THE FUTURES OF LEARNING.

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ABSTRACT

Human learning within higher education is at a defining moment, as higher education institutions face unprecedented challenges due to social, economic, and technological changes. Amidst these, this study seeks to understand and explore the opportunities for fostering learning within higher education. This constitutes an exploration of the purpose of education, an investigation into the capabilities that underpin learning, and a consideration of the impact of Generative Artificial Intelligence (Gen AI) on learning.

This is explored through in-depth conversations with nineteen educators and learners within higher education in Canada.

The study finds that the purpose of education lies at the intersection of the needs of the learner, society, and education's own ideals. It also finds ten core capabilities as underpinning learning: Profound understanding, critical thinking, strategic thinking, collaboration and co-creation, resilience and tenacity, communication and dialogue, empathy, self-awareness, humility, and confidence.

This study concludes with a Learning Design Framework which is an idea generation tool to support interest holders within higher education in exploring initiatives that can foster learning.

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Dedication

To The Greatest Teacher. Thank YOU for all the life lessons.

To all the educators in & out of the classroom, inspiring hope, pushing learners to aim for more, to know they are not defined by their mistakes, and giving them/us the chance to begin again.

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1.Introduction

This chapter provides the context and rationale for this study on the futures of learning in higher education. It does this through a discussion of some of the challenges facing higher education today, particularly public confidence, funding, and the changes brought about my Generative Artificial Intelligence (Gen AI).

This concludes with a brief presentation of this study's goals and the guiding research questions.

Context

To engage in a conversation on learning, is to venture into a discussion on one of the core tenets, and needs of the human person. Parker (2010a) in synthesising the definitions of learning from different perspectives in 'Human Learning. An Holistic Approach', notes that the common factor in all explanations of learning is the emergence of change in the learner.

Beyond mere change, Jarvis (2014) in 'Paradoxes of Learning' asserts that human learning, particularly when it is active and reflective is at the center of growth of the individual. This growth happens by learners engaging with themselves, with others, and with knowledge:

> In seeking knowledge from books, people are actively engaged in the learning process and thus are gaining insight and growing. In discussions with others, they are trying to establish an active constructive relationship in which everyone participates and from which everyone benefits. If they specialise in specific areas of knowledge, that knowledge becomes part of their being and experiences (2014, p. 148).

Through this process, the learner is personally enriched, and also empowered to contribute positively to society (Yan et al., 2024).

However, despite the growth that can come from learning, it is important to point out that learning is not always positive. It is possible to learn the wrong thing, to not learn enough for the required purposes, or to have a distorted understanding of what is being learned (Illeris, 2010). It is at this point that learning and education intersects.

Educational institutions are designed to formalise and structure this learning process (Yan et al., 2024) and to bring about certain desirable outcomes. Typically, learning within an educational context would include some sort of disciplinary mastery (Gardner, 2024b) , or what Gardner (2024b) describes as the accumulated wisdom which 'represents human beings hard won efforts to gain leverage on deep and subtle questions and issues' (2024b, p. 57). This ability to preserve, encode, and pass on the fruits of learning for the benefits of others is a uniquely human ability (Parker, 2010b) and higher education has been a critical vehicle for making this possible. Beyond disciplinary mastery and the nurturing of that personal and human desire to

learn, educational institutions also have their own education agenda which historically has included 'inculcating the fundamentals of citizenship and morality' (Craft et al., 2008, p. 5).

Today, educational institutions, particularly higher education, despite the changes and challenges over the years, continues to hold an important influence in society (Lumina Foundation, 2025). At the very least, based on the number of people that go through it and the continued demand for it (Usher et al., 2025).

According to UNESCO (2025) as at 2023, there were about 264 million students enrolled in universities across the globe, and in Canada as of 2023, the enrolment in universities, colleges and apprenticeship programs was at 2.8 million (2.6 million in 2022), representing almost 6.8% of the population (Usher et al., 2025). Considering the percentage of the population that would interact with higher education institutions, it is no surprise that academics and non-academics continue to contemplate what learning means (Parker, 2010a) and the role that higher education can play in fostering it.

In 'Student Learning in Higher Education', Wilson (1981) considers the intellectual and moral dimension of higher education, and poses these important questions:

> what kinds of changes actually are brought about by study in higher education? How far do students grasp the fundamental principles of their subjects? What point of contact do they see between 'academic' issues and wider political and social problems in contemporary society? What are the moral effects of studying particular subjects? Does the study of literature make students more 'sensitive' and is this shown in their interpersonal behaviour? Does the study of science lead to a respect for truth and evidence, and does this shape their general attitude of mind?' (1981, pp. 55–56)

These are critical questions and while the answer to them might not always be desirable (J. D. Wilson, 1981), it gives a glimpse of some of the promises of higher education, particularly the non-economic implications and benefits both for the learner and for society.

Over the years, a lot of research has been done on the other benefits of higher education, highlighting its role in reducing poverty (Trostel, 2015), improving wellbeing and mental health (UNESCO, 2025), and increasing civic cooperation (A. Green et al., 2003).

However, higher education, its purpose, and its worth, continues to be a subject of debate(Chan, 2016). Today in particular, higher education and consequently, learning is being threatened as it is faced with disruptions that includes dwindling public confidence (Lumina Foundation & Gallup, 2025) (Lavinge, 2024), funding challenges (Usher et al., 2025) (Pichette, 2025) and the changes brought about by Generative Artifical Intelligence (McDonald et al., 2025) .

There has been considerable concerns and research on the futures of learning and higher education. However, most of the studies have been concerned with the economic implications and the misalignment of higher education to the demands of the world of work. While the concern for economic flourishing is important (Chan, 2016), having it as a central question is inadequate for addressing the fundamental concerns on how human learning can be sustained and how higher education can achieve its broader aims.

Despite the focus on the economic value of higher education, the research today shows that higher education is losing its edge as the main pathway for economic flourishing. A 2025 article by the Labour Market Information Council and The Conference Board of Canada reported that 'for the first time in decades, having a degree is no longer a reliable hedge against unemployment' (Nelson & Yang, 2025). In that article, their analysis of Statistics Canada's 2025 employment report revealed that those with college trade credentials are less likely to be unemployed than those with degrees (Government of Canada, 2026).

Legitimately, the growing unemployment rates amongst post-secondary graduates is a matter of concern. However, the more fundamental question is, should learning and the bigger ideals of higher education be sidelined at the expense of the perceived needs of the world of work?

This need to ponder on the fundamentals of learning and education has also been raised by researchers, including some of my colleagues in the previous cohorts of the Strategic Foresight and Innovation (SFI) program at OCAD University.

In 'Return to Learning' Honasan (2021) notes that the role of education institutions' in preparing learners for the future must look beyond economic preparation and include a concern for the development of the innate and unique qualities of the learner.

