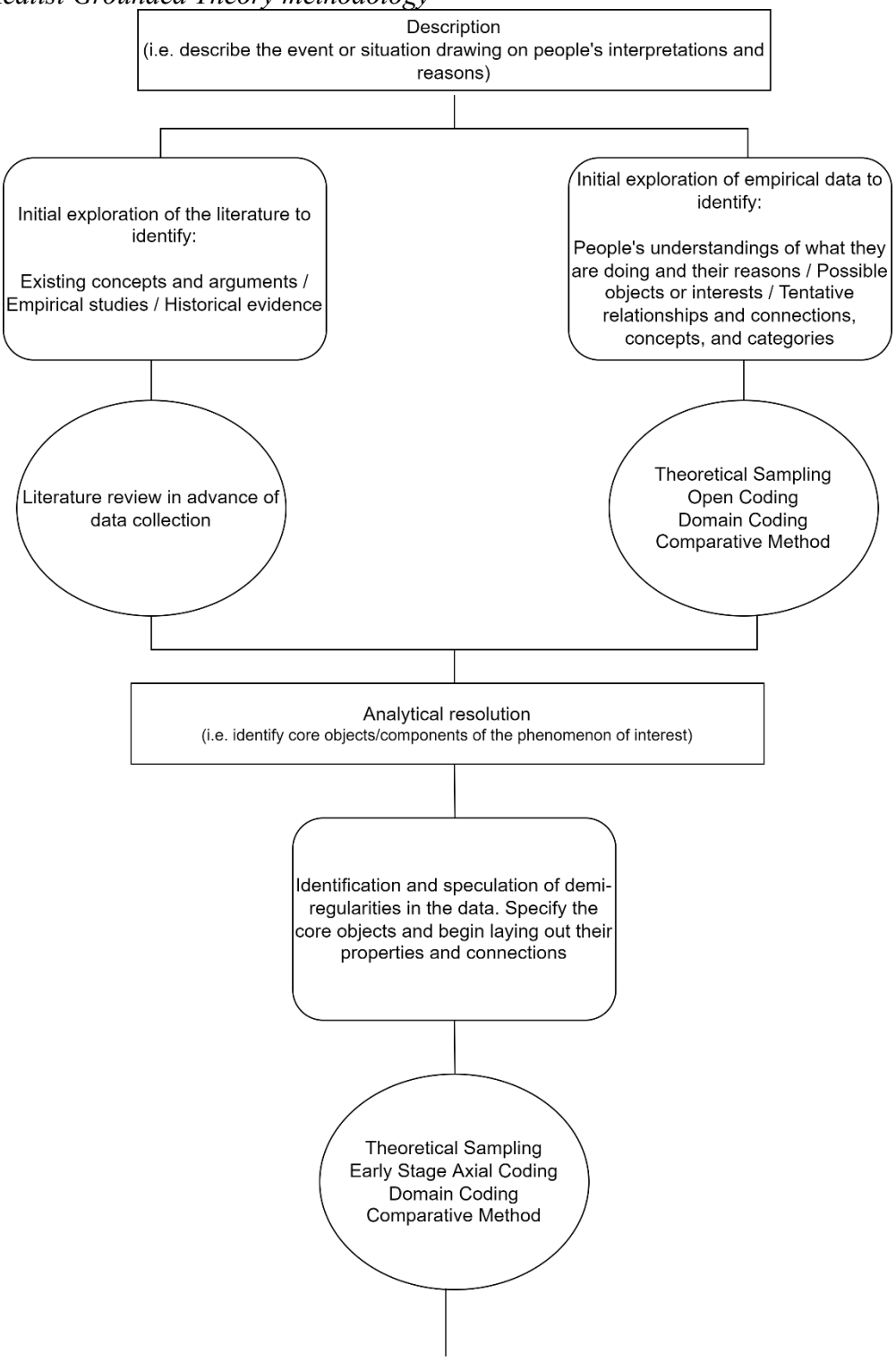
(adapted from Looker et al., 2021)

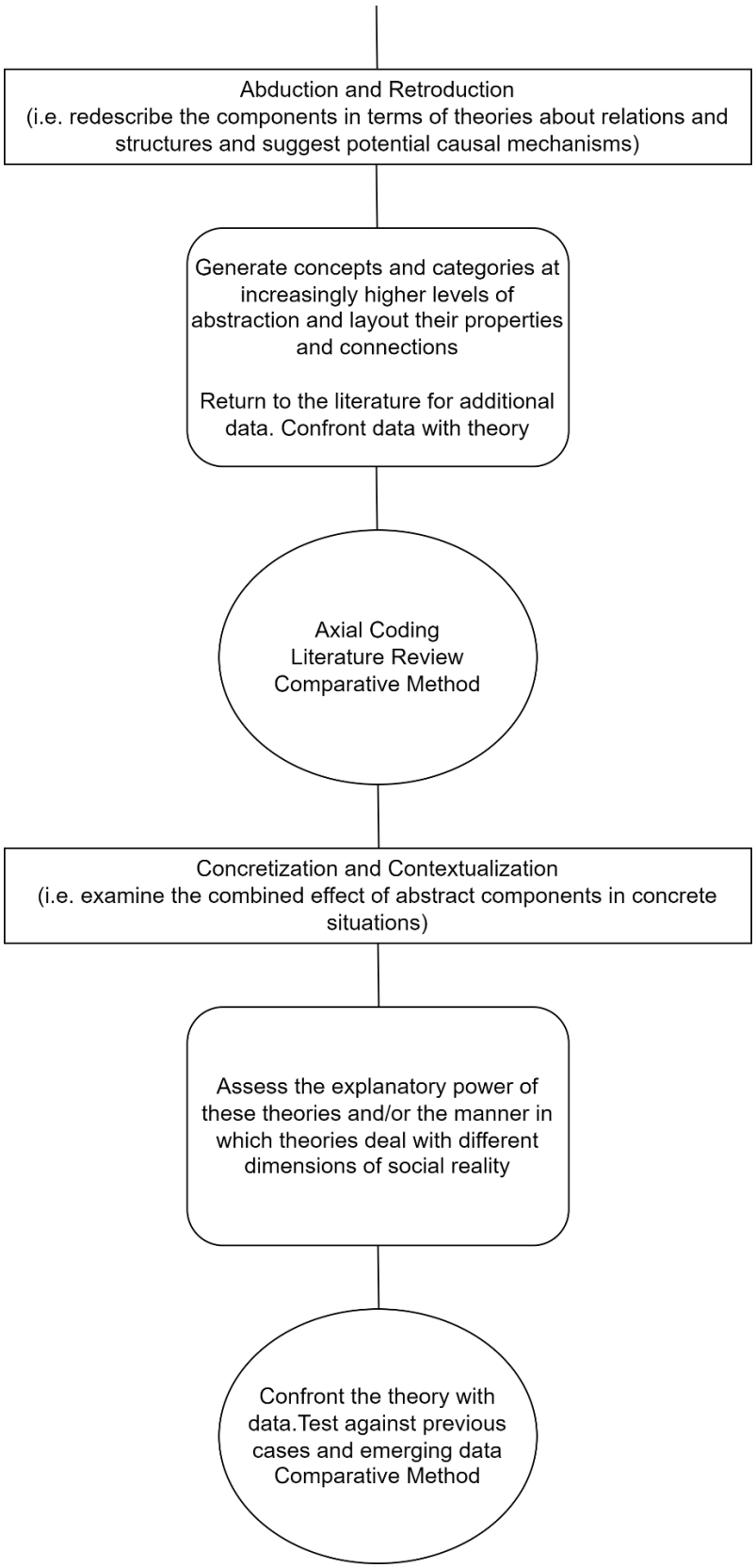
Rather than reframing the data (as in abduction), using retroduction as the inferential model supports the analytical approach of suggesting causal mechanisms that account for the phenomenon. A CRGT would *"ask of the data what must be true for this to be the case, or what makes this possible, and seek an explanation in generative mechanisms at a deeper ontological level.*" (Oliver, 2012, p. 380) A critical realist approach steeps grounded theory in emancipative axiology, arguing that a universal understanding of a phenomenon, brought about by challenging the epistemic fallacy, provides a foundation to bring about meaningful changes in systems and individuals.

The variations discussed above demonstrate the broad application of grounded theory as a research methodology. To accommodate the stated worldview, axiology, epistemology, and ontology of the researcher, the research methodology in the proposed study will follow the critical realist grounded theory method. (see Figure 6)

Figure 6

Critical Realist Grounded Theory methodology





(modified from Hoddy, 2019)

Data Gathering Methods

Critical Realist-Grounded Theory methodology is an interactive process that engages with participant selection and data collection in an emergent and iterative way. The insights gathered from the data analysis process informed the ongoing selection of participants and data-gathering techniques and repeated until theoretical saturation was reached. As a result, the participant selection and data gathering identified below represent the likely process to be followed. However, they remained responsive to the notion of emergence in adherence to the nature of the CRGT methodology.

Participant Selection. Participant selection in CRGT requires a flexible approach to satisfy the purposive sampling required to reach both a meaningful breadth of represented perspectives and a meaningful depth of theoretical sampling. The methodology employed in this study does not require the pursuit of statistical significance as the means of identifying significance; instead, participants whose views represent meaningful data (either in breadth or depth) were selected (Conlon et al., 2020; Campbell et al., 2020).

Initially, the study employed purposive sampling to ensure there were representatives from a wide variety of perspectives. These participants were screened and selected using an identification survey that was constructed based on the factors identified in the literature review. The inclusion criteria for the introductory survey were full- or part-time teaching faculty members at an urban community College (the research site) who had developed and taught at least one online course for a program at that urban community College. These criteria exclude non-teaching faculty and full- or part-time faculty who have never developed and delivered an online course at the research site.

Additional inclusion and exclusion criteria were developed throughout the research process based on participant data. For example, non-teaching faculty, such as Instructional Designers and Faculty Facilitators from George Brown College's Teaching and Learning Exchange or non-teaching faculty, such as Curriculum Designers and Program Reviewers from the Office of Academic Excellence, were included if participant data identified this as an appropriate avenue towards theoretical saturation or if they were also designing and delivering online courses.

This localized cross-sectional approach, in adherence with CRGT methodology, assumed potential results would generalize to the participants and benefit those actively providing data for the research project. Participants were sought at various points in the research process according to the above criteria and until theoretical saturation had been achieved.

Data Collection and Analysis. The data-gathering methods were divided into three stages, interrupted by ongoing data analysis. This research study aimed to categorize and compare individual sets of data and produce an explanatory causal theory of pedagogical decision-making in online courses.

Phase 1. a) Identification survey. The survey was distributed to the entire research site faculty community. This began the process of initial category identification by attempting to access the wide range of perspectives operating in the research site community. The survey was digitally constructed and distributed via the research site Microsoft Teams and email systems. Survey results were recorded anonymously via the survey software, but a section was included for participants to self-select into further phases of the data collection, and as a result, their survey responses were attributed to them. Participation was voluntary; however, given the anonymity of the data collected, participants were unable to withdraw their data after

submission. This data was collected to situate the research in the local community and was also used to identify participants for additional data collection stages (see Appendix A).

b) Literature Re-Review. The literature presented in Chapter 2 (as well as other literature contacted through the proposal process) was re-reviewed as a data source and categorized using the CRGT memoing process. The purpose of this data collection activity was to move the literature used in the justification of the research project to a more abstracted categorical level (Hoddy, 2019; Looker et al., 2021).

Phase 2. a) One-to-one interviews. Participants identified from Phase 1 were contacted to participate in interviews to further describe and understand their pedagogical decision-making practices. Purposive selection ensured that the interview participants reflected the range of perspectives represented in the identification survey. The interviews were conducted via web conferencing and were transcribed using the onboard transcription software. Participation was voluntary. Questions for the interview were determined in situ based on the participant's survey responses and in response to interview disclosures (Kempster & Parry, 2014). Questions were geared to prompt additional commentary from the participant on factors that influence their pedagogical decision-making and any relationships between those factors. Although the interviews were unstructured, some guiding questions were established from pre-conceived analytical categories established in the literature from Chapter 1 (see Appendix B). This approach will also ensure a strategic focus on the defined areas of this study while also holding space for new information to emerge and inform any resulting theory.

b) Teaching Product Review. Faculty selected for one-to-one interviews were asked to share some samples of teaching products. Useful products included their teaching philosophy, course outline(s) associated with the online course(s), any assignment supplements and rubrics, and any

other reflection products the participant might use (e.g., reflection journal). These items were reviewed and coded for additional perspectives and as part of the critical realist empirical-actual-real domain coding.

c) Observation (Looker et al., 2021). With permission, the researcher intended to audit the online courses of the one-to-one participants. The purpose of this data collection was to observe any competing contingencies in the faculty's stated vs. enacted practices or other potential idiosyncratic features of course delivery relevant to pedagogical decision-making (Cox & Prestridge, 2020). This data collection process would have assisted in the empirical-actual-real coding of any previously collected data.

Phases 1 and 2 constituted an iterative process until theoretical saturation was accomplished. The resulting categorical analysis from Phases 1 and 2 was used to complete the data collection in Phase 3.

Phase 3. Focus Groups. Once the data in Phases 1 and 2 reached theoretical saturation and emergent categories potential relationships between categories were identified, a focus group drawn from the investigative survey and one-to-one interview participants was struck to review the categories and their relationships to ensure the elements of the emerging theory represented the sample from which the data was obtained and their peers. The focus groups consisted of 10 participants in total, and participation was voluntary. The groups occurred via web conferencing and were transcribed using handwritten notes. This data collection process served the retroductive requirement of the CRGT as well as the truth and validity criteria of a grounded theory methodology. Retroductive insights required testing with the participants who generated the empirical data and with social actors in extended and alternate contexts (Kempster & Parry, 2014).

All phases of data collection were accompanied by memoing to record categories, relationships, and other ideas as required by the CRGT research methodology (Partington, 2000). The data was coded at the appropriate stages using open, domain, axial, and selective coding. The coding resulted in categories that were constantly compared to identify the possible key categories and causal mechanism(s). Retroductive analysis occurred between each stage of coding and comparison. As a final step, the resulting theory of possible causal mechanisms was returned to the participant and related groups. Any additional data gathered was incorporated, and this process continued until all data was captured in the theory and all participants could see their empirical and actual realities reflected in the underlying causal mechanisms of the real domain represented in the theory.

Ethical Considerations

This research study involves minimal risk. Faculty recruited to participate in the study were informed of the purpose of the study orally and in writing. The expectations and rights of the participants were clearly outlined in the consent documents. Participation in the study was voluntary, with no negative repercussions if participants chose to withdraw, and no reason or explanation for withdrawal was sought. Participant data will adhere to all local laws, guidelines, and policies governing data protection and confidentiality.