The use of the iterative inquiry framework in Honasan (2021)'s research for analysing the Ontario Education system showed that the education system is designed to take students on a linear path from classroom to employment. The challenge with this which Honasan notes, is the singular picture of success which this creates at the cost of nurturing the diverse range of skills and experiences which learners bring as that is 'what will collectively produce entrepreneurial ventures, innovative solutions, and participatory citizens.' (Honasan, 2021, p. 18)

Similarly, Perera (2023)'s research reported in 'Classroom for Resilience' throws light on the missed opportunities within higher education for fostering important life and work place capabilities, while noting the importance of recognising higher education's value beyond an economic perspective.

This study makes the point that a sole focus on employability outcomes over pedagogy can have the reverse effect of leading to inadequate development of key capabilities. These include critical thinking, independent thought, and ethics amongst others, all of which are fundamental for thriving in the workplace and in society at large.

In Bisessar and Reid's (2024) research, where they explore how inexperienced designers can move from 'novice to expert' (2024, p. 2), as they conclude, they ponder on the impact of AI systems on human learning. They share the following reflections on their proposed AI chatbot service for aspiring designers:

> Indeed, some may argue that deeper learning only happens by struggling with difficult concepts and materials. Subsequently, should aspiring designers of the future limit interactions with AI systems? Will AI system's ability to effortlessly provide convincing answers to novice designers prove too tempting to resist and ultimately, reduce their desire to grapple with inter-connected, complex problems? (2024, p. 64)

These questions and concerns on learning and education is reflected in this current research. Specifically, learning within higher education is the central theme of this study, and this is done within the boundaries of higher education while considering the implications of Gen AI on learning.

For this exploration, I adopt two main terms - deeper learning and expert learners. As it pertains to this research, deeper learning and expert learners are explored through six core capabilities: These capabilities are:

1. Profound Understanding,
2. Critical Thinking,
3. Strategic Thinking,
4. Resilience and Tenacity,
5. Communication and Dialogue,
6. Collaboration and Co-creation.

Following the interviews with participants, this study finds four additional capabilities. They are: humility, self-awareness, empathy, and confidence.

Because this study concerns itself with learning within an educational context and specifically higher education, it aligns with Biesta (2015b) who argues that the most fundamental question in discussions on education, is the question of Educational Purpose. He explains:

> *the question of purpose is the most fundamental for the simple reason that, if we do not know what it is we are seeking to achieve with our educational arrangements and endeavours, we cannot make any decisions about the content that is most appropriate and the kind of relationships that is most conducive (2015b, p. 3)* .

Accordingly, this study takes on the question of the purpose of education as its foundational basis. Subsequently, it explores learning and the core capabilities, and finally, the impact of Generative AI on learning.

Research Questions

Together, the primary research question which this study seeks to answer is:
What are the opportunities for deepening learning and developing expert learners within higher education?
This question is explored through the three secondary questions. They are:

1. What is the purpose of education?

2. How might we understand learning and the core capabilities that underpin deepened learning and expert learners?
3. What impact might Generative Artificial Intelligence (Gen AI) have on learning?

In answering the overall question, this study focuses on these three questions.

Put together, these questions inform the overall design and structure of this study, including the literature review, the research design, and data collection approach amongst others.

To respond to the research questions, I interviewed 19 participants. Nine of the participants were graduate students or recent graduates who I spoke with in their capacity as learners, one participant was a practitioner and a doctorate student, and the other nine were educators. Overall, 16 out of the 19 participants were educators and current or past learners within OCAD University's Strategic Foresight and Innovation (SFI) program.

Research Contributions

In interrogating and exploring the fundamental question of educational purpose in higher education, this research contributes to the ongoing conversations on human centered education reform and realignment in the era of Artificial intelligence.

The initial six and eventually ten capabilities which are presented as underpinning deeper learning and expert learners provides a new perspective on the capabilities that are important to foster within higher education.

Ultimately, this study is arguing for a different approach to thinking about the futures of learning within higher education. It recommends that the question of educational purpose be kept at the front burner and used as a guide for potential reform pathways. Equally, it recommends a strong commitment to the fostering of the human capabilities in the learner regardless of the value that the economy or technological advancements place on them.

Finally, this study proposes a Learning Design Framework (LDF) to support interest holders within higher education in developing initiatives that can deepen learning and support students in becoming expert learners.

Structure of the Report

This report is divided into 7 main chapters.

Chapter 1 is the introduction which provides a rationale for the study and a blueprint for the rest of the report.

Chapter 2 is the methodology chapter. Here, I present The Design Innovation Process by Vijay Kumar (2013) which guided this study as well as the methods and tools used. This chapter also shows how the 7 modes of innovation from the Design Innovation Process are applied within this research, and how it is reflected across the report.

Chapter 3 lays the foundation of this study by exploring the first point of inquiry which is on The Purpose of Education. This chapter is divided into three main parts. The first part discusses select literature from the fields of educational philosophy and psychology on the purpose of education. Specifically, the works of Gert Biesta, Peter Jarvis, and Howard Gardner. The second part presents the results from the interviews with participants specifically on the purpose of education. This is framed within three main categories: Education & the Learner, Education & Society, and Education for its own ideals.

For Education & the Learner, the key themes representing the purpose of education as it relates to what learners need are: **Purpose Finding, A Change in the Learner, Nurturing Curiosity, Building True Confidence, and Contributing to Society.**

For Education & Society, the key themes that represents what education can do for society are**: Developing Good Humans, Stability in Society, and a Recognition of a Higher Purpose.**

For Education & its own Ideals, which is the environment or ecosystem that higher education fosters, the key themes are: **A Place of Inquiry, For Practicing, and for Positive Failing, and A Bridge to the Real World**

In the third part, a concept map (Venn Diagram) is used to analyse the results further to get more insights. By placing the quotes of participants across the three categories in a Venn diagram, this results in the finding that while the purpose of education lies at the intersection

of the learner, education, and society, higher education's obligation to society and its own ideals, must intersect with the needs of learners.

Chapter 4 is the heart of this study as it explores the meaning of learning within this study and the core capabilities that underpin the type of learning that is being sought.

Like chapter four, it is also divided into three main parts.

The first part presents and explores Knud Illeris (2017)' four typologies of learning as a way of showing the type of learning that this study proposes, which is accommodative learning. This follows a discussion on the concepts of deeper learning and expert learners' and the definitions of the six core capabilities: Profound understanding, Critical Thinking, Strategic Thinking, Resilience and Tenacity, Collaboration and Co-creation, Communication and Dialogue.

In the second part, the responses from participants on each of the capabilities are presented as well as the additional capabilities that participants referred to as being essential. The most prominent of them were **humility, empathy, self-awareness, and confidence.** With this, there are now ten capabilities that this research puts forward as underpinning deeper learning and expert learners.

In the third part, using a concept map (adapted spider web), the connections between the capabilities are established using the quotes from participants. This leads to three more insights: **humility having the most connection** with other capabilities, and as a result being fundamental for learning, **understanding being a prerequisite for critical thinking**, and finally the importance of an awareness and admittance of the limitations in one's knowledge. This is themed '**The Power of Not Knowing**'.

Also, adapting the iceberg model, the ten capabilities are distributed based on their level of visibility. Self-awareness and humility are at the bottom of the iceberg and confidence is at the top of the iceberg.

Chapter 5 looks to the future by exploring the perceived impact of Gen AI on Learning.
The first part presents a brief review of some literature and recent studies on the impact of Gen AI and learning, and this is followed by the insights from an interview with an AI subject matter expert and educator. This conversation explores three 'creation' approaches which the educator put forward as the three options that now exists for learning with Gen AI: **Human only, Human and AI Collaboration, Full AI Approach.**

The second part of this chapter presents the key themes from the interviews with participants on Gen AI. They include: **Permanence of Gen AI**, **Trust and Skepticism, Intelligence and Plagiarism**, **the Future of Critical Thinking**, and the potential for Gen AI to foster **Communication and Learning by Removing Language Barriers.**

In the third and final part, using a three horizons map, as a visualisation and analytical tool, the hopes and fears for Gen AI and learning both today and in the future are explored. This map also captures the concerns, and hopes and aspirations for higher education generally, as well as the action steps being taken by educators and learners today to mitigate these risks. This results in three key findings which represent how higher education institutions can navigate change (Gen AI) while trying to deepen learning and develop expert learners. They include: the need for **institutions to maintain a big picture perspective** while dealing with the changes brought by Gen AI, by not losing sight of the other challenges affecting higher education, the **need for human and strategic leadership** to facilitate the transition through these changes, and the need for **higher education institutions to preserve some of its fundamentals** (the principles of research) while exploring the way Gen AI and technology can address some of the inequities (socio-economic barriers) within higher education.

Chapter 6 is the recommendations chapter. In this chapter, the concept of the Learning Design Framework (LDF) is presented. The LDF is an idea generation tool which represents some of the core insights from the three main areas of inquiry. This chapter provides a brief overview of how this tool can be used by interest holders within higher education to move from insights to the exploration of possible initiatives and strategies that can be taken within their respective contexts to deepen learning and develop expert learners.

Chapter 7 brings this report to an end by summarising some of the key insights from the study. Here, I also present recommendations for future research, as well as my next steps.

2.Methodology

In this chapter, I present the research framework that was adapted for this study.

This begins with a consideration of the ‘7 Modes of Innovation’ from The Design Innovation Process by Vijay Kumar , and a discussion on the methods and tools adopted.

Methodology: The Design Innovation Process

To guide this exploration, I adopt The Design Innovation Process (Kumar, 2013). This process is both iterative and disciplined, and it allows for the incorporation of multidisciplinary methods with the goal of building systemic and lasting innovations. This process also recognises the learning journey that is embedded in a research process and the necessary interaction between the real and abstract.

While my core research method was a qualitative approach, I use a range of methods including literature review, in depth interviews, and conceptual models.

This iterative and non-linear framework supported one of the core ideals of this research, which was to capture different perspectives, deepen understanding on the area of inquiry, and present a framework not as a prescription but as a shared model that could facilitate further conversations.

Also, the nature of this research involved a consideration of the more abstract, like 'The Purpose of Education' to the more concrete like the Core Capabilities which I presented at the start of the research and finally, The Learning Design Framework that was developed as a recommendation.

The Design Innovation Process consists of seven distinct modes of innovation which includes: 1) Sense Intent, 2) Know Context, 3) Know People, 4) Frame Insights, 5) Frame Solutions, and 6) Realise Offerings. Together, these different modes facilitated this exploration on the futures of learning, allowing me to systematically consider the three key parts of this research (Purpose of Education, Understanding Learning, and Impact of Gen AI on Learning) and to conclude with a framework that integrates all the insights. I initiate the seventh mode (Realise Offerings) in the concluding chapter as I present my recommendations for future research, as well as my next steps.

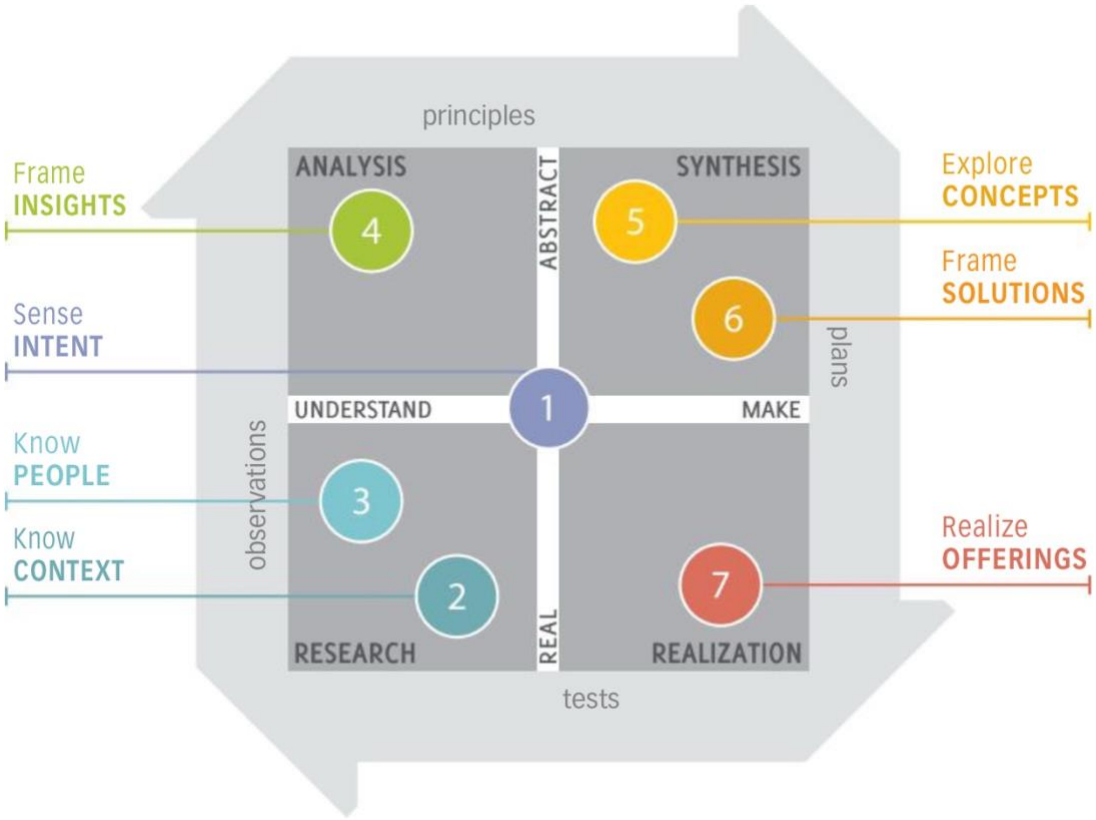

Figure 1: The Design Innovation Quadrant

From 101 Design Methods by Vijay Kumar (2013). Copyright 2013 Vijay Kumar. Reused with permission.