The anonymity of the participants was ensured using pseudonyms. The participant/pseudonym relationship record was only accessible to the researcher. All data was kept secured and confidential as per *Tri-Council Policy Statement on Research Involving Humans* (TPS2) (2018)

Data collection occurred via electronic survey instruments and web-based conferencing software. Data gathering instruments were constructed, and data collection procedures were in

compliance with the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TPS2) (2018) and the research site and Athabasca University research ethics guidelines and procedures. Research Ethics Board (REB) approval was received from Athabasca University and the research site.

Any electronic survey results, recordings or transcripts of participant interviews, focus groups, etc., were stored locally on the researcher's computer and not on external servers. Any video or audio recordings will be deleted entirely upon successful defence of the dissertation project or after five years of storage, whichever comes first. The use, storage, and deletion of personal images or voice data were clearly articulated to participants in the informed consent process.

Summary

This chapter outlined the researcher's worldview (axiology-epistemology-ontology) and how these interrelated perspectives underlie the research methodology used for this research project. This chapter then outlined the various types of Grounded Theory research and highlighted the Critical Realist Grounded Theory methodology that guided this research project. This chapter also provided an overview of how research participants were selected and how data were collected and analyzed throughout the research process. Finally, the ways in which participants were protected under research ethics involving human subject guidelines were summarized.

Chapter 4: Results

This chapter presents the results of the Critical Realist Grounded Theory methodology employed in this study using the following questions as a guide:

1. What factors influence online pedagogical decision-making in community college programs?

a. How do beliefs about learning impact pedagogical decision-making?

b. How do beliefs about learning theories impact pedagogical decision-making?

c. How do beliefs about the purpose of education impact pedagogical decision-making?

d. How do beliefs about technology impact pedagogical decision-making?

e. How do contextual factors impact pedagogical decision-making?

2. Can any relationships between influential factors be identified?

This chapter will describe the research setting, the participants and participant profiles, the findings resulting in the decision-making structure, the findings resulting in the decision-making mechanisms, and finally, how these components interact to produce a localized theory of pedagogical decision-making.

Setting: The Research Institution

The research setting was a community college in a large urban center located on the traditional territory of the Wendat, the Anishnaabeg, Haudenosaunee, Métis, and the Mississaugas of the New Credit First Nation. The land is part of the Toronto Purchase, Treaty No. 13. The College welcomes 28,584 full-time students and 2,856 part-time students (excluding continuing education) and offers 175 full-time programs across seven Program Centers (excluding continuing education). The programming areas include the Center for Arts, Design & Information Technology, Centre for Business, Centre for Community Services & Early Childhood, Centre for Construction & Engineering Technologies, Centre for Health Sciences, Centre for Hospitality & Culinary Arts, and Centre for Preparatory & Liberal Studies. There are 1,429 full-time employees (553 Faculty, 658 Support Staff, 218 Administrative Staff) and 2,719 Part-Time Employees (1,537 Faculty, 1,114 Support Staff, 68 Administrative Staff). The College opened in 1968 offering certificates, diplomas, advanced diplomas, and post-graduate

certificates. The College was permitted to offer honours bachelor's programs in 2003 and course-based master's programs in 2024.

Participant Recruitment and Data Collection

The participants were full- and part-time faculty from the community college research site who had designed and delivered at least one online course. A convenience sampling survey devoted to teaching and learning was posted on the Teams Space, and faculty were invited to participate. Based on initial interview data, purposive sampling was used, and the survey was sent out again by email to a curated list of participants to increase theoretical saturation. The survey was emailed to the curated list by a member of support staff at the College, recruited and paid for by the principal investigator as per the ethics requirements of the research site. Both methods resulted in a total of 30 survey respondents. Of these survey respondents, 19 opted into further data collection phases. Of those 19, interviews were conducted with 12 participants, and of those 12 interview participants, three provided additional products for review. Additionally, of the 12 interview participants, five indicated their willingness to have the researcher observe some classes. Moreover, 17 of the 30 survey participants expressed an interest in participating in the Focus Group. Of those 17, 11 took part in two focus groups across two different days. Each focus group contained both interview and non-interview participants.

Recruitment Survey

The recruitment survey consisted of ten questions of varying formats. The questions were constructed based on the initial data collected in the academic research on the factors that influence pedagogical decision-making. The survey was designed to identify participants' perspectives across these influences to help ensure the interview participants represented the

spectrum of viewpoints at The College. The survey also provided the opportunity for respondents to self-identify their interest in further phases of the data collection (interview, product review, observation, and focus group), with the interview required to participate in the product review and/or observation phases. Respondents could select to participate in the focus group without participating in the other data collection phases. (See Appendix A)

Interview Participant Profile

The interview participants each represented a different discipline and together represented five out of the seven programming areas at The College. The areas represented were the Centre for Arts, Design & Information Technology, Centre for Business, Centre for Community Services & Early Childhood, Centre for Health Sciences, and Centre for Preparatory & Liberal Studies. There were no participants from the Centre for Construction & Engineering Technologies or the Centre for Hospitality & Culinary Arts. The literature exploring pedagogical decision-making in relation to gender and years of experience has shown no relationship (Cox & Prestridge, 2020); as such, demographic information was not collected in the survey or questioned explicitly in the interview. To respect the grounded theory methodology, variables important to the theory development emerged directly from the data. Demographic information has limited uses and should be considered for what assumptions it can lead a researcher to have and what attributes the categories might assign to the participant. In addition, the design of the study would not have permitted this information to be used to ensure representation as the participants self-selected into further phases of the study. As a result, the researcher allowed comments on demographic categories that impacted pedagogical decision-making to emerge from the interviews. No such connections were made explicitly or implicitly by the participants.

When specifically asked if there were any other factors which they felt influenced their decision-making, none of the participants mentioned positionality factors.

Survey Pool v. Interview Pool Perspectives Profile

The survey results were compared to determine the consistency of perspective between the survey respondents and the interview participants. This was done to identify whether there were perspectives identified in the survey respondents that might be missing in the interview participants and, therefore, require more targeted recruitment to satisfy the theoretical saturation of the grounded theory methodology. The information below outlines the perspective profiles of the total survey respondents and the isolated interview participants.

Perspectives on Learning. When asked about their perspective on learning, the majority of survey respondents identified most with the statements that learning is about seeing things in a different and more meaningful way, being able to use the information acquired, and developing as a person. Making sure they remember things well and building knowledge by acquiring facts resonated least with the respondents. (Figure 7a) The interview pool closely mirrors the perspectives of the larger survey pool, and no gaps in perspective were identified. (Figure 7b)

Figure 7a

Total Survey Pool – Definition of Learning

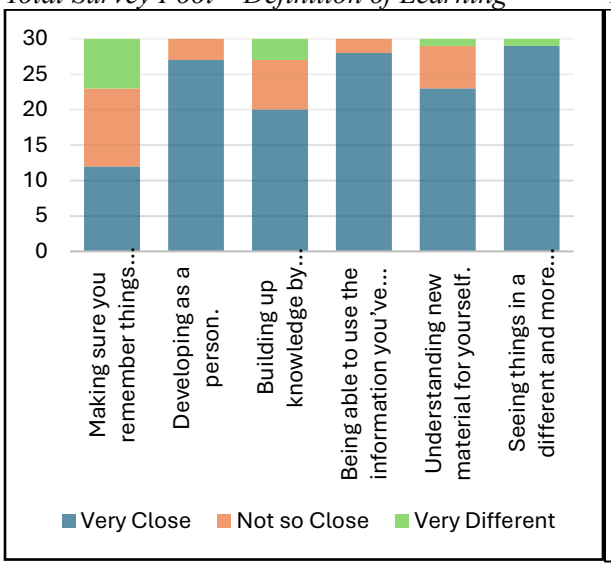
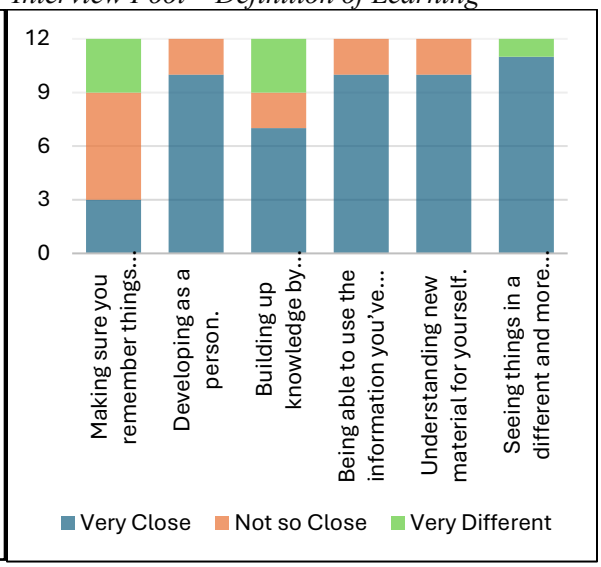


Figure 7b

Interview Pool – Definition of Learning



Learning Theory. When asked about which learning theory they most closely align with, the total survey respondent pattern identified that all identified learning theories are present in the college faculty perspectives, with the highest alignments with the constructivist theory (38%) and those identifying as other/not sure (28%). None of those respondents who identified as other included additional or alternate learning theories; instead, they took the opportunity to identify that they used all or none of the learning theories in their approaches to design and delivery. (Figure 8a) The interview pool contains a representation of all learning theories identified in the survey pool except for the Connectivist approach. (Figure 8b) Unfortunately, further attempts to recruit participants with this perspective and secure interviews with respondents identifying with this learning perspective were unsuccessful. However, the relationship between learning theory and decision-making emerging from the interview data reduced the concern with respect to the absence of this perspective.

Figure 8a
Total Survey Pool – Learning Theory Alignment

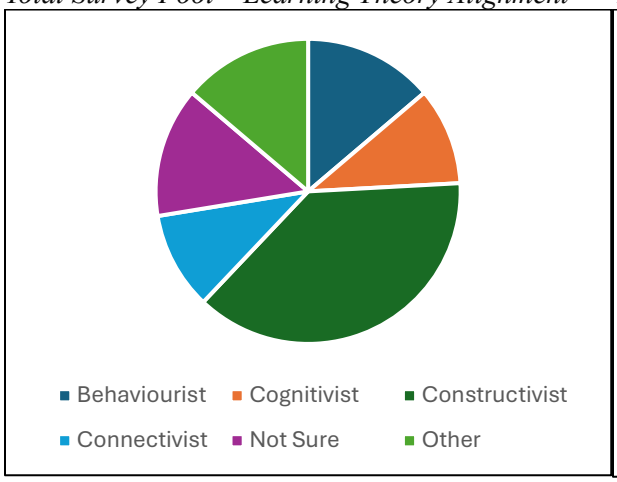
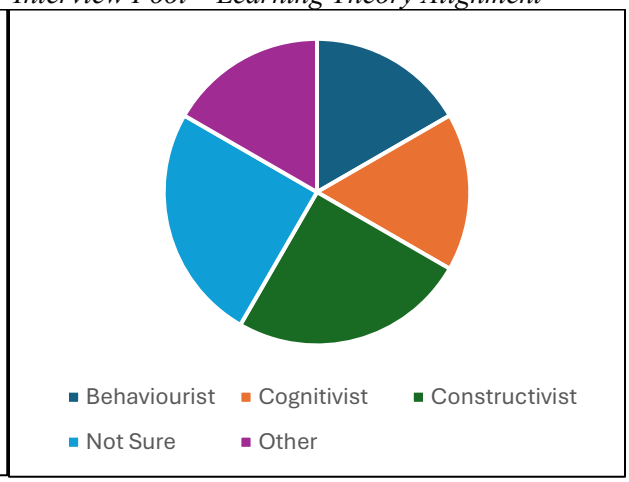


Figure 8b
Interview Pool – Learning Theory Alignment

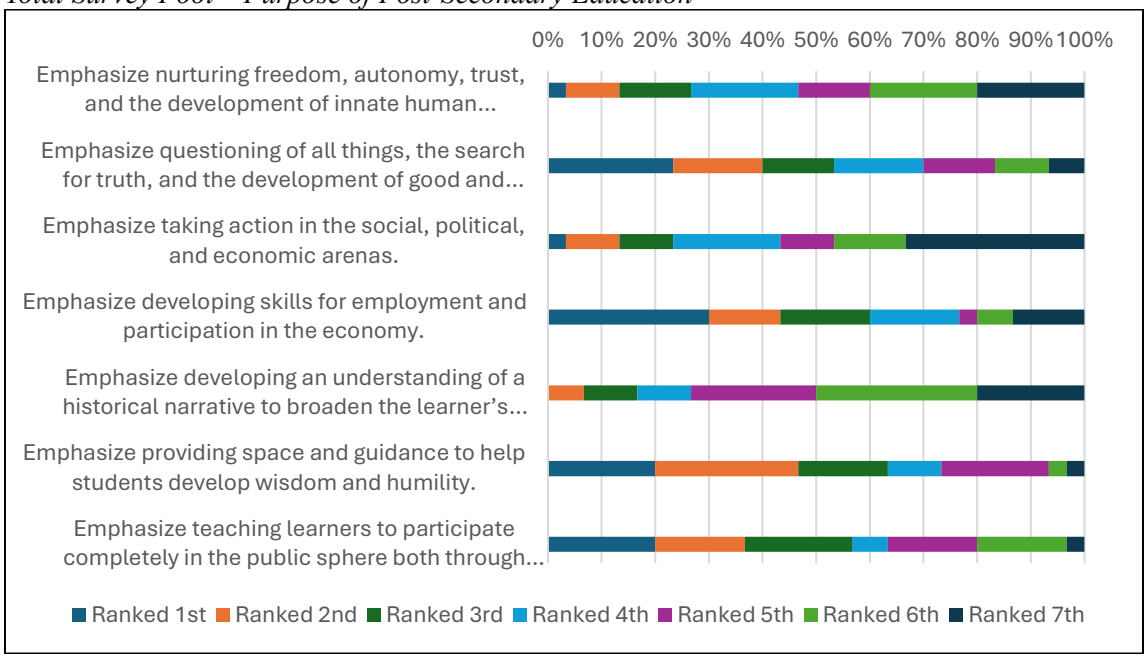


Educational Philosophy. Four questions in the survey reflected the literature categorized under educational philosophy. These questions reflect the following areas in the literature review: 1) purpose of post-secondary education, 2) perspectives on technology – the neutrality debate, 3) perspectives on technology – the natural/artificial debate, and 4) purpose as an educator.