Mode 1: Sense Intent

This phase informed the overall approach of this study. Specifically, the primary and secondary research questions.

It commenced with a literature review to understand education and learning, as well as the issues impacting learning within higher education today.

This phase reinforced my belief in the need to engage with fundamental questions around education, as well as the urgency for understanding the changes brought about by the current technological disruptors, specifically Generative Artificial Intelligence (Gen AI).

Finally, this phase served as the foundation for understanding some of the core capabilities that underpin deepened learning and expert learners. Through the literature review carried out, the six core capabilities were formulated and taken into the interviews with participants. The core capabilities are:

- Profound Understanding
- Critical Thinking
- Strategic Thinking
- Resilience & Tenacity
- Communication & Dialogue, and
- Collaboration and co-creation

These capabilities were shared with participants ahead of the interviews. During the interviews, they were given an opportunity to comment on the importance of each of them and to propose other capabilities that were considered important. These capabilities and the outcome of the process are discussed in Chapter 4 – Understanding Learning.

The outcome of the Sense Intent process is presented in chapter 1 of this report.

Mode 2: Know Context

The goal of this phase was to understand the three secondary questions with more depth and specificity.

The three secondary questions are:

- What is the purpose of education?
- How might we understand learning and the core capabilities that underpin deepened learning and expert learners?
- What impact might Generative Artificial Intelligence (Gen AI) have on the core capabilities?

For the first secondary question, on the purpose of education, I explored select literature from the fields of educational philosophy and psychology. Specifically, the works of Gert Biesta, Peter Jarvis, and Howard Gardner.

For the second, I considered the four typologies of learning by Knud Illeris, followed by a discussion on deeper learning and expert learners which is this study's proposed vision for learning. Then, I presented the six core capabilities and their definitions.

Finally, the understanding of the impact of Gen AI on learning was informed by a brief literature review which considered some of the concerns around Gen AI. This was also supported by the insights from an interview with an educator and AI subject matter expert on the possible changes to learning as a result of Gen AI.

Across these three areas of inquiry, the insights from Know Context (Mode 2) enriched the subsequent phases, particularly the Know People (Mode 3) which was the interviews with participants, and the Frame Insights (Mode 4) after the interviews.

Mode 3: Know People

This phase was about the in-depth conversations with participants. These were semi-structured in-depth (Rutledge & Hogg, 2020a) interviews that explored a series of questions. The interview protocol strongly encouraged participants to lean into their own views and understanding of the questions being explored.

The participants were learners, educators, and experts within higher education. All 19 participants were educators or students within higher education in Canada, and 16 of them were educators, or past or current students within the Strategic Foresight and Innovation (SFI) Programme at OCAD University.

This was a deliberate choice given the nature of the SFI programme. While it is a master's program within higher education, it was designed to offer a different model of education and to play a role in the positive transformation of society (Richards, 2015). The educators and learners in the SFI programme cut across various disciplines but with a shared vision for designing processes and strategies that can lead to positive and transformative change (Richards & Harfoush, 2016).

Mode 4: Frame Insights

In this phase, the synthesised responses were framed as insights using conceptual maps and tools from the disciplines of systems thinking and foresight.

These framed insights include:

1) The 3 Pillars of Education – this is reflected through a Venn diagram that shows the study's finding on the purpose of education being at the intersection of the learner, society, and the ideals of higher education. The insight from this diagram is the need for higher education institutions to find a balance in its obligations to the learner, to society, and to its own principles. In addition, it showed that higher education does not exist for itself. That is, in fulfilling its obligations to society and its own ideals, it must intersect with the needs of the learner. This is explained in more detail in Chapter Three – The Purpose of Education.

2) The Capabilities Map – this map reflects the six capabilities and the additional four capabilities that emerged from the study. The four are: confidence, empathy, self-awareness, humility. This map brings all the capabilities together, and using the quotes from participants, it shows the capabilities connect to each other. This is explained in more detail in Chapter Four – Understanding Learning.

3) Gen AI Horizon – this is an adaptation of the three horizons map which I used as a visualisation and analytical tool for showing the hopes and fears for Gen AI and learning, as well as participants hopes and concerns for the future of higher education. This is covered in Chapter Five – Gen AI and Learning, and it is the final chapter in the exploration phase.

Modes 5 & 6: Explore Concepts and Frame Solutions

These modes are reflected in Chapter Six, the recommendations chapter. In this chapter, I present The Learning Design Framework (LDF), an idea generation tool for interest holders within higher education.

The LDF is a three-tiered tool which incorporates some of the key insights from the study across the three main areas of inquiry: The Purpose of Education, Understanding Learning & the Core Capabilities, and the Impact of Gen AI on learning.

This framework incorporates the principles of the explore concepts and frame solutions mode as it guides participants in moving from insights to creating a vision, and finally, to developing initiatives that can foster deeper learning and expert learners.

Mode 7: Realise Offerings

In the final phase, which is the concluding chapter, Chapter Seven, I initiate the Realise Offerings mode by providing recommendations for future research and giving an overview of my next steps.

Chapter Overview

Chapter	Design Mode	Inquiry	Methods & Tools
1. Introduction	Sense Intent	What are some of the issues impacting learning and higher education?	Literature Review
3. The Purpose of Education	Know Context Know People Frame Insights	What is the purpose of higher education?	Literature Review Semi-structured interviews Venn Diagram

4. Understanding Learning and the Core Capabilities	Know Context Know People Frame Insights	How might we understand learning and the core capabilities that underpin deepened learning and expert learners?	Literature Review Semi-structured interviews Concept Map Iceberg Model
5. Gen AI & Learning	Know Context Know People Frame Insights	What impact might Generative Artificial Intelligence (Gen AI) have on learning and the core capabilities?	Literature Review Semi-structured interviews Three Horizons
6. Recommendations	Explore Concepts and Frame Solutions	How do we move from insights to initiatives?	Concept Map
7. Conclusion	Realise Offerings	Future research and next steps	-

Table 1: Outline of Report Structure

Methods & Tools

For this exploration, I adopt a combination of tools and methods.

Literature Review

The review of scholarly materials including books and journals was a fundamental and on-going part of this research. The review of literature carried out in this study took an integrative form. Torraco (2005) in 'Writing Integrative Literature Reviews: Guidelines and Examples' describes an integrative literature review amongst other things as one that 'synthesizes representative literature on a topic in an integrated way such that new frameworks and perspectives on the topic are generated' (p.356). In this study, while I do not carry out an exhaustive review of the existing literature on the various topics, I draw on a range of sources including books, articles, online conferences, podcasts, policy documents, amongst others to support my understanding of the area of inquiry. The literature review is reflected in the

introduction and primarily in the Know Context section of chapters three, four and five. It serves as a foundation (Snyder, 2019) for each of the three main sections.

Literature Reviewed

The literature review offered unique contributions to the different stages and dimensions of this study.

The Six Core Capabilities

In the early stages of this study, and through the initial literature review of sources at the intersection of learning competencies, future skills, and foresight practice, I found six core capabilities as underpinning deeper learning and expert learners. These capabilities which served as the definition of learning in this study, represented my initial proposition on the competencies needed to foster deeper learning and expert learners. They were taken into the interviews and participants were invited to comment on their significance.

The capabilities are: Profound Understanding, Critical Thinking, Strategic Thinking, Communication & Dialogue, Resilience & Tenacity, Collaboration & Co-creation.

The considerations which I used in formulating the capabilities included insights from the principles of deeper learning and characteristics of expert learners, as well as the capabilities that I believe are needed in these times of uncertainty, and rapid socio-technological changes. Finally, I also considered the competencies that I believed to be relevant to the domain of Strategic Foresight & Innovation.

The key inputs that informed the formulation and development of the six capabilities include: The Expert Learner: Challenging the Myth of Ability (Stobart, 2014), Deeper Learning, Dialogic Learning, and Critical Thinking. Research-based Strategies for the Classroom (Manalo, 2020a), The Expert Learner: Strategic, self-regulated, and reflective (Ertmer & Newby, 1996), Four-Dimensional Education(Fadel et al., 2015) , Evolving Foresight Skills: How will We Shape the Futures of Strategic Foresight (Stein et al., 2025), Competencies that Drive Design Success

(OCAD U CO., n.d.)Policy Horizons Canada Competency Framework for Foresight Practice (Policy Horizons Canada, 2024).

The Purpose of Education

In exploring the purpose of education, the literature review included select thinkers in the fields of educational philosophy and psychology. I considered their different perspectives on the purpose of education and the meaning of learning within an educational context. Considering how the purpose of education can appear to be a very broad and abstract inquiry, reviewing the works of those who have spent time thinking about it, deepened my understanding and helped me make better sense of the responses from participants. I mainly explored the works of Gert Biesta, Peter Jarvis, and Howard Gardner.

Understanding Learning

In understanding learning and the core capabilities, the literature review consisted of works from learning theorists, educators, psychologists, and policy researchers. As this chapter had a lot of concepts and terms that had to be explained and connected, these works allowed me to find definitions that aligned with my vision or gave me the vocabulary and insights for developing my own definitions. The primary literature that formed the foundation for this section was Knud Illeris' (2017) 'How We Learn: Learning and non-learning in school and beyond'. Specifically, his four typologies of learning which allowed me to explain the distinctiveness of deeper learning and expert learners, amongst the other different forms of learning.

Gen AI and Learning

For understanding the perceived impact of Gen AI on learning, I relied on reports of studies on the impact of Gen AI on learning, as well as industry reports. This showed me some of the latest concerns with Gen AI and learning.

The Learning Design Framework

Finally, in conceptualising the Learning Design Framework (LDF) in the recommendations chapter, I was inspired by frameworks and principles from the disciplines of strategy and design. Specifically, 101 Design Methods (Kumar, 2013), The Fifth Discipline (Senge, 2006), Gamestorming (Gray et al., 2010), and Business Model Generation (Osterwalder & Pigneur, 2013).

Semi-structured In-depth Interviews

I carried out semi-structured in-depth interviews with nineteen participants. In-depth interviews are helpful in gathering unique perspectives for an inquiry (DiCicco-Bloom & Crabtree, 2006) which is precisely what I sought to do through these conversations. The open-ended style allows participants to go into as much detail as required (Rutledge & Hogg, 2020b) and to spend time on the issues that resonates deeply with them. In carrying out the interviews, I was deliberate about creating a conversational environment by listening actively, reminding participants that it was about their own views, and encouraging them to engage freely.

The interviews were about 90 minutes long. Five out of the nineteen interviews were done in person (Toronto, Canada), while the other fifteen were done online via video. Thirteen of those were done via Teams and two were done on Zoom, at the request of the participants.

Sampling

Interviews were conducted with nineteen participants. Nine of those participants were graduate students or recent graduates. One participant was a practitioner and a doctorate student, and the other nine were educators within higher education. Sixteen out of the nineteen participants were present or past educators and learners within OCAD University's Strategic Foresight and Innovation (SFI) program.

Exploring this research with members of the SFI community was of significance because of the peculiarities of the program. While the SFI program is a master's program within higher education, and therefore subject to the challenges that higher education faces, it is a futures-oriented program designed to develop change makers and prepare for uncertain times.

Concept Maps

The formulation of concept maps can be traced to Novak's education research with children (Novak & Cañas, 2008). Novak (1990) defines concept maps as 'a representation of meaning or ideational frameworks specific to a domain of knowledge, for a given context of meaning' (p.29). Today, concept maps include many forms of visual representations (The Learning

Center, University of North Carolina at Chapel Hill, n.d.) such as flowcharts, spider maps, Venn diagrams, amongst others (Tucker, 2024).

By using concept maps, I am able to engage deeper with the data and see connections that would otherwise not have been possible (J. Wilson et al., 2016). In this study, I use concept maps to make sense of participants' responses on the purpose of education. Using a three-set Venn diagram, I show higher education's purpose to be at the intersection of its obligations to the learner, to society, and in the upholding of some of its own ideals. In analysing the different sets, a distinct insight was that higher education could have obligations to only the learner but its obligations to society and in upholding its ideals, must intersect with the needs of the learner.

I also use a concept map to show and analyse the relationships (using the responses from participants) between the core capabilities. This allowed me to check for any peculiarities in a particular capability or in the relationships between the different capabilities. The map showed that humility had the most connection to other capabilities.

These maps can be found in the Frame Insights section of chapters three, four, and five.

Finally, I adapt the hierarchical concept map (Tucker, 2024) in the visualisation of the Learning Design Framework in chapter six. This framework, which is presented as an idea generation tool for educators, connects some of the core insights from three main areas of inquiry. With this, the key lessons from this study's journey are captured in one image. For participants who use the framework as recommended, they are able to engage directly with the insights and apply it to their own contexts with more ease.

Three Horizons

Three Horizons is a foresight tool that is used to explore the present state (horizon 1), the future state (horizon 3) and the transition from the present to the future (horizon2). (Sharpe et al., 2016)

Sharpe (2020) in 'Three Horizons. The Patterning of Hope', notes that one of the key benefits of this tool is that 'it transforms the potential of the present moment by revealing each horizon

as a different quality of the future in the present, reflecting how we act differently to maintain the familiar or pioneer the new' (p.7).

In this study, the three horizons was used as a visual and sensemaking tool for synthesising the perceived impact of Gen AI on learning, and participants hopes and concerns for the future of higher education.

The responses from participants contained both their present and future hopes, beliefs and fears for learning as it relates to Gen AI and the future of higher education. In addition, participants also shared ideas around how some of these fears could be addressed and some of the practices they incorporate to foster learning in their respective domains.

The three horizons was used to capture and show these insights.