Purpose of Education. There was a high degree of variation when survey respondents ranked their perspectives on the purpose of post-secondary education. The greatest number of respondents ranked emphasizing the development of skills for employment and participation in the economy first, while the greatest number ranked taking action in the social, political, and economic arenas last. (Figure 9a)

Figure 9a

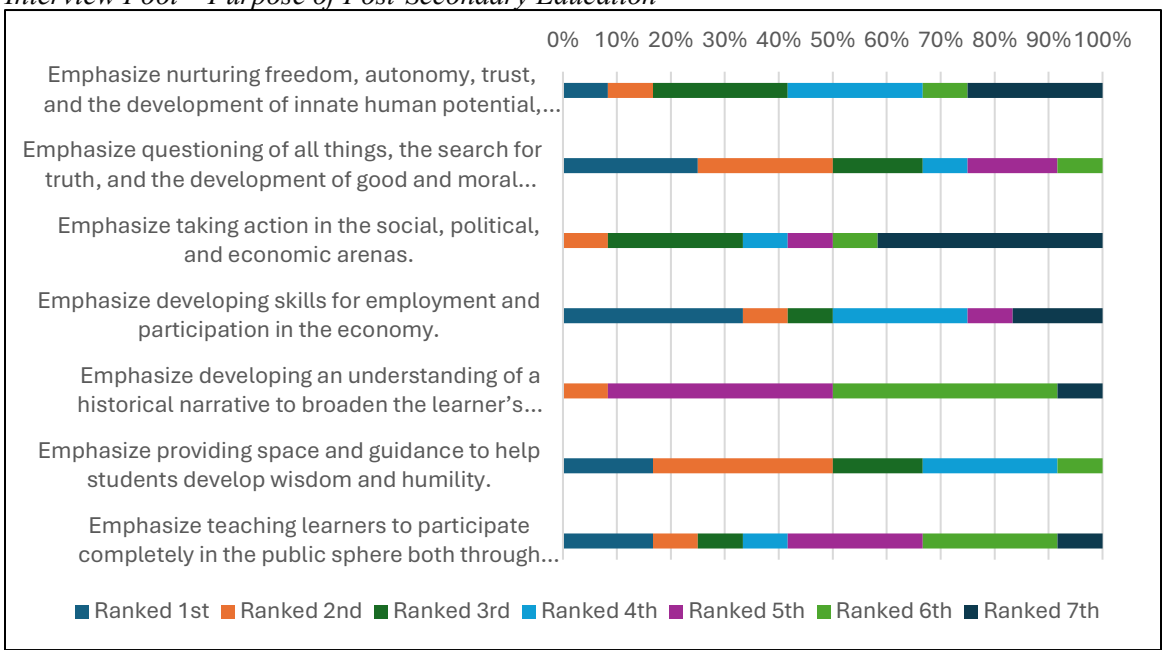
Total Survey Pool – Purpose of Post-Secondary Education



This variation is replicated in the interview pool with the same rankings for the first and last perspectives. A gap in perspectives in this area is not identified. (Figure 9b)

Figure 9b

Interview Pool – Purpose of Post-Secondary Education



Perspectives on technology. With respect to the questions that referred to perspective on technology, one question referred to the neutrality debate found in the literature, and one represented the natural/artificial debate. The total survey respondents' perspectives on neutrality represented both the neutral position (that technology is a neutral tool that simply extends what humans can do) and that technology has both positive and negative effects (it is value-laden and pervasive and alters human life in both perceptible and imperceptible ways). None of the participants identified with the harmful perspective (technology is usually harmful and should always be evaluated for its circumstance of production, surveillance capabilities, embedded values, and mechanisms of control), demonstrating that, in terms of the neutrality debate, the use and technological determinism perspectives are present, and the social determinism perspective is not. (Figure 10a) The interview pool reflects the same perspective as the total survey pool. (Figure 10b)

Figure 10a
Total Survey Pool – Perspectives on Neutrality

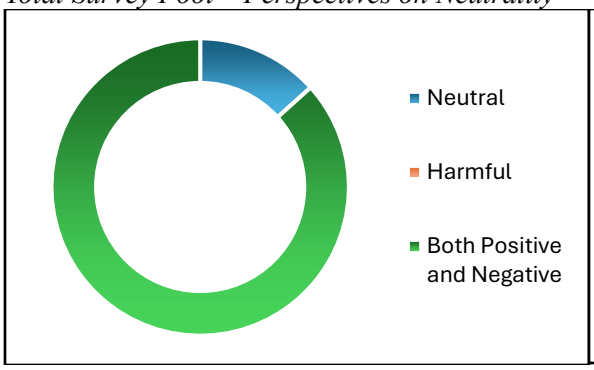
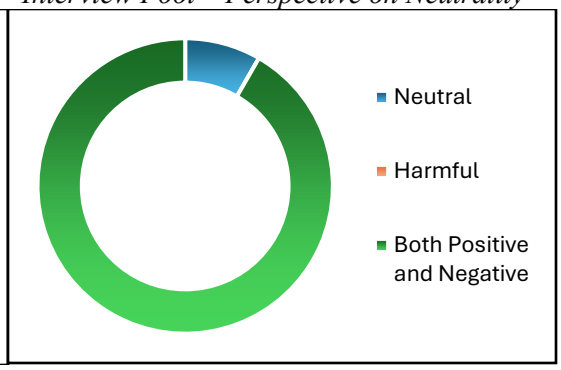


Figure 10b
Interview Pool – Perspective on Neutrality



When answering the question about their perspective on delivery modalities (representing the natural/artificial debate), various viewpoints were represented in the total survey data, with most respondents indicating that the face-to-face and online experiences are neither superior nor inferior to one another. The perspective that the face-to-face experience is typically the superior delivery modality but can be enhanced by some online components was also well represented in

the total survey respondent data. None of the respondents identified with the perspective that the face-to-face experience was entirely superior. These responses highlight that, although faculty are willing to embrace educational technology, there is a strong leaning towards the natural side of the natural-artificial debate represented in the literature. (Figure 11a) The online modality being superior is a perspective missing from the interview pool. (Figure 11b) Unfortunately, further attempts to recruit participants with this perspective and secure interviews with respondents identifying with this learning perspective were unsuccessful. However, the relationship between the natural-artificial debate and decision-making emerging from the interview data reduced the concern with respect to the absence of this perspective.

Figure 11a

Total Survey Pool – Natural/Artificial Debate

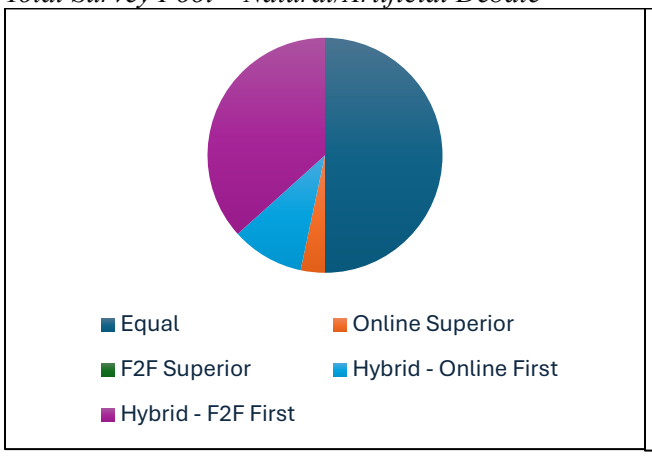
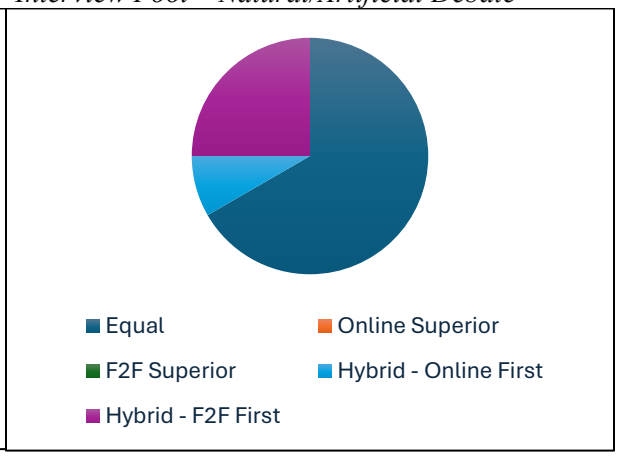


Figure 11b

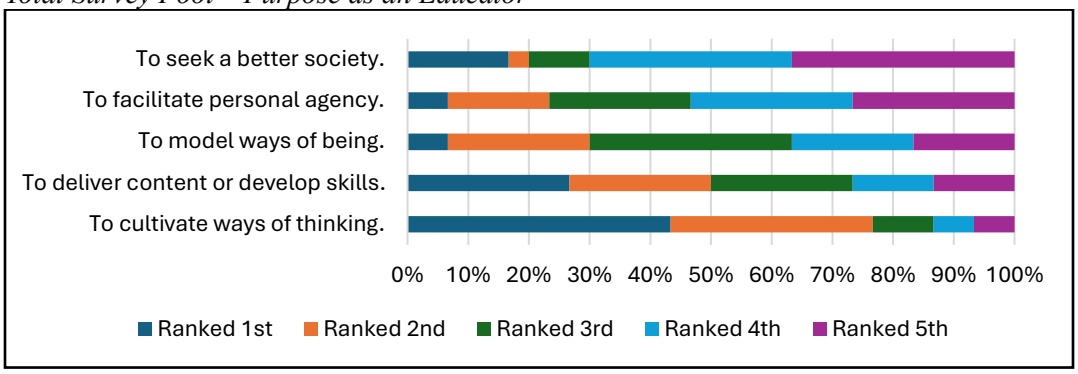
Interview Pool – Natural/Artificial Debate



Purpose as an Educator. When asked about their purpose as educators, there was again a wide variation in responses from the total survey pool. Generally, most respondents identified with the perspective that their purpose as an educator was to cultivate ways of thinking or to deliver content or develop skills. The respondents identified least with the purposes of seeking a better society or facilitating personal agency. (Figure 12a)

Figure 12a

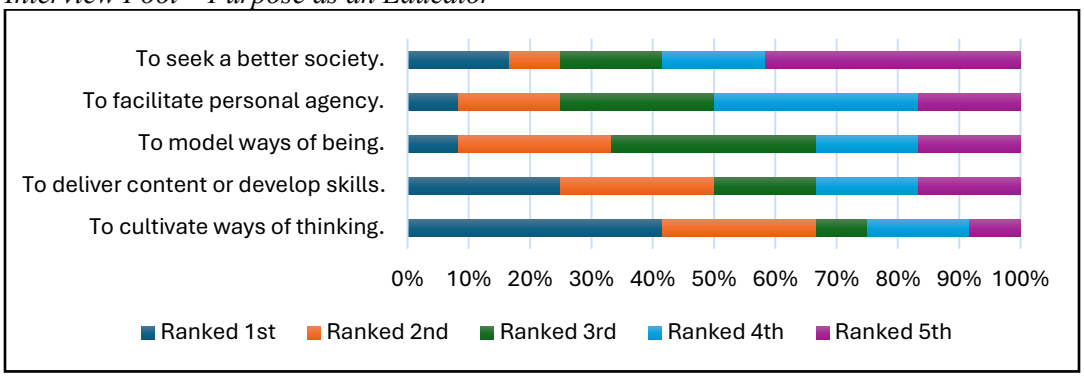
Total Survey Pool – Purpose as an Educator



This ranking pattern is also found in the interview pool perspective profile. (Figure 12b)

Figure 12b

Interview Pool – Purpose as an Educator



Contextual Factors. The final series of questions in the survey asked respondents about contextual factors that the academic literature had found related to decision-making. Respondent perspectives were collected on the relationship between their discipline identity and pedagogical identity, the ranking of the experiential influences over decision-making identified in the literature, the degree of control they felt they had over the courses they were designing, and environmental factors that might interfere with their decision-making.

Discipline and Pedagogical Identities. The total survey respondents identified with all three of the possible perspectives on their relationship with their discipline and pedagogical identities. (Figure 13a) The majority of the total survey respondents felt an equal responsibility to their discipline identity and their pedagogical identity, and of those who didn't, there was a

fairly equal distribution between those who prioritized their discipline identity and those who prioritized their pedagogical identity. Those who prioritize their pedagogical identity are missing from the interview pool. (Figure 13b) Unfortunately, further attempts to recruit participants with this perspective and secure interviews with respondents identifying with this prioritization were unsuccessful.

Figure 13a
Total Survey Pool – Pedagogy v. Discipline Identity

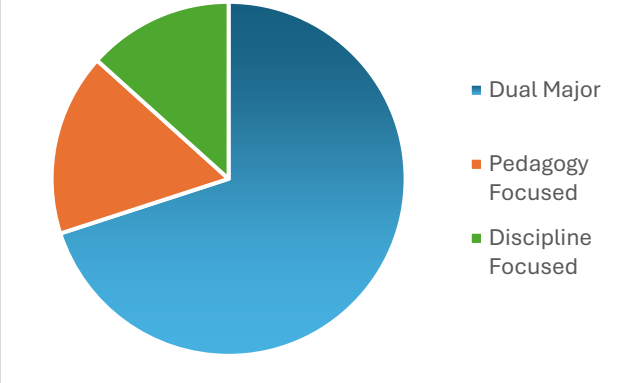
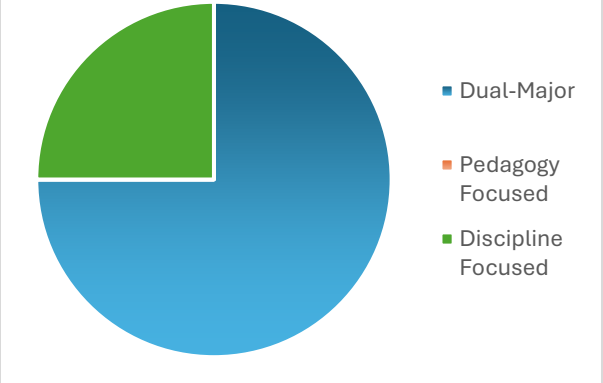


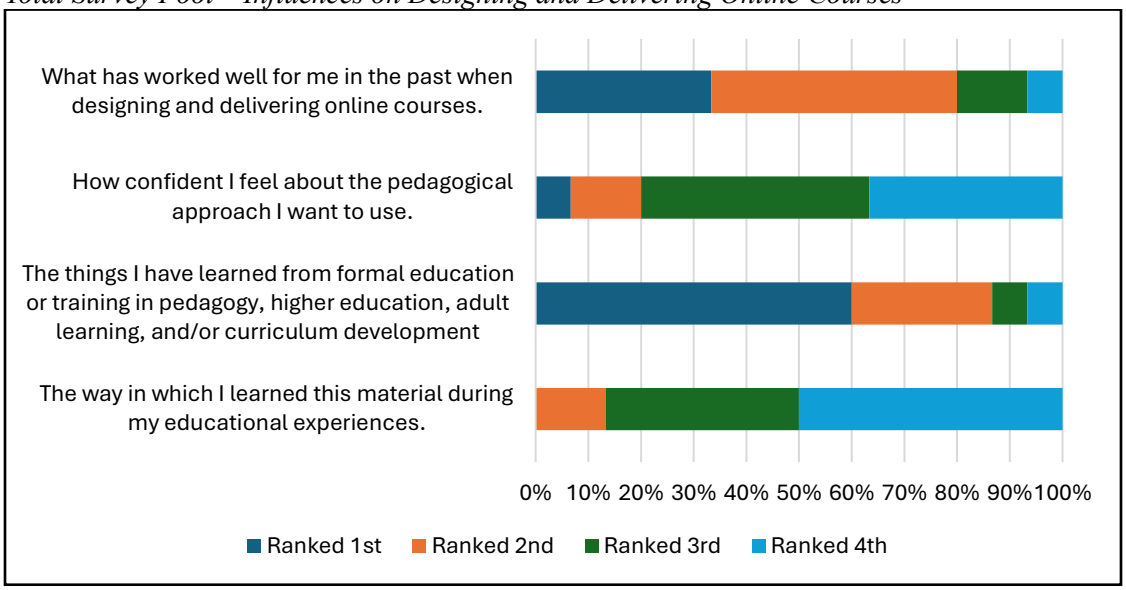
Figure 13b
Interview Pool – Pedagogy v. Discipline Identity



Experiential Influences on Decision-Making. When asked about the experiential influences identified in the academic literature, there was again wide variation in responses from the total survey pool. The respondents identified with the influences of formal training and education and past teaching experiences, ranking them as first and second. The respondents identified least with their level of confidence and previous learning experiences as influences on their decision-making. (Figure 14a)

Figure 14a

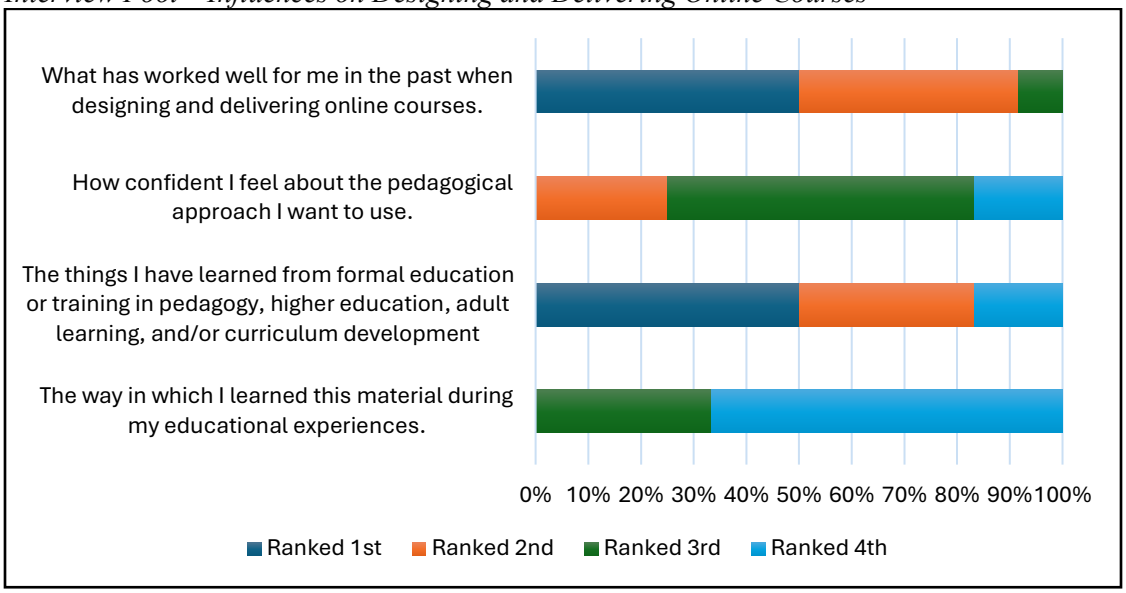
Total Survey Pool – Influences on Designing and Delivering Online Courses



The rankings distribution is similar in the interview pool to that of the total survey pool. (Figure 14b) Each perspective in the total survey pool was available during the interviews.

Figure 14b

Interview Pool – Influences on Designing and Delivering Online Courses



Level of Control. The total survey pool contains perspectives that relate to all levels of control. (Figure 15a) Respondents identified with one of the following perspectives: having full

control, full control where they needed the agreement of other section instructors, some control over altering some elements of a course but requiring approval, or no control over the course. The interview pool contained a similar distribution of these perspectives. (Figure 15b)

Figure 15a
Total Survey Pool – Level of Pedagogical Control

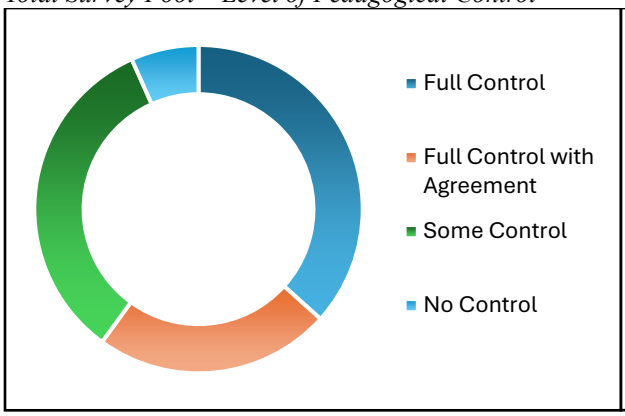
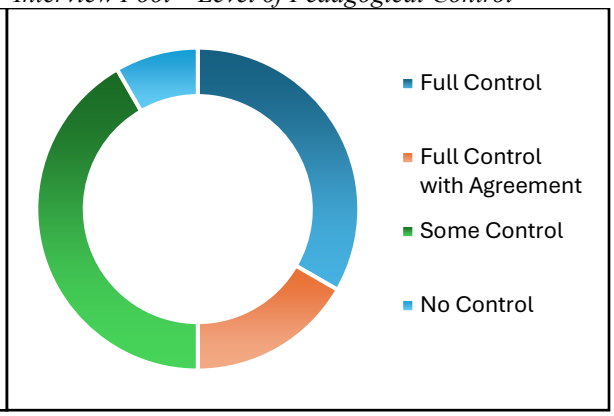
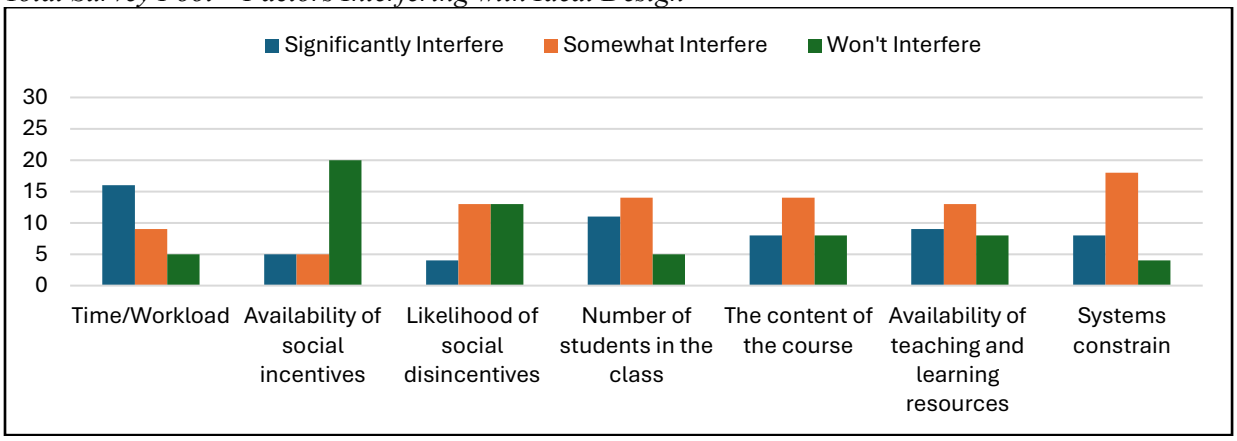


Figure 15b
Interview Pool – Level of Pedagogical Control



Environmental Factors. The total survey pool of respondents had a wide variety of perspectives on which environmental factors would interfere with their decision-making and to what degree. (Figure 16a)

Figure 16a
Total Survey Pool – Factors Interfering with Ideal Design

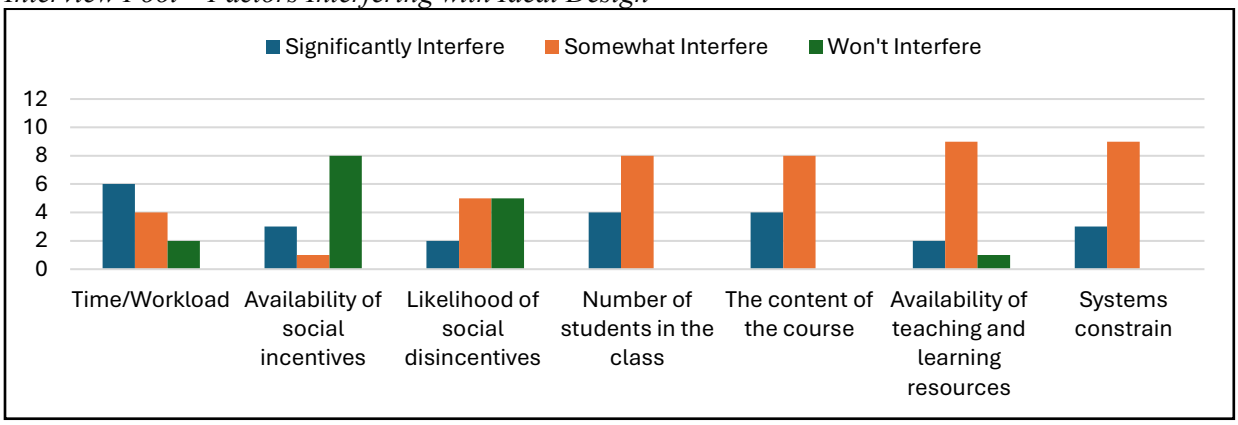


The interview participants have a similar distribution (Figure 16b), except that the 'won't interfere' category was not represented in the content or the course and systems constraints

categories. Unfortunately, further attempts to recruit interview participants with this perspective were unsuccessful.

Figure 16b

Interview Pool – Factors Interfering with Ideal Design



Interviews

The interview was conducted in two phases with each participant. After each interview, the content was manually reviewed for emerging themes. Emerging areas of interest were added as questions in the corresponding phase for the next participant. Both interview phases were completed during the same interview session. The original interview protocol, the interview questions, and the subsequent interview question changes through the course of the data collection are provided in Appendix B.

The first phase of questions was organized to explore the participant's motivations, processes, and perspectives. These questions asked participants to situate themselves in terms of the discipline or subject matter they would be thinking about as they answered the questions, then to walk through what drew them to become an educator, then to lay out how they would approach designing and delivering a brand new online course, and finally if there were any guiding principles they relied on when designing and delivering courses and whether they have noticed any changes over time. The questions added to this set over the course of data collection

included identifying what, if anything, had the most significant impact on their course design or delivery decisions and whether they thought they made decisions differently when designing for online and face-to-face modalities.

The second phase of questions was organized around the topics identified in the literature and explored in the survey. Participants were asked for their perspectives on the definition of learning, learning theories, the purpose of post-secondary education, the role of technology generally, and educational technologies more specifically. As a follow-up to these areas, participants were asked whether they thought these perspectives influenced their decision-making and, if so, how they showed up in the course. Participants were then asked about the contextual factors (experiential or environmental) operating in their teaching environment and whether they influenced their decision-making. The questions added to this set over the course of data collection were what the participant thought others in their area might say influenced their decision-making and what they thought their discipline would expect to see (from the outside looking in) in a high-quality learning experience.

Each interview ended with the offer to re-explore any of the areas discussed or if there were any areas not discussed that the participant felt were important.

Transcriptions of the interviews (all save two) were generated using the Microsoft Teams onboard transcription feature. The researcher took handwritten descriptive notes for the two outliers.

Product Review

Interview participants were given the option to provide additional products related to their teaching practices. Examples of suggested products included teaching philosophy, course outlines, and assignment supplements. These products were reviewed pre- and post-interview

first to guide the interview questions and, second, to provide additional samples of how the decisions identified by the participant appeared in teaching products to help show congruence between the interviewee's perceptions and their enacted practice. This data was coded alongside the interview data.

Observation

Due to logistical reasons such as the timing of the interview in the semester and whether the participant was scheduled to teach online that semester, no observations were collected during this research project.

Focus Groups

Focus group participants were identified on the recruitment survey and contacted to participate in one of two focus group sessions. (See Appendix C) Focus group one had six participants, and focus group two had five. Each session comprised participants who had completed the interview and those who had not. This composition was an essential step in the grounded theory methodology to confirm the emerging theory with data participants and their peers. The focus groups were scheduled for one and a half hours. The first 30 minutes of the focus group was a presentation of the theory components and the resulting theory of pedagogical decision-making. The remaining time was a structured discussion of the theory. Participants were encouraged to speak freely about the components of the theory and whether it resonated with them. Focus group participants who were also data participants were asked to confirm whether or not their data was represented in the theory and encouraged to suggest any additions or omissions. The non-data participants were also asked whether they could see their decision-

making influences represented in the theory and to suggest any additions or deletions. The following questions guided this discussion:

1. What is your first impression of the components and mechanisms? Do they speak to you?
2. Can you see yourself/your practice reflected in the components and mechanisms?
3. Which components or mechanisms resonate with you the most? Why?
4. Which components or mechanisms would you consider irrelevant or inaccurate? Why?
5. What's missing?
6. Do you see a usefulness in this conceptualization when it comes to your practice? How might you use it?

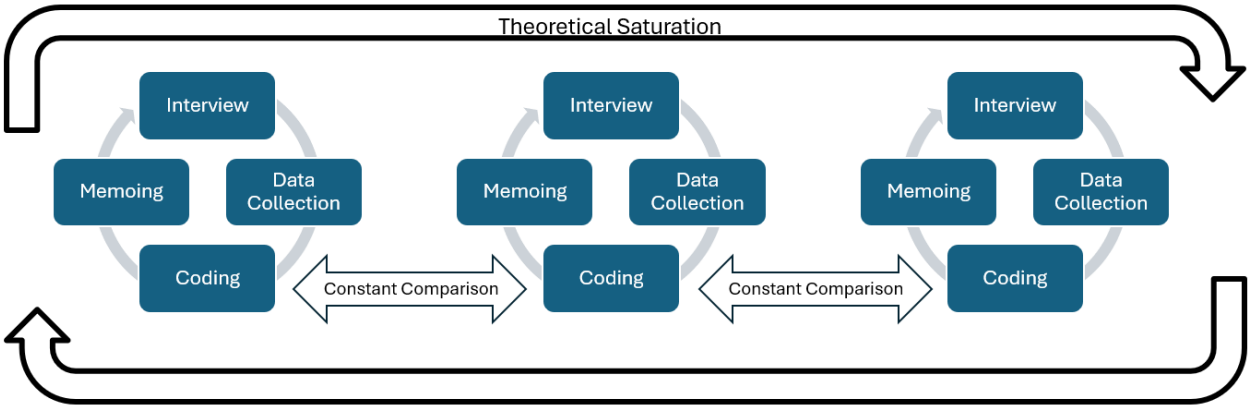
Each focus group wrapped up with an opportunity for the participants to speak freely about anything they had not had a chance to contribute. The results of the focus group were included in the iterative coding and analysis phases and are represented in the final presentation of the theory, its components, and its mechanisms.