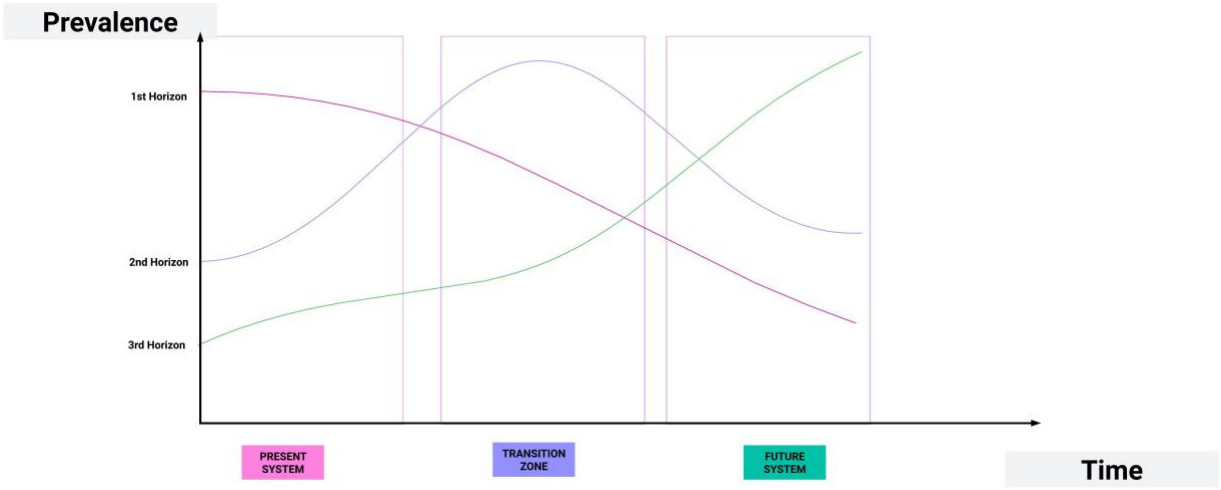

Figure 2:Three Horizons (Adapted from Sharpe et al. 2016)

The Iceberg Model

In systems thinking, the iceberg is used to understand a problem beyond what is visible on the surface (Senge, 2012). As shown in this image, it mirrors the structure of an actual iceberg which has '10% of its total mass above the water while 90% is underwater' (Ecochallenge, n.d.).

In addition, it also shows how different events are interconnected and therefore, should not be treated in isolation (Senge, 2012). As one goes deeper into the system being considered, a deeper understanding of the system is gained (Cunliff, 2016). This understanding also has implications for the manner of intervention (if required) within the system.

In this study, the Iceberg Model was used to understand the reframed capabilities. It provided a framework for seeing the capabilities that were more internal and less visible, against the capabilities that are more external and more visible.

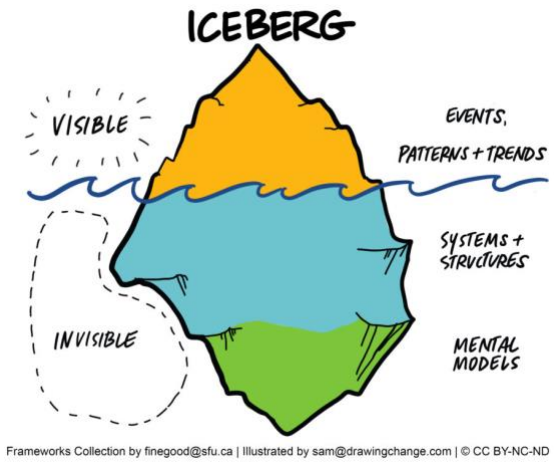

Figure 3: Iceberg Model

Image by Bradd (2022) from Frameworks Collection (2022)

Synthesis of Data

The data analysis and interpretation process used a combination of design synthesis and thematic analysis.

Kolko (2009 as cited in Kolko, 2010) defines design synthesis as an abductive sensemaking process of manipulating, organizing, pruning and filtering data in the context of a design problem, in an effort to produce information and knowledge (Kolko, 2010, p. 3).

In this process, frames are created to serve as 'artificial boundaries of perspective, containing the scope of design work and acting as flexible constraints around a given design problem' (Kolko, 2010, p. 5). In addition to this, sensemaking also involves the creation of visual representations which can then be used to understand the issue being explored better

(Russell & Pirolli, 2009 as cited in Kolko, 2010). Design synthesis can be a personal but disciplined process that is driven by the perspective of the person doing the sensemaking (Kolko, 2010) while engaging with external information.

In analysing the responses from participants, I familiarised myself with the data, created frames where applicable, generated codes and developed themes, and finally used concept maps and other models to deepen my analysis of the responses.

The responses were analysed based on the three areas of inquiry: 1) Purpose of Education, 2) Understanding Learning and the Core Capabilities, 3) Impact of Gen AI on Learning

Purpose of Education

Following an initial familiarisation with the interview responses, I observed a pattern in the data which cut across the needs of learning, higher education's obligation to society, and the ideals of higher education. This observation was also reinforced by some of the literature I had come across in the research process.

Following this observation, I used these three categories as frames for understanding the purpose of education. Then, I went back to the data, using thematic analysis, I generated codes and created themes based on these categories.

In addition, and at the final stage, I used a Venn Diagram to further analyse the responses from participants (still using the established frames) and this gave more insights.

Understanding Learning and the Core Capabilities

The initial six capabilities which I presented to the participants served as frames from the onset. In addition, another objective of this inquiry was to find other capabilities beyond the six. Therefore, using thematic analysis, the responses were analysed based on each capability while looking out for other proposed capabilities by participants.

Finally, a concept map was used to establish the connections between the ten capabilities, and an iceberg model was used to categorise and understand the distinctiveness of each capability. In both cases, more insights were found.

Gen AI and Learning

The first step here was the use of thematic analysis to interpret the participants' responses. Following this, the Three Horizons framework was used to analyse the responses on participants' hopes and concerns for Gen AI's impact on learning, and for the future of Higher Education.

3.The Purpose of Education

This chapter explores the question of 'What is the Purpose of Education?' This exploration is done and presented through three main modes from The Design Innovation Process (Kumar, 2013).

1. Know Context

In this mode, the purpose of education is considered through the perspectives and arguments of some educational philosophers and psychologists: Gert Biesta, Peter Jarvis, and Howard Gardner.

2. Know People

In this mode, the insights from the interviews with the participants are presented. The insights and the response to the purpose of education are captured through three main overarching themes; what learners want, what society needs, and what education is.

3. Frame Insights

In the last section, the insights from the interviews are framed using a Venn Diagram. This allows for a deeper consideration of the dynamics of these three overarching themes and its implications for this inquiry.

In this section, I explore the question of purpose of education, through the perspectives of Gert Biesta, Peter Jarvis, and Howard Gardner.

'If there is no learning going on, there is no education going on'(Ken Robinson, 2013).

Education and learning are usually considered to be united and the words are sometimes used interchangeably. However, in some instances these terms could be at odds with each other.