Data Analysis

The Critical Realist Grounded Theory (CRGT) methodology required two broad analyses of the data. First, the research, survey, and interview data were analyzed for the factors influencing decision-making and how they might interact. Second, a retroductive analysis was completed to identify the causal mechanisms in the system that construct what decisions are possible. The analysis of data in a grounded theory project is iterative in nature, and although laid out in a linear format in these subsections, data collection, coding, memoing, and analysis were completed simultaneously using constant comparison until theoretical saturation was reached. Theoretical saturation was met when no new categories were identified during interviews. (Figure 17)

Figure 17

Iterative Data Collection and Analysis Procedure



Memoing

After each interview was coded, it was compared to codes and concepts from the previous interview. In addition, the academic research was rechecked for any resources on additional concepts in the coding. The connections between the interview codes from each interview and the inclusion of concepts from the ongoing literature search were tracked using memos. These memos kept track of the emerging theory components, the possible connections, and the possible causal influences and were then used to construct the data analysis and theory-building narrative presented below.

Coding

Coding is a crucial component of a grounded theory research methodology. *"Coding is a term for attaching conceptual labels to the data. When we attach a particular label to a particular chunk of data, we start to analyse that data"* (Urquhart, 2013). Critical Realist Grounded Theory (CRGT) methodology uses a Bottom-Up coding process in which the data suggests the codes. The coding process for CRGT is based on the Straussian procedure. It begins with open coding and domain coding before moving into axial coding and, ultimately, selective coding. During the coding process, the data was analyzed for two purposes. The first was to

determine the causal structure in which the phenomenon exists, in this case, what the realities of the system are that constrain decision-making (referred to in each coding stage as CR Coding). The second was to determine the decision-making mechanisms that move pedagogical options from possible to practiced (referred to in each coding stage as DM Coding). The results of this analysis were then overlaid to produce a working theory of how pedagogical decisions are made at this urban community college.

Open Coding. All interviews were coded manually during the open coding phase. Each interview was analyzed and coded directly after it occurred and incorporated into the ongoing analyses of the previous interviews. This process resulted in interview adjustments aimed at ensuring theoretical saturation and the initial codes required for the next level of analysis. The open coding stage pulled apart the data into smaller chunks and assigned it a descriptive label. These codes were kept as close to the data as possible. This was the first step in assigning meaning to the data, and the process generated a significant number of codes.

Domain Coding. The data was also coded for its corresponding critical realist domain during the open coding phase. During this analysis, interview data was coded in the empirical and actual domains (coding in the real domain would occur during the final retroductive analysis after all the coding phases are complete). Items coded into a single open code can be coded into multiple domain codes. Items coded in the empirical domain represented something the interviewee participated in or observed others doing, whereas items coded in the actual domain were those where the interviewee had provided some analysis of their response or items the interviewee identified as a possibility but that they had not directly done or observed.

Axial Coding. This coding stage drew connections between codes, combining similar codes to reduce repetition, and resulted in the development of categories. Retroductive analysis

was also used at this stage to assign categories a functional label. *"Retroduction or retroductive theorizing is the process of devising a theory, which requires moving from an observation of concrete phenomena to reconstruct the basic conditions for these phenomena"* (Mukumbang et al., 2021). This analysis was conducted to inform the critical realist structural components (CR Axial Coding).

CR Axial Coding. These axial codes serve to combine and reduce the open codes into categories that represent similar sentiments in the data. The functional codes represent the position this data holds in the causality of the phenomenon. At this stage, categories were labelled as conditions if they represented the context in which the phenomenon is rooted, actions/interactions if they represent a response to the conditions, and consequences if they represent the outcomes of actions/interactions. These functional labels, along with the domain coding in the open coding stage, provide the foundation for the retroductive analysis that informs the structural realities (causation mechanisms) of the real domain. See Table 2 for an example of this coding.

Table 2

Examples of all Levels of Coding for Critical Realist Structure

Examples from the Data	Open Code	Domain Code	Axial-Functional Code	Selective Code
if a particular class session does not work well or if students are not engaged, <interviewee> changes the material or approach immediately for the next session	Monitoring Student Engagement Changes in delivery within and across sessions	Empirical	Responsive Delivery - Consequence	Enacted Delivery
<interviewee> regularly uses student feedback to make real-time changes to course content and delivery. For example, they start and end each course with surveys asking students about their learning experiences, what they find engaging or alienating, and how the course could be improved.	Student Experience Questioning student engagement Questioning student alienation	Empirical		

<interviewee> is flexible in his approach and willing to adjust their teaching style to ensure that all students achieve the desired learning outcomes.	Respond to student needs Based on learning outcomes	Actual	Responsive Delivery - Consequence	Delivery Decisions
courses are in a constant state of evolution. <interviewee> does not see course design as a one-time task but as an ongoing process that requires frequent adjustments.	Feedback Looking for opportunities for change Monitoring for how decisions land	Actual	Responsive Design - Actions	Design Decisions
<interviewee> sets aside a significant portion of class time for group discussions in breakout rooms and checks in to ensure participation, which is then graded	Structuring participation Valuing participation through currency	Empirical	Engaged Design - Actions	Enacted Design

DM Axial Coding. Axial coding was also completed to inform what pedagogical decision-making mechanisms appeared in the data. Domain and functional coding were not used as the decision-making mechanisms operate at the empirical level, representing what influences the decisions participants make and not what could influence these decisions. During axial coding, the open codes were combined into categories representing similar data sentiments. See Table 3 for an example of this coding.

Table 3

Examples of All Levels of Coding for Decision-Making Factors

Examples from the Data	Open Code	Axial Code	Selective Code
Draw from thinking in marketing and experiential design	Drawing from discipline influences	Discipline	Activated Mechanisms
what do the external partners want	Discipline perspective of high-quality education		
what do students need when they graduate to do well in entry positions	Entry to practice expectations		
It's basically impossible if you're grading like if you are actually grading and not just using a rubric, and you're giving feedback, then you are 100% gonna go over your contract hours.	Part Time status Contract specifications	Employment Status	
Being hired late - no time Want to be delivering high-quality - often work overtime	Hiring practices Hiring expectations		
Educational structure is limiting	Limited by semesters	Course Structure	

Semester structure - weeks - determines when evaluations should happen and drives content delivery and evaluations	Structure drives content Limited by delivery times		
I don't think that we need to be teaching for three hours	Limited by course hours		
So, like the, the kind of the thinking about the evaluation and the assignments and the topics needs to be in coherence with what I'm actually trying to achieve based on the course learning outcomes, umm and uh, once I.	Course learning outcome alignment		
macro climate of the institution and broader system. Are we both all in. Both invested. Is the macro environment supportive and encouraging. Are we inspired to lean in or lean out.	In it together Supportive environment Lean in or out	Culture	Satiation Mechanisms
And now that's because I feel like I have a symbiotic relationship with the College, and they have supported me in the last year with a pretty good SWF. It's not just, and it's not right that they get all of that out of me if they're not going to come and work with me, right?	Symbiotic relationship Support level Fairness In it together		
Like, it's not fair that I'm the only one that's working in this relationship, right?"	Relationship Fairness		
It's like, Nope, you have to be back face to face, and we're not considering if you don't feel comfortable being here or you don't have money to get here, like just figure it out."	Faculty needs Shared decision-making		
There's no feeling of shared purpose. The faculty aren't like, yeah, the College is here for me and I wanna do these things to make the College better	Shared Purpose		
Heartbroken that I can't talk about the places where it's not working, I can't talk about the things that I would like to try to do differently. I can't talk about the spaces where maybe there is like one class that could come in person or some like I can't experiment with anything because I am being told that the whole infrastructure is	Purposeful Connection Feedback/Input Shared Understanding	Support and Connection	

illegitimate, and so I feel like I have to be like crowing about it constantly, which means I'm being dishonest.			
Availability of other people to learn from - no one is there if they don't have to be these days. No one is structuring informal and formal opportunities to discuss teaching and learning into the work week.	Purposeful Connection Pedagogical discussion/feedback		

Selective Coding. The data was coded during this phase to identify the core categories in both the decision-making structure (CR selective coding) and for the pedagogical decision-making mechanisms (DM selective coding). The purpose of selective coding is to bring together all levels of coding, retroductive analysis, and memoing to construct a theory of the phenomenon.

***CR Selective Coding*.** In the Critical Realist Grounded Theory tradition, core categories are identified in each domain. During the Critical Realist selective coding, the categories of causality are determined. See Table 2 for examples of selective coding. The CR selective coding is completed by combining the information in the domain codes and the axial/functional codes. These categories were connected backwards through the domains using retroductive analysis to inform the causality constructs in the real domain.

***DM Selective Coding*.** In decision-making selective coding, core categories of decision-making mechanisms are identified. These categories draw together the similarities in the categories identified in the axial coding stage and any additional data from the research literature. See Table 3 for examples of selective coding.

Findings

Research Questions

The results of the data analysis answered many of the guiding questions put forth as a result of the initial literature review. The resulting theory presented below will answer the two main questions posed: 1) What factors influence online pedagogical decision-making in community college programs? and 2) Can any relationships between influential factors be identified? Regarding the sub-questions identified with research question one, their specific relationship is answered by whether they appear as part of the decision-making structure or as a decision-making mechanism. Over the course of the research project, it became clear that these factors are not represented as clearly as they are in the literature. They are integrated into decisions and are best represented holistically in the theory rather than reduced to specific decision-making factors. The integration of these factors into the theory represents how they operate in a semi-open system. Most of the factors identified in the research literature did not play a significant role in the decision-making of the participants in this study. It is possible that this is due to the examination of factors in closed or semi-closed systems in the literature, which might result in very different impacts. The results of the two components of the theory are presented separately below, and then they are integrated into the final theory of pedagogical decision-making in community college programs.

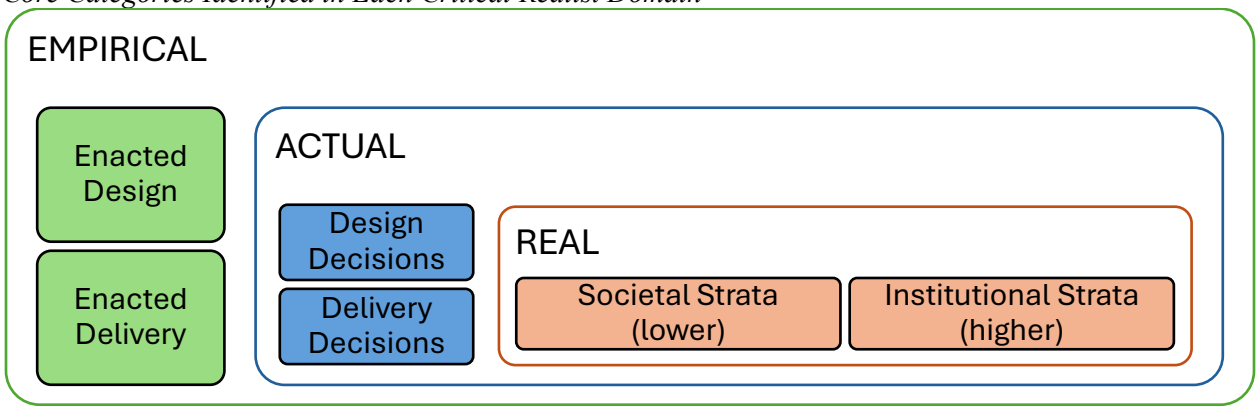
Decision-Making Structure

The decision-making structure resulted from the literature data and participant data coded using CRGT coding paradigms (CR coding), including retroductive analysis. This process led to

the core categories in each domain and the causal factors reflected in the real domain. (See Figure 18)

Figure 18

Core Categories Identified in Each Critical Realist Domain



Empirical Domain. In the empirical domain, two core categories emerged that represent the spaces in which the actual decisions made by the participants are realized: enacted delivery and enacted design. These categories represent the two areas in which decisions are made.

The enacted design category represents those decisions that are realized before the course is delivered; The plan for the course. These are usually represented in the course through a course outline (syllabus) and include communicating the course learning outcomes and the evaluation method of the learning outcomes, disseminating the core resources needed to present the course content, and presenting the sequencing of the course content.

The enacted delivery category represents those decisions that guide how the design will be realized in the day-to-day of the course in front of a specific set of students. These are usually represented in the course through learning activities, the format of each course session, supporting tools, engagement strategies, and classroom expectations.

Actual Domain. In the actual domain, two core categories emerged that represented the possible types of decisions that can be made by faculty: design decisions and delivery decisions. These categories represent the options available for each individual faculty in each decision they

make. These categories represent what is possible given the constraints and campaigns of the real domain.

Design decisions represent all the possible design decisions a faculty could make for a course, given the restrictions of the real domain. These include overarching philosophical approaches to design (i.e. pedagogical approaches) setting the course learning outcomes, setting the evaluation method of the learning outcomes, selecting the core resources needed to present the course content, the sequencing of content to achieve the learning outcomes, the distribution of focus between career skills and civic and citizen-building concepts, and the general delivery modality for the course (face-to-face, online, or blended). These decisions are often only modifiable between deliveries of a course and not during any specific delivery session.

Delivery decisions represent all the possible decisions about the course delivery, given the restrictions of the real domain. These include the week-by-week structure of the content delivery and evaluation due dates (the pacing of the course), the number of digital technologies used in the course and the way they will be used, the modality of delivery within the overall framework (i.e. online asynchronous, synchronous, or some hybrid percentage). Although there may be some initial plans about the delivery of the course, these decisions are typically made as the course progresses and are often responsive to the unique conditions of each delivery session.

Real Domain. The constructs in the real domain are those that are not readily apparent in the data but result from asking of the observable data *what qualities must exist for this to be possible*? From the data, two levels or layers of reality impact the system and create the constraints and campaigns of what is available in the subsequent domains: Institutional Strata (higher) and Social Strata (lower). Each layer has its own distinct set of structures and

mechanisms that represent different levels of complexity and causation. Although the higher levels emerge from lower levels, they are not reducible to the lower levels.

The Institutional Strata represent those mechanisms unique to the research site that serve to constrain or promote what decisions are possible. The mechanisms in this stratum identified through retroductive analysis include:

- Institutional policies and processes – these represent the published policy and process documents, such as the assessment policy and curriculum development process. As an added complexity, the impact of these policies and processes was not based on the actual policies or processes but on the interpretation of these items passed down to faculty by managers or other faculty.
- Institutional philosophy – these represent the direction of the institution in relation to teaching and learning. Examples include the use of outcomes-based learning, backward design, and constructive alignment as the foundational curriculum development strategies.
- Institutional values – these represent the formal and informal values of the institution. These are formally outlined in the institutional strategy documents and then realized (or not) informally across the institution with varying levels of commitment. As an example, formally, the institution values equity, but informally, these values are not represented in the institutional structures that lead to course development (such as additional SWF time for accommodations or course development time and support to include UDL or other equity approaches or resources into a course).

- IT Infrastructure – these represent the hardware, software, policies, and processes that govern the use and access of digital technologies. These also represent the current climate of intellectual property rights and protections.

The Societal Strata represent those mechanisms operating in the broader context and exerting influence that either constrain or promote possible decisions. The mechanisms in this stratum identified through retroductive analysis include:

- Funding – these represent the historical and current funding mechanisms. The historical trends were outlined in the introduction; however, as an update on these trends, Alex Usher (2023) points out in the Higher Education Strategy Associates' report on the State of Post-secondary Education in Canada, "*Merely to get the province to reach ninth place among provinces for funding of colleges and universities requires an additional investment of $3.6 billion per year. To raise spending to the average of the other nine provinces requires $7.1 billion per year in additional funding.*" (para. 11) There are also funding realities that have come to pass since that 2023 report. These included the increase of international students to compensate for financial shortfalls (eventually accounting for 76% of tuition fees), followed by the introduction of the federal cap on international students, which threw many colleges back into financial disarray. Finally, the move to a funding model where 40% of funding is determined by performance indicators will shift the decision-making landscape at the community college level.
- Neoliberalism – these represent socio-political mechanisms such as the corporate organization of academic institutions (the shifting emphasis from intellectual, civic, and socio-cultural functions to financial imperatives), privatization, entrepreneurship, inter-

institutional competition, the casualization of the academic workforce, and the erosion of academic freedom.

- Information Age/Knowledge Economy – these represent economic mechanisms such as the shift to the perceptions of students as both investment and labour capital. This shift built the narrative that investing in students and education is equivalent to investing in the economy. The information age is "*a time in which information has become a commodity that is quickly and widely disseminated and easily available, especially through the use of computer technology*." (Merriam-Webster, 2024) The knowledge economy is defined as "*an economy directly based on production, distribution and utilization of knowledge and information as fundamental enablers of growth, wealth creation and employment*" (Uzoagu, 2022). Academic institutions and their transformation of learners into stakeholders, therefore, play a key role in maintaining a knowledge economy.
- Dual Role of College Institutions – these represent role mechanisms such as the shifting expectations of colleges to expand beyond simple skilling institutions to include civic and citizenship development. The addition of bachelor's and master's degrees represents a significant shift in the responsibility for preparing a particular type of graduate. However, certificates, diplomas, and post-graduate certificates are also increasingly focused on both the application of career skills to employment and the application to the broader society as agents of change.
- Quality Control and Credential Frameworks – these represent gatekeeping mechanisms such as the Ontario Qualifications Framework (that sets out the requirements for all credential levels), Curriculum Validation Service (that validates diplomas, graduate certificates, diplomas, and advanced diplomas), and Post-Secondary Education Quality

Assessment Board (that validates all associate, bachelor's, and master's degrees). In addition, these can also include ministerial acts and binding policy directives that steer the post-secondary environment.

Together, the institutional and societal strata represent the causal mechanisms that operate within the system. These mechanisms produce constraints and promote ideologies that confine what decisions are possible. To complete the theory of pedagogical decision-making, the mechanisms that move what is possible into what is enacted were explored.

Decision-Making Mechanisms

Decision-making mechanisms are the categories that transform pedagogical options into pedagogical decisions. The decision-making mechanisms resulted from the literature data and participant data coded using CRGT coding paradigms, including retroductive analysis. During selective coding, two types of decision-making mechanisms were identified: activated mechanisms and satiation mechanisms.

Activated Mechanisms. Activated mechanisms represent those mechanisms that appear to always be active in pedagogical decision-making. They are the filters through which all options are considered. The activated mechanisms identified in the data were:

- Discipline – the way in which each discipline perceives learning and high-quality education.
- Familiarity – the number of times a course has been taught and the length of time with the institution.
- Employment Status – full- or part-time faculty status as it relates to time, role clarity, and academic freedom.
- Course Outline Structure – the components required in the course outline.

- Purpose of Education – the perspective on the importance of including civic and citizenship development alongside career skilling.
- Type of Course – the position of the course in the program as a core course, communications course, or general education course.
- Available Resources/Access – the availability and access to all resources needed to make a pedagogical decision work. Includes content resources, physical plant resources, and digital technologies.
- Section Consistency – the degree of congruency required for courses being designed for multiple sections and various instructors.
- F2F Course Design and Delivery – the decisions made in F2F courses generally, and if there is a F2F version of a specific online course.
- College Data Policies – the lack of college policy on data use and protections and unclear definitions of intellectual property and use protections.
- Perspectives on Students – the degree to which students are perceived as a homogenous group or individuals with unique needs and experiences.
- Type of Credential – the credential level the course is part of (certificate, diploma, post-graduate certificate, or degree) with a significant difference between degrees and all other credentials.
- Connection to the Program – the degree of knowledge and understanding of the program's larger goals and how an individual course fits into the bigger picture.

These activated mechanisms are not necessarily consciously applied but could be operating in the background of every decision. The second category of mechanisms that influence decision-making is satiation mechanisms.

Satiation Mechanisms. Satiation mechanisms represent those mechanisms that are activated when some threshold is reached, typically reducing the complexity or sophistication of the enacted design and delivery.

- Time – the amount of discretionary effort available at any given time. Calculated considering both personal and professional obligations.
- Culture – the degree to which a "we are all in this together" relationship exists between faculty members and between faculty and management, perceived or otherwise.
- Team Dynamics – the available support, access to feedback and discussion with others inside and outside the discipline, or team pressures and perspectives on high-quality education.
- Student Engagement – the degree to which students actively engage with the synchronous or asynchronous components of the course.

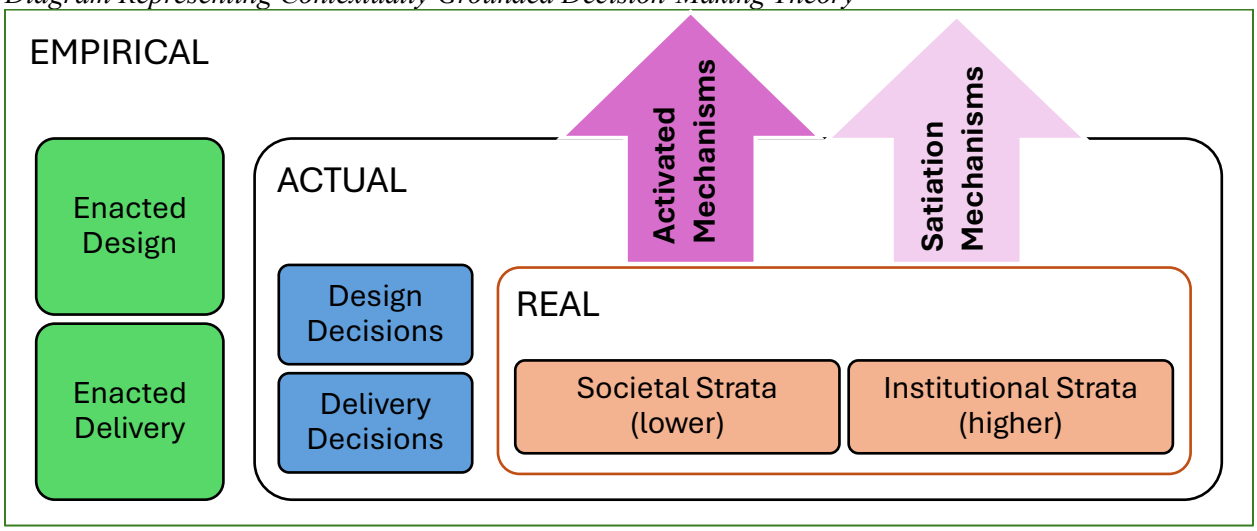
Together, the activated and satiation mechanisms represent all those factors that influence whether a pedagogical possibility, as defined by the real domain, moves from the actual domain to the empirical domain. They are the factors that influence pedagogical decision-making.

Contextually Grounded Decision-Making Theory

A theory of pedagogical decision-making emerged through the data collected from research literature, participant data, and focus groups. The theory describes both the structure in which decisions are made and the mechanisms that influence which decisions are made**.** This theory will be referred to as Contextually Grounded Decision-Making (CG-DM) (See Figure 19)

Figure 19

Diagram Representing Contextually Grounded Decision-Making Theory



Contextually Grounded Decision-Making theory accounts for the notion that pedagogical decisions are made in a semi-open system constrained by societal and institutional influences outside the decision-maker's control as represented in the real domain. The possible decisions are represented in the actual domain and are categorized as either design or delivery decisions. The factors that impact which decisions are made and end up as enacted design or enacted delivery are represented as activated and satiation mechanisms. The CG-DM theory fulfills an important feature of critical realist research, which is that the resulting theory remains fluid and does not represent a series of static events. "*No two organizational contexts are, under normal circumstances, the same – suggesting that replication is highly problematic. Rather, each context is configured into a complex nexus of events*." (Kempster & Parry, 2011). This means that each decision made within this theory is destined to be different; they can be causally understood but still not necessarily predicted. This non-replicating, non-linear understanding allows for the variation in course design and delivery seen in the everyday complexity of higher education institutions.

Quality Assurance

A quality theory in a grounded theory project is evaluated by process and outcome. Procedural rigour refers to the adherence to the methodological process of grounded theory. This research project followed all the steps and processes outlined for the critical realist grounded theory method. These included an iterative approach to data collection and analysis using constant comparison, the use of theoretical sampling to target the inquiry based on the emerging data, the continuation of data collection until theoretical saturation was met, the use of all coding levels (open, domain, axial, and selective) in the analysis of all data, and the use of memoing to track the research process. (Oliver, 2012) In addition, this research project used additional procedural elements to increase the quality of the data collected and the resulting theory. These included 1) Triangulation, in which the researcher collected information from participants in a variety of formats to check the congruency of statements made in the interview (interviews and multiple product reviews); 2) Negative Case Investigation, in which the researcher purposely highlighted any negative cases or data outliers for specific inquiry during the next data collection opportunity; 3) Thick Description, in which the researcher provided a detailed account of the researcher's worldview to help identify and avoid potential bias, a detailed account of the research process to promote rigour and transparency, as well as a detailed account of the phenomenon in context to ensure the theory is grounded in evidence. 4) Member Check, in which the researcher checked the emerging theory with the data participants and their peers to ensure they can see themselves in the emerging theory (focus groups), and 5) Peer Debriefing, in which the researcher solicited input from colleagues who would be considered experts at the research site, to substantiate explanations and ensure another avenue for mitigating researcher bias (curriculum specialists). Using strict adherence to the above-mentioned procedural

requirements of the grounded theory methodology, researcher bias was mitigated as much as possible.

The outcome of this grounded theory research project is the Contextually Grounded Decision-Making (CG-DM) theory, a localized theory that outlines the structures and mechanisms that influence pedagogical decision-making for online courses. For this theory to be of good quality, it needs to align with the criteria for judgment outlined by Glaser and Strauss (1967). The criteria are: (1) Workability: CG-DM theory explains decision-making in the context of the research site from the perspective of the decision-makers. (2) Relevance: CG-DM theory was identified by the data participants as having relevance to understanding how they make decisions and what variables impact these decisions. (3) Fit: CG-DM theory fits the data by allowing both the structure of decision-making and the mechanisms of decision-making to emerge. The overall theory integrates the structure and mechanisms to identify how they operate independently and how they might influence each other. (4) Modifiability: The level of the categories identified in the theory allows for additional mechanisms and structural elements that emerge from additional data to be incorporated into the theory. In addition, the CG-DM theory is flexible enough to account for changing contextual realities without having to re-establish the theory components.

The adherence to procedural rigour and the satisfaction of the criteria for judgement provides the foundation to say that the Contextually Grounded Decision-Making theory developed in this project is of high quality and meaningful use to the research site.

Summary

This chapter described in detail the research setting, the purposive sampling and resulting participant profiles, the data collection process (interviews, product review, observation, and

focus groups), the data analysis process (memoing, coding, constant comparison, retroductive analysis), and the results of the data analysis (decision-making structures and mechanisms). It concluded with the presentation of the Contextually Grounded Decision-Making theory, which combined all findings of the research project into a localized theory. Finally, the elements necessary to ensure the resulting theory was meaningful and of high quality were described.

The following chapter will explore the relationship of the Contextually Grounded Decision-Making theory to the factors literature from Chapter 2 and the relationship of the theory to the literature on theories of decision-making. The following chapter will also outline the implications of the theory for understanding decision-making, for the practical experience of faculty and teaching and learning environments, for the institution and its leadership, and finally, for furthering the localized theory within the research framework to improve reliability and validity.

Chapter 5: Discussion

Relationship to the Research Question

The guiding questions for this project, as influenced by the academic research on factors influencing pedagogical decision-making, provided too narrow a framework on which to ground decisions as complex as those operating in this community college context. The results of this study demonstrated that the following is a better description of the ways in which this research study answered the guiding questions:

1. What factors influence online pedagogical decision-making in community college programs?

Rather than decision-making factors being the discrete features represented in the academic literature, this critical realist grounded-theory research found that understanding decision-making

factors as structures and mechanisms allowed for the complexity and multifaceted realities of pedagogical decision-making to emerge.

2. Can any relationships between influential factors be identified?

A critical realist grounded theory approach identified that there is a causal relationship between the identified factors. The decision-making structure produces the spectrum of possible decisions and, in this way, has a causal relationship with the decisions made. The decision-making mechanisms can only be applied to the decisions made possible by the decision-making structure.

Relationship to the Existing Research

Relationship to Factors Research

Much of the research explored in the literature review and subsequent reviews of published literature shared the common approach of isolating factors and exploring the degree to which participants reported that they were important to their decision-making. None of the articles reviewed explored decision-making factors in situ and tended to explore participants' perceptions of decision-making factors without exploring how these factors appear in the products of decisions (i.e. course outlines, assessment supplements, presentations, learning management shells). This approach would not capture the difference between factors participants perceived as important and those they actually used to make their decisions. In the factors research explored, the influences were investigated in isolation and as part of a closed system in which the interactions between factors and interactions between factors and their environment were not considered. Despite these concerns about the present literature, the current project found some of the factors operating in the decision-making environment.

Contextually Grounded Decision-Making theory found some relationship to the definition of learning factor presented in the literature review. The definition of learning did not appear in the theory as a distinct factor influencing pedagogical decision-making. However, the literature identified that one of the reasons for the various definitions of learning was the various disciplines in higher education. In the proposed theory, the discipline of the participant emerged as an activated decision-making mechanism. This mechanism seemed to encompass the many complexities of a discipline and not simply the way the discipline views learning.