This tension is portrayed through the writings of two educational philosophers, Gert Biesta and Peter Jarvis, whose works gives insights on what the purpose of education could and should be.

In What is Education For? (Biesta, 2015), Biesta, a Professor of Public Education faults the 'learnification' of education as the reason for the loss of the core dimensions of education. This learnification, which he describes as the 'new language of learning'(2015b, p. 2), equates the purpose of education to simply 'that students learn', without a consideration for the what, the why, and from whom.
Biesta proposes a different way of understanding what education is, and how learning fits into it:

> I wish to suggest that the point of education is that students learn something, that they learn it for a reason, and that they learn it from someone. Whereas the language of learning is a process language that, at least in English, is an individual and individualising language, education always needs to engage with questions of content, purpose and relationships (2015b, p. 3).

To allow for a more encompassing discussion on the purpose of education, Biesta (2015a) in Beyond Learning: Democratic Education for a Human Future, calls for a reclaim of the language of education from the language of learning.

The implication of reclaiming the language of education is that it moves education from being an economic transaction, a phenomenon partly caused by the language of learning which implies that the learner is a customer, the teacher a provider, and 'education itself a commodity' (2015a, p. 20). According to Biesta (2015a), the nature of the relationship which speaks to the purpose of education, is one that constitutes Trust (without Ground), (Transcendental) Violence, and Responsibility (without Knowledge).

Trust reflects the incalculable dimension of learning, and the risk of the change and impact that might come from the learning process. Violence is about seeing learning not just as acquisition of skills and knowledge, but as responding to what is other, what is different, what challenges, and ultimately, about showing who one is, and where one stands (Biesta, 2015a). Biesta (2015b) believes that this is a uniquely educational responsibility, and it can be done by creating an environment (through the content, but not primarily for just acquisition) where there is something to respond to, and 'it also requires that educators and educational institutions show an interest in the thoughts and feelings of their students and allow them to respond in their own unique ways (P.28).'

This connects to the third dimension, which is responsibility. This reflects the risk which educators take for being responsible for a student without knowledge of who the student is, or what the result of the educator's efforts would be. Biesta's conception of the purpose of education is one that is non-linear, unpredictable, relational, and far from convenient.
The rationale for this is reflected in Biesta's view on the problem that the world faces today:

> The most important question for us today is no longer how we can rationally master the natural and social world. the most important question today is how we can respond responsibly to, and how we can live peacefully with what and with whom is other (P.15).

At the time of writing this report, there has been an increase in internal and external conflicts in different countries globally, and a growing distrust for public institutions (OECD, 2024a) . According to the 2025 Global Peace Index, **'**there are currently 59 active state-based conflicts, the most since the end of WW11 and three more than the prior year(Institute for Economics & Peace, 2025, p. 2)'. Alongside these tensions are also rapid technological changes that are increasing the risk of societal polarization (World Economic Forum, 2026) and with varying effects on the physical, mental, and social welfare of people (Lițan, 2025).

Therefore, the task of responding responsibly to, and living peacefully with what and who is other, must also be accompanied with increased capacity to engage with, contribute and lead in the various domains.
This is not a point that Biesta is opposed to. Biesta (2015b) in 'What is Education For?' presents three main domains of education in response to the question of purpose of education – they are, qualification, socialisation, and subjectification. The qualification domain covers 'the transmission and acquisition of knowledge, skills, and dispositions (2015b, p. 4)', the socialisation domain is about how individuals are initiated into the different traditions in their

environment, and subjectification is about how education can positively or negatively impact the personhood of the student (Biesta, 2015b).

However, Biesta believes that a lot of focus has been placed on the qualification domain with very little focus on the subjectivity domain 'which is the way in which children and young people come to exist as subjects of initiative and responsibility (rather than as objects of the actions of others)'(Biesta, 2015, p. 4). According to him, the subjectivity domain is more important to the question of education's purpose. This is on the basis that 'education is not just about the transmission of knowledge, skills, and values, but is concerned with the individuality, subjectivity, or personhood *of the student, with their coming into the world as unique singular beings' (2015b, p. 27),* and this emergence is one that occurs in the company of other unique beings.

Perhaps one might argue that Biesta's categorising of the qualification domain as simply about acquiring knowledge might be an oversimplification of the opportunities that the pursuit of a qualification can present for socialisation and the expression of one's individuality.

It is now that we turn to Jarvis.

Peter Jarvis, an educator and expert in the fields of adult and continuing educator, unlike Biesta, holds on to the language of learning. However, he is critical of how the word learning is used, sometimes misunderstood, and understated (Jarvis, 2005). Jarvis' concern with these other conceptions of learning is the tendency for them to prioritise knowledge over the learner, and his main thesis is that learning is a distinctively human phenonmeon. Unlike Biesta, he believes education is embedded inside learning. However, like Biesta, he also rejects the notion of learning for acquisition and solely in fulfilment of economic and industrial needs (Jarvis, 2014).

To explain this, Jarvis makes a distinction between two forms of learning: learning in the having mode, and learning in the being mode. In the being mode, learning is not the mere digestion of information but it is an active participation in knowledge creation. Within teaching and learning in the being mode 'all the participants are encouraged to give of themselves in communicative interrelationship. Here, there is no non-reflective acquisition of facts, no perennial endeavour to hold onto a body of knowledge (Jarvis, 2014, p. 152).'

In contrast, in the having mode, the priority is the acquisition of knowledge. Within an education setting, this is seen in note-taking over active participation, and the memorisation of course material, over reflection (Jarvis, 2014, p. 148).

This contrast between learning as being, and learning as having, is similar to Biesta's (2015) conception of learning as acquisition and learning as a response. Like Biesta, Jarvis also believes that learning as having (acquisition of knowledge), has a role to play but ought to be embedded in the being. Similarly, like Biesta, Jarvis (2014) also believes that 'Education involves a dialogical relationship in which human beings communicate and share experiences, so that their essence might stand out more fully through their learning' (2014, p. 152).

This importance of the essence of the individual emerging, is why Jarvis considers the existing learning theories inadequate for understanding learning, a sentiment which Biesta also shares as it relates to understanding the complexities of education.

In Towards a philosophy of human learning: an existentialist perspective, Jarvis (2005) explains that while Kolb's initial experiential theory recognises the role of human experience, its definition of learning as 'the process whereby knowledge is created through the transformation of experience ' (Kolb, 1984, p. 41) fails to tell the full story of learning because knowledge, rather than the person is at the center. He depicts this further through the distinction between when educators say 'I teach philosophy instead of I teach students philosophy'. The former he states 'puts the academic discipline at the centre of the discussion – it puts knowledge at its heart, and the purpose of education is seen fundamentally as learning academic knowledge'. (Jarvis, 2005, p. 2). Jarvis seeks to argue that the learner or person should be at the centre of the discussion and he emphasises that learning is more than an activity that happens only in the mind but one that includes in an intertwined way, the whole person; body, mind, self, life history and actions. This is captured in his definition of learning as

> the combination of processes whereby the whole person – body (genetic, physical and biological) and mind (knowledge, skills, attitudes, values, emotions, beliefs and senses) – is in a social situation and constructs an experience which is then transformed cognitively, emotively or practically (or through any combination) and integrated into the individual's own biography. (2005, p. 14)

Jarvis' expanded definition of learning leads to an appreciation of what might constitute learning within an educational context as an activity that happens not just in the mind of the learner but one that comprises of the whole person and can be expressed through different ways. This is a point that a lot of educators have sought to make over the years including Ken Robinson's famous Ted Talk on Do Schools Kill Creativity? (TED, 2007) and Howard Gardner's research on Multiple Intelligences (Gardner, 2002).