Learning theory is well explored in the academic literature, and each had significant research support to solidify its role as a factor influencing pedagogical decision-making. This factor did not emerge as important to the data participants in the CG-DM theory. Although they were familiar with learning theories, and some participants ascribed to one or more of them, when explored more deeply, all the participants (including the focus group) agreed that they did not impact their pedagogical decisions. These participants used a theory post hoc to describe their practices, did not refer to them at all, or highlighted that they appreciated elements of all the theories. In all cases, learning theories did not direct their decision-making, and learning theory concepts did not show up in the products of their decision.

The literature on the purpose of education presented several possible descriptions of faculty perspectives on the purpose of education that would impact their pedagogical decisions. The participants in the current project outlined only two perspectives that had any influence over their decisions. These perspectives were career skilling and citizenship or civic behaviour. In addition, the retroductive analysis also identified this factor as important to the decision-making structure. These two perspectives played a key role in the CG-DM theory, appearing in both the

decision-making structure (shifting role of the institution) and the decision-making mechanisms (purpose of education).

The literature on the perspective on technology identified two areas that impact pedagogical decision-making. The neutrality and natural debates provide multiple perspectives on the role of digital technology. The research on these perspectives indicated which side of these philosophical debates a faculty ascribes would impact their pedagogical decisions. These positions did not emerge as important in the CG-DM theory. There were aspects of digital technology considerations that influenced the decisions of faculty, but as decision-making mechanisms (available resources, data policies) and decision-making structures (IT infrastructure), they were more practical.

The literature on contextual factors identified several environmental and experiential considerations that influence pedagogical decisions. Of those presented, this research project found some overlap in the activated mechanisms (discipline, familiarity, and employment status) and activated mechanisms (time). However, many more contextual factors identified in this project were absent in the reviewed literature. The emergence of these factors highlights the value of a grounded theory approach in identifying meaningful variables from the data of participants.

Relationship to Decision-Making Research

Research on decision-making spans disciplines and has this in common with much of the academic research on learning and educational practices. Both phenomena have been splintered into discrete disciplines to examine, and as a result, there is no single unifying theory. Accounting for the many heterogenic variables and their interaction with the environment makes

finding a single theory that can describe decision-making and act as a model for making high-quality decisions challenging.

A comprehensive review of the decision-making theories across disciplines is beyond this project's scope. A brief overview of the major arcs and perspectives should be adequate to help situate the current theory and highlight how it relates to others who have studied this phenomenon. In their 2021 article, Paola Adinolf provides a useful framework for reducing the decision-making literature into manageable continuum concepts for the purpose of this report. This report will use these concepts to highlight the relationships between previous theoretical orientations and models and the approach resulting in the CG-DM theory presented in this research project.

Object versus Subject in Decision-Making. The distinction between object and subject decision-making has been explored across various fields. The difference rests in whether decisions are positioned according to external (objective) or internal (subjective) perspectives. Objective perspectives situate decision-making in quantifiable, often normative and rational criteria, exemplified in rational choice or expected utility theories. Subjective perspectives situate decision-making in internalized criteria that are often emotional and biased and exemplified in subjective utility theory and prospect theory. There are also theories that seem to combine these perspectives, exploring why people deviate from an optimal decision. Theories exploring this dimension of decision-making are often prescriptive; they are focused on how people should make decisions.

The CG-DM theory most closely fits with this last set of theories. Assuming that there are optimal decisions, CG-DM theory can help understand and explain why participants make decisions that might deviate from their preferred option. The decision-making mechanisms

presented in CG-DM help explain deviations from a participant's preferred choice, and the decision-making structure provides insight into the decision-making environment.

Intuition versus Rationality in Decision-Making. A shifting focus from the prescriptive approach to a descriptive approach introduced intuition as a variable not to be overlooked in decision-making theories. Research on the relationship between intuition, rationality, and decision-making developed theories that privileged rationality, such as expected utility theory and those that privileged intuition, such as the recognition-primed decision model. Furthering an understanding of the role of bias and heuristics in decisions led by intuition produced models that were able to guide decision-makers to account for them and transfer their evaluation strategy to more rational mechanisms.

As a localized theory, Contextually Grounded Decision-Making can position itself in this research by offering its data participants a better understanding of the factors that influence their decision-making, regardless of whether those influences are rational or intuitive.

Order versus Chaos in Decision-Making. Early decision-making research approached the phenomenon as linear, with discoverable sets of predictors and consequences. It assumed stability in the system that allowed variables to be uncovered and accounted for. The ordered approach is exemplified in theories such as expected utility theory. With an increasingly complex outlook, researchers started to doubt the stability of systems and the linear nature of factors influencing decision-making. Introducing chaos into an understanding of decision-making encouraged researchers to explore uncertainty and unpredictability and abandon the search for a clear linear cause and effect. The results of this research are highlighted in models and theories, such as non-linear decision models. The move towards chaos and complexity also abandoned notions of cause and effect. Some avenues of research aimed to bring order to chaos using

models such as the Cynefin Framework and bounded rationality model. (Snowden & Boone, 2007)

The CG-DM theory aligns with the idea that complex and chaotic environments are not necessarily devoid of cause-and-effect relationships. This theory is the result of a process that allows the researcher to bring some order to seemingly chaotic factors and influences, including identifying the causal mechanisms that shape the decision-making structure. The introduction of activated and satiation mechanisms furthers our understanding of which factors in complex environments impact decision-making and how those impacts might occur without reducing the factors to stable and consistent influences.

Adinolf (2021) supports a co-evolutionary theory as a means to overcome the tensions between fields of research on the above continua. This theory provides a general framework using similar language to that of the CG-DM theory developed during this research project. However, the current research project goes further. Co-evolutionary theory identifies that there are various realms that influence decision-making (like domains in this project); however, the critical realist approach to developing CG-DM theory permitted the identification of the actual variables present in these realms. CG-DM theory does not simply identify that a relationship exists between the decision maker and the environment; it is able to comment on the nature of that relationship - causal.

The variation in ontological and epistemological positioning of the schools of research in decision-making makes alignment a deeper problem than terminology and branding. It is possible that a unifying theory of decision-making is not possible given the seemingly unlimited approaches, combinations of variables, and levels of analyses. Perhaps an approach to developing a localized theory, such as the one used in this research, is a more useful way to

understand how decisions are made in context. The critical realist approach allows for the marrying of typically contrary ontological and epistemological positions, and the grounded theory approach develops a localized theory. Together, they can provide meaningful intel on the structure and mechanisms that influence decisions, which can be used to both understand how decisions are made and provide leverage points for how decisions should be made.

Implications of the Findings

The findings from this study offer several implications for understanding decision-making within educational institutions, particularly through the lens of the proposed theory. This section will explore the broader theoretical implications, applications for faculty and teaching, leadership, institutional practices, and opportunities to improve these research findings.

Implications of the Theory for Understanding Decision-Making

The Contextually Grounded Decision-Making theory highlights how the real domain constrains decision-making possibilities in educational settings. These constraints arise from practical limitations, such as institutional policies and resources, and broader limitations, such as funding structures. A faculty member may have innovative teaching ideas, but limitations like resources, time, or class size might restrict their ability to implement those ideas fully. As a result, this option would be filtered out from available decision options through the activated mechanisms (i.e. available resources/access) and satiation mechanisms (i.e. time). For example, a faculty member may want to adopt an ungrading approach (Kohn, 2013); However, this approach would be filtered out (or significantly altered) of the actual domain through elements of both the institutional strata (institutional philosophy, institutional policies and processes, and institutional values) and societal strata (funding, neoliberalism, and quality control and credential frameworks), making it unavailable as a decision option.

The CG-DM theory distinguishes between persistent factors (activated mechanisms) and those which adjust and respond to changing conditions (satiation mechanisms). However, even the activated mechanisms allow for differences between decision-makers. For example, the activated mechanism 'discipline' can explain the differences in decision-making between a decision-maker in behaviour analysis, where decisions might be made based on principles of behaviour and measurable outcomes, and a decision-maker in social services, where decisions may be based in perspective taking and relational rights and harms. The introduction of satiation mechanisms highlights how individuals across fields might experience decision fatigue or constraints differently, impacting their ability to innovate or adapt.

Finally, the CG-DM theory fosters understanding and empathy by recognizing the diversity of decision-making pressures faculty face across disciplines. By acknowledging these pressures, the theory can be used to explore changes in the real domain that might create more possibilities for new ways of teaching and learning, facilitating a more flexible and innovative educational environment.

Implications for Faculty and Teaching and Learning

From a practical standpoint, faculty can leverage this theory to understand better the factors that shape their teaching decisions. By increasing awareness of the variables that influence decision-making, the CG-DM theory could provide a structured framework for faculty to discuss and navigate the complexities of educational choices. When unaware of the structures, faculty's ongoing actions can sustain those structures. The common language and structure offered by the theory can facilitate meaningful conversations among faculty about decision-making processes. A shared framework can enable educators to reflect on how constraints in the real domain—such as institutional policies, funding, or governmental demands—limit their

choices. By doing so, faculty may be empowered to focus their efforts on areas where they have more control, potentially leading to more effective decision-making and a more intentional allocation of resources. Alternately, it may help faculty advocate as a group for changes in the real domain by articulating the decision options changes would make available, how changes might mitigate the effects of satiation mechanisms (which can stifle creativity and innovation), and the impact changes could have on learning environments.

The CG-DM theory can be used to understand the places of disconnect between faculty and institutional values. These disconnects are often what lead to faculty alienation, which was a factor identified as a satiation mechanism (culture) that impacted decision-making. Satiation mechanisms can be perceived as either positive or negative. However, when the participants identified satiation mechanisms, they were often described in relation to making decisions that result in learning experiences that deviate from their ideal (i.e. less authentic evaluation types, fewer learning activities, fewer access options). Understanding places of disconnect can provide faculty with foci for collected action that can directly impact the real domain. For example, through collective bargaining demands (i.e. extending academic freedom, establishing shared governance, modifying workload formulas), faculty can exert influence on the real domain by shifting the power dynamics of the institutional strata.

Implications for Leadership and the Institution

The CG-DM theory also offers critical insights for institutional leaders and management at the research site. Institutions often face complex decision-making environments where factors like budget constraints, staffing shortages, and changing student needs must be balanced. This theory suggests that satiation mechanisms (where decision-makers adapt to limited resources)

can inadvertently stifle innovation, as faculty may become disillusioned or feel pressured to conform to existing structures.

Leadership can have a direct impact on decision-making by altering elements of the Institutional strata in the real domain. These changes can have mitigating effects on the decision-making mechanisms. For example, changes that streamline the onboarding of part-time faculty and new full-time faculty (which reside in the institutional policies and processes) can have an impact on the satiation mechanisms of time and culture. Providing clear support and direction when faculty join the institution can reduce the cognitive load associated with the mechanics of getting a class up and running (email address, access to LMS, class lists, etc.) and, therefore, have an impact on the satiation mechanism of time.

The notion that course design and delivery can be standardized year after year is challenged by this theory. Educational settings are dynamic, with constantly shifting student needs, enrollment numbers, technological requirements, and curriculum updates. By recognizing the limitations of a decision-making theory that supports a "one-size-fits-all" approach, institutions can support faculty to remain adaptable and responsive to changes in the teaching and learning environment. The CG-DM theory highlights areas in which leadership could directly impact the decision-making structure (institutional strata) and limit the potentially negative impacts of decision-making mechanisms (culture) and elements of the societal strata (neoliberalism) that could threaten the quality of education.

Institutional leaders could use CG-DM theory to inform professional development initiatives, ensuring faculty have the support and time necessary to innovate. According to the participants, time allocated for reflection, peer collaboration, and experimentation would alter the decisions they make. Implementing faculty-informed formal professional development plans

might be one way to navigate the decision-making mechanisms. Additionally, fostering a culture of transparency and open communication between faculty and the institution might reduce the disillusionment that arises when leadership mislabels institutional constraints as societal constraints and downplays the control the institution has over changes in that domain. Institutions should prioritize authentic support structures that empower faculty rather than structures that coerce them into conformity, which may hinder responsiveness to evolving educational challenges.

Implications for Furthering This Research

With many grounded theory projects, the research process results in a localized theory that answers some questions and can serve a practical purpose for the research site; however, it often also results in additional questions to answer or threads to pull. In the case of this research project, the development of the CG-DM theory resulted in some areas of exploration that could support the theory's growth and applicability.

Theoretical saturation was reached with the participants who self-selected into this research project. However, the participants represent a small portion of the research institution's full- and part-time faculty, and it would be worthwhile to continue data collection (as laid out in this methodology) with as many faculty as possible at the research site. It is possible that additional participants would alter the theory or provide reinforcement for the theory as presented in this project. In either case, the theory's practical value would increase as a basis for institutional change.

An additional round of interviews with the current participants would have allowed a deeper investigation of the specific ways the real domain is constraining and promoting choices. The real domain was constructed through retroductive analysis during constant comparison;

however, the resulting structures were not added to the interview questions for subsequent interviews in the same way as the decision-making mechanisms were. The decision-making structure was presented to the focus group. However, a more robust understanding of the real domain may have resulted from a more focused investigation with the data participants. For example, the power relationships within the real domain can change the way in which the strata impact the actual domain and, in turn, decision-making mechanisms. A focused investigation may have been able to provide comment on these intra-domain relationships within the CG-DM theory.

Summary

This chapter outlined the findings and theoretical contributions of this project and emphasized the importance of recognizing and addressing the structure and mechanisms that shape decision-making in educational settings. This chapter highlighted that by fostering a deeper understanding of these factors, this theory offers a valuable framework for faculty, management, and researchers alike to explore decision-making in a contextually significant way and develop approaches and supports that encourage shared values, promote innovative and adaptive teaching and learning environments, and support meaningful learning outcomes.

Chapter 6: Conclusion

This research study explored the factors that influence pedagogical decision-making and how they interact. Using a critical realist grounded theory methodology, a localized theory emerged that identified decision-making mechanisms, decision-making structures, and how these elements interact.

The guiding questions for this research study asked: 1) What factors influence online pedagogical decision-making in community college programs? and 2) Can any relationships between influential factors be identified? As the iterative data collection and analysis procedure progressed, the specific components of the theory emerged. The core categories in the empirical domain (enacted design and enacted delivery) and the actual domain (design decisions and delivery decisions) emerged through the constant comparison process of the methodology. The core categories in the real domain (institutional strata and societal strata) emerged through the retroductive analysis unique to the critical realist approach to grounded theory. These core categories represented the decision-making structure. Through the constant comparison methodology, the decision-making mechanisms emerged. These mechanisms were either present during all decisions (activated mechanisms) or required some threshold to be met to activate (satiation mechanisms).

The modifiability of this theory allows for contextual factors to change while still being accommodated. It also allows for the collection of additional data to further refine the theory and ensure it continues to fit the data participants. This theory can grow and change as the context of decisions and decision-makers evolve. The components of this localized theory emerged from the data participants, ensuring that it serves them and others at the research site.

Limitations

Due to the time constraints and the recruitment requirements of the research site, the participant pool was limited to those who self-selected for the further data collection phases. Therefore, the perspectives represented only extend to those who would elect to participate in the survey and those who would elect to participate in further data collection. Although theoretical saturation was met with the theoretical sample, saturation may not have been reached with a

larger sample. The accuracy and generalizability of this study would have benefitted from a larger number of participants to ensure all perspectives were captured.

Due to course scheduling and time, completing the data collection observation component was impossible. The lack of observational data may have limited the emergence of additional structural components and decision-making mechanisms that existed in the teaching and learning environment and only arose during the exchanges in those environments.

The theory that emerges using critical realist grounded theory methodology has limited generalizability to a broader environment or context. The specific decision-making structures and mechanisms identified in this theory are only meaningful to the research site. Even that meaning should be bolstered by continuing the data collection. More participants would increase confidence in the applicability of the theory for the research site. However, the theoretical frame and process for identifying the emerging structures and mechanisms that were developed during this research project could be applied to other research contexts to develop meaningful localized theories.

The grounded theory methodology and the critical realist approach allow researcher interpretation. This interpretive flexibility can lead to the subjective identification of categories, structures, and mechanisms wherein there is the potential for over-interpretation or bias to influence the identification of the components of the theory. Although steps were taken in the methodology to account for this possibility, it continues to be a potential limitation of the critical realist grounded theory methodology.

Further Research

The findings of this study highlight several promising avenues for future research, particularly in the areas of institutional change, pedagogical decisions, and professional

development approaches in higher education. One area for further exploration is the development of frameworks or models of institutional change that use grounded and contextually driven research. As higher education continues to evolve, there is a need for robust models that can account for the complexity of institutional transformation. Transformation is multifaceted, involving shifts in teaching methods, administrative processes, and the adoption of new technologies. Further research could investigate how these elements interact, especially across diverse institutional contexts. Comparisons of the variations in structures and mechanisms in all areas of the institution, and even between institutions, could identify commonalities and differences that shape how institutional change unfolds. Such research could move this localized theory towards formal theory development by offering insights into how decision-making structures and mechanisms operate within and across institutions.

Identifying points of influence to intervene in pedagogical decisions presents another area for further exploration. Understanding the leverage points where decision-making processes can be shaped to improve educational outcomes is crucial, particularly in an era of increasing technological integration and institutional competition. Future research could focus on how administrators and educators could use grounded and contextually driven inquiry to identify places for intervention, leveraging critical decision points to influence teaching practices and improve student learning outcomes.

Professional development research also stands out as an area for future inquiry, particularly in understanding how faculty and staff can be supported in adapting to institutional change. As teaching and learning environments become more complex, it is essential to understand how professional development programs can be designed to help educators adapt

their pedagogical practices to new challenges and take full advantage of the design and delivery decisions available to them. This includes exploring how continuous training and support on decision-making structures and components can foster resilience and innovation in teaching. This approach can help tailor professional development strategies based on the idiosyncrasies of decision-making mechanisms.

Finally, the increasing role of artificial intelligence (AI) in decision-making processes opens up future research opportunities. AI could be leveraged to map the complexity of decision-making in educational contexts, creating a tool to analyze and predict the outcomes of various changes to the real domain. Exploring how AI can support the modelling of decision-making processes could lead to more data-driven approaches in managing institutional change, ultimately enhancing the ability of higher education institutions to adapt to an ever-evolving landscape.

Significance of the Research Project

This research offers a range of significant contributions to the academic field, theory development, policy, and practice. First, the study provides new insights that contribute to existing knowledge, particularly in understanding how internal dynamics and external societal pressures influence decision-making. By examining localized contexts, this research adds to the growing body of work that explores the complexity of post-secondary institutions.

In terms of theoretical importance, this research emphasizes the meaningfulness of localized theories in guiding decision-making processes within post-secondary institutions. Rather than relying solely on broad, universal theories, this study demonstrates the value of context-specific theories that account for unique institutional and environmental factors. This

localized approach to theory-building helps to explain how institutions respond to external pressures, which is particularly relevant for navigating current challenges in higher education.

From a policy and practical application perspective, the research has direct implications for addressing real-world issues higher education institutions face. It offers innovative solutions by suggesting new frameworks for institutional change and decision-making grounded in localized theory. These insights can inform policies aimed at combating the increasing capitalization and marketization of post-secondary institutions, helping them resist these trends and make decisions that better align with their educational missions. The research also highlights the impact of the erosion of traditional protections for faculty decision-making and offers opportunities to help faculty regain their influence in institutional decision-making processes and offers ways to advocate for approaches that strengthen faculty participation in institutional governance.

This research also makes a methodological contribution by adding to the samples of critical realist grounded theory (CRGT) studies. By using CRGT in a novel context, the study furthers the application of this approach, demonstrating its utility for understanding complex institutional dynamics. This, in turn, encourages the broader use of CRGT in other studies, contributing to the method's ongoing development and refinement.

This research may be particularly relevant in addressing contemporary issues, such as the challenges faced by post-secondary institutions as they navigate the pressures of larger societal trends. By understanding exactly how these trends influence institutional decision-making, this research provides a clearer picture of how societal trends and institutional policies impact higher

education. This is crucial for institutions seeking to make decisions that balance economic pressures with their educational values.

Finally, the research challenges the status quo by questioning the traditional and often assumed relationship between academic research and practice. The absence of many of the factors identified in the academic literature from the decision-making mechanisms of the participants in this study argues for the use of localized theories, rather than broad approaches often articulated in the academic research to guide decision-making within post-secondary institutions. This research project offers a way to understand complex human systems and begin to identify causal factors in the system that can be leveraged for change.

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Appendix A
Survey Questions

Survey Questions

This survey is designed to identify potential participants for stage 2 data collection and ensure purposeful representation of the participants.

Related to Learning and Learning Theory

1. When you think about the term LEARNING what does it mean to you? Consider each of these statements carefully, and rate them in terms of how close they are to your way of thinking.

	Very Close	Not so Close	Very Different
Making sure you remember things well			
Developing as a person			
Building up knowledge by acquiring facts and information			
Being able to use the information you've acquired			
Understanding new material for yourself			
Seeing things in a different and more meaningful way			

2. To which learning theory would you say you align most closely? (Choose one)

Behaviourist	☐
Cognitivist	☐
Connectivist	☐
Constructivist/Social Constructivist	☐
Other (request participant to identify)	☐
Not Sure	☐

Related to Perspective on Technology

3. Which of the three statements below most closely resembles your perspective on digital technologies? (Choose one)

Technology is a neutral tool that simply extends what humans can do. Technology is neutral and objective, and its impact rests on the user and not on the technology itself.	☐
Technology is socially and culturally influenced. Technology is usually harmful and should always be evaluated for its circumstance of production, surveillance capabilities, embedded values, and mechanisms of control.	☐
Technology is value-laden. Technology is pervasive and technological change alters human life in both perceptible and imperceptible ways. The values of technology can be realized in either positive (emancipatory) or negative (destructive) ways.	☐

4. Which of the statements below most closely resembles your perspective on online education? (Choose one)

The face-to-face experience is typically the superior delivery modality.	☐
The face-to-face experience is typically the superior delivery modality but can be enhanced by some online components	☐
The face-to-face and online experiences are neither superior nor inferior to one another	☐

The online experience is typically the superior delivery modality but can be enhanced by some face-to-face components	☐
The online experience is typically the superior delivery modality	☐

Related to Purpose of Education

5. When you consider the OVERALL purpose of post-secondary education, which of the following would you rank as among the top 3 purposes (ranked from 1 'strongest purpose' to 3 'weakest purpose'?

Rank	
	emphasize questioning of all things, the search for truth, and the development of good and moral citizens
	emphasize developing skills for employment and participation in the economy
	emphasize teaching learners to participate completely in the public sphere both through their economic labour and as upstanding members of social and civic life
	emphasize developing an understanding of a historical narrative to broaden the learner's perspective before they specialize in a particular area
	emphasize nurturing freedom, autonomy, trust, and the development of innate human potential, unrestrained by the concerns of societal or economic participation
	emphasize providing space and guidance to help students develop wisdom and humility
	emphasize taking action in the social, political, and economic arenas

6. Rank the following statements from that which most closely aligns with your perspective on your purpose as an educator (1) to least closely aligns with your perspective as an educator (6). If there is a factor not represented in this list, please specify and include it in its appropriate ranking.

Rank	
	To deliver content or develop skills
	To model ways of being
	To cultivate ways of thinking
	To facilitate personal agency
	To seek a better society
	Other (specify)

Related to Contextual Factors

7. When I think about the professional development (PD) I have done over the last five years, I would consider the relationship between discipline professional development and pedagogical professional development to be: (Choose one)

A major in discipline PD with a minor in pedagogical PD	☐
A major in pedagogical PD with a minor in discipline PD	☐
A true dual-major in both discipline and pedagogical PD	☐

8. Rank the following statements based on the degree to which you feel they influence how you design and deliver online courses. (1 the strongest influence / 4 the weakest influence)

Rank	
	The way in which I learned this material during my educational experiences
	The things I have learned from formal education or training in pedagogy, higher education, adult learning, and/or curriculum development.

	How confident I feel about the pedagogical approach I want to use
	What has worked well for me in the past when designing and delivering online courses

9. How would you rate the level of control you have over online course development and delivery? (Choose one)

Full control to make the changes I want	
Full control to make the changes I want, provided others delivering the course agree	
Some control over altering the resources, topics covered, types of assessment, etc. But these changes need to be approved by someone else	
No control to make changes. The course outline was fully developed, but I had flexibility in the way in which it was delivered online	
No control to make changes. The course outline was fully developed and I had no input in the way in which the course was delivered online	

10. Rate the factors below based on the degree to which they might interfere with your ideal course design and delivery.

	Would significantly interfere, altering the way I design and deliver a course	Would somewhat interfere, giving me pause to consider the implications of my design and delivery choices	Would not interfere. I'd stick to my plan regardless of this factor.
Time/Workload			
Availability of social incentives (the degree to which your efforts are recognized by the institution or peers)			
Likelihood of social disincentives (the degree to which your efforts will be misunderstood or looked upon poorly by the institution or peers)			
Number of students in the class			
The content of the course			
Availability of teaching and learning resources (i.e. textbooks, videos, etc.)			
Systems constraints (i.e. outcomes-based learning, expectations of regulatory bodies, expectations of industry, expectations of government, etc.)			

Appendix B

Interview Questions

Interview Questions

The interviews will be unstructured and participant-driven to adhere to the Critical-Realist Grounded Theory Methodology. Each interview will begin with the following questions:

- What discipline or course will you be thinking about during this interview process as you construct your answers?
- What drew you to become an educator?
- I was hoping you could walk me through how you approach designing and delivering an online course.
- Were any guiding principles they relied on when designing and delivering courses
- Have you noticed any changes over time?
- *What, if anything, had the most significant impact on your course design or delivery decisions?
- *Do you think you made decisions differently when designing for online and face-to-face modalities?

However, to ensure they provide meaningful data to the research project, each participant will be guided to talk about each of the following topics:

- Their view and/or definition of learning
- Their perspectives on learning theories, what they know about them, and how they use them in course design and delivery.
- Their perspective on the purpose of post-secondary education
- Their perspective on digital technologies in general and online learning more specifically
- What experiential and environmental factors influence how they make decisions about online course design and delivery?
- *What do you think others in your area might say influenced their decision-making?
- *What do you think your discipline would expect to see (from the outside looking in) in a high-quality learning experience?
- *Would you like to re-explore any of the areas discussed, or are there any areas not discussed that you feel are important?

* Represents a question added during constant comparison

Appendix C

Focus Group Questions and Protocol

Focus Group Facilitation

Below are the principles that will help guide the focus group facilitation.

- Highlight the purpose of the focus group: The goal of Grounded Theory Methodology is to create a theory related to the phenomenon of study. In this case, I am hoping to develop a theory of pedagogical decision-making that highlights what factors are key to these decisions and how the factors might interact with one another. The final stage of Grounded Theory requires that the theory be vetted by people matching the participant sample. This is the purpose of the focus group. I will present you with the theory developed from the data collected in previous phases of this study and invite your comments and questions.
- Let the participants know that they do not need to self-censor. Remind participants of the rights and responsibilities in the consent form and that they are essential to ensure a space where people feel able to speak as freely as possible.
- Participants are welcome to build on each other's thoughts and ideas.
- Try to keep the conversation on track.
- Actively try to draw input from everyone.
- Call upon quieter participants to ensure that there is equal participation.
- Record key points on a whiteboard (physical or digital) to help capture the discussion.
- If participants' responses are general or vague, ask follow-up probes to help draw out concrete examples or ideas. For example:
    - Tell me more about what you just said, or please elaborate on that statement.
    - Can you clarify what you meant?
    - Are you willing to provide a specific example/situation/context?

Focus Group Questions

1. Trust Building Questions

a) Why did you decide to join our focus group today?
b) When and how did you first decide to become an educator?
c) What do you like most about being an educator?

2. Theory Exploration Questions

a) What is your first impression of the theory? Does it speak to you?
b) Can you see yourself reflected in theory?
c) Which portions of the theory resonate with you the most? Why?
d) Which portions of the theory would you consider irrelevant or inaccurate? Why?
e) What's missing from the theory?
f) How might you use this theory in your course design and delivery considerations?

Appendix D
Athabasca University Ethics Approval

Athabasca University
RESEARCH CENTRE

CERTIFICATION OF ETHICAL APPROVAL

The Athabasca University Research Ethics Board (REB) has reviewed and approved the research project noted below. The REB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2) and Athabasca University Policy and Procedures.

Ethics File No.: 25218

Principal Investigator:
Ms. Jen Porter, Graduate Student
Faculty of Humanities & Social Sciences\Doctor of Education (EdD) in Distance Education

Supervisor/Project Team:
Dr. Susan Bainbridge (Co-Supervisor)
Dr. Rory McGreal (Co-Supervisor)

Project Title:
Factors Influencing Pedagogical Decision-Making in Online Courses

Effective Date: May 24, 2023 **Expiry Date:** May 23, 2024

Restrictions:

Any modification/amendment to the approved research must be submitted to the AUREB for approval prior to proceeding.

Any adverse event or incidental findings must be reported to the AUREB as soon as possible, for review.

Ethical approval is valid *for a period of one year*. An annual request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

An Ethics Final Report must be submitted when the research is complete *(i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable))* or the research is terminated.

Approved by: **Date: May 24, 2023**

Tobias Wiggins, Chair
Faculty of Humanities & Social Sciences, Departmental Ethics Review Committee

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Athabasca University Research Ethics Board
University Research Services Office
1 University Drive, Athabasca AB Canada T9S 3A3
E-mail rebsec@athabascau.ca
Telephone: 780.213.2033