While Biesta and Jarvis' views might appear to be on two opposite ends, they have fundamental overlaps and provide very interesting insights on this question of the purpose of education.

Jarvis' contributions leads to a consideration of 'human learning' as fundamental, particularly in the being mode. For Jarvis (2005), the implication of this is that 'education is fundamentally about individuals who learn, grow and develop, and not about merely transmitting knowledge (2005, p. 14).' This is similar to Biesta's proposition for learning as a response and not acquisition. If these two ideas are merged, this makes a strong case for the fundamental role of learning within an educational context. In addition, Biesta's contribution provides a very nuance perspective about what is distinct about education which is about being with others, the responsibility of the educator, and the opportunity it presents for the learner to emerge.

Moving beyond philosophy, Howard Gardner, a cognitive psychologist and professor of cognition and education, considers the purpose of education and the value of learning. His approach is arguably at the intersection of Jarvis' learning focused approach, and Biesta's education first approach.

Following a study which was carried out in 2012 with over 2,000 individuals across 10 campuses in the US, Wendy Fischman and Howard Gardner (2024), presents their response to the purpose of education in their recommendations.

For them, the core goal of higher education is the training, strengthening, and cultivation of the mind which 'entails the abilities to attend, analyse, reflect, connect, and communicate' (2024, p. 238).

Included in their recommendations, is also the acceptance of the change to the individual which might come from the process of higher education, 'a change that the institution can

neither pre-design or insist on' (2024, p. 238). This probable but uncertain change that can happen in an educational journey, is similar to Biesta's view on the risk of education, which he terms as 'Beautiful', and one that should embraced (Biesta, 2016).

However, Gardner (2024b), in contrast to Biesta, is unapologetic in his views on the importance of the qualification domain, or what he describes as disciplinary mastery, 'an understanding of the best work done by countless individuals over many hundreds of years', (p. 57) but he, like Biesta also acknowledges that one of the central roles of education is the fostering of the individuality of the students.

Following his work on multiple intelligences, he notes:

> The purpose of school should be to develop intelligences and to help people reach vocation and avocational goals that are appropriate to their particular spectrum of intelligences. People who are helped to do so, I believe, feel more engaged and competent, and therefore more inclined to serve the society in a constructive way (Gardner, 2024b, p. 89)

While throwing light on the importance of education systems to recognise and nurture multiple intelligences and individual creativity, he also conceives of an education system that helps students strive for high standards, accuracy, and critical thinking.

In The Disciplined Mind (Gardner, 2000), he explains:

I want all students to develop high standards; I want all students to strive for accuracy and to use evidence properly; I want all students to respect a range of groups and cultures, but not to do so uncritically (2000, p. 58).

This fusion of individual creativity and a standard of excellence has similar connotations with the responsibility that Biesta speaks of when he makes the distinction between education for self-emergence and education for self-expression. For the former to happen, the learner is responding to others (other learners and educators) but is also responsible for others. This responsibility is reflected in what they say and do, as well as how they listen, wait, and create space for others. (Biesta, 2001, as cited in Biesta, 2016, p. 28).

Finally, beyond disciplinary mastery, Gardner believes that education ought to provide a pathway for some of the big questions of life such as 'who are we?, where do we come from? and what do we consider to be true or false?' (Gardner, 2000, p. 216). For Biesta, this is reflected in what he describes as the transcendental value of higher education which should give learners the opportunity to respond to deep and sometimes uncomfortable questions like 'where do you stand?' what do you think? (Biesta, , p. 28) These are questions that Biesta believes that educators have a responsibility of posing to the learners.

Overall, the discussion above shows the multiplicity of purposes which education can serve. However, the central ideas that cuts across on the purpose of education are: 1) the nurturing of the uniqueness of each learner, 2) the exercise of a responsibility not just from the educator or institution, but also from the learner, 3) the opportunity to engage with, and be challenged by others, 4) the opportunity to ask bigger questions about self, life, and others, and 5) to develop expertise.

Purpose of Education | Know People (Interviews)

The question on the purpose of education, unlike the other two secondary questions, was broad and somewhat philosophical. It was a question that participants were asked directly but it was also a question that they responded to while engaging with the other questions.

During the initial stages of the interviews, as I familiarised myself with the data, I observed that a lot of the responses referred to 'who' education should serve and what education is. In speaking about who education should serve, participants referred to education for the learner and education for society.

Admittedly, most of the participants were learners and educators, and the primary research question is on learning and learners. However, I found it remarkable that participants' responses revolved around these three areas as it also has connotations with some of the ideas I had encountered in the literature review process.

Following this observation, I reframed my scope of inquiry for 'The Purpose of Education' to finding out what education means to the learner, what education means to society, and what education should be in of itself.

At the end of the interview process, in carrying out the analysis, these three questions served as frames for understanding the purpose of education.

Below, I report on the findings.

Category 1: Education & the Learner (What the learner needs)

The key themes that emerged in relation to education and the learner, are: finding one's purpose, change, curiosity, confidence, and contribution to society.

1. **Purpose Finding**

Several participants spoke about the role of higher education in helping learners know about the world and emerge as their unique self. One participant described as 'a unique purpose'.

Most interview participants who were current students or recent graduates, referred to what they hoped higher education would do for them. One participant, in reflecting on their academic and career journey across different fields, stated that higher education 'is something deeper, it helps you find your place'.

This purpose finding is one that occurs during the formal learning journey and extends beyond it. In thinking about finding one's purpose while in formal education, one participant made the point that 'I feel it's so important for our education to teach us that it's okay to explore things, and to find our own ways of learning'.

The role of higher education in this search for purpose speaks to the abstract and delicate nature of the purpose of education.

2. **A Change in the Learner**

Participants spoke about the likelihood or expectation for a change or shift in the learner. This change can be of different manifestations and intensities.

The different ways this change might show up is reflected in a participant's response:

> It doesn't have to be in a large or broad scale. It could even just be like internal change, in the way you think, thinking better, you're able to solve problems, think more clearly. I do think a successful program should facilitate some kind of change internally and externally as well, and give you the tools. I would say that's probably the biggest marker.

For another participant, this is seen where 'there has been some cognitive shift, there has been some new neural network, some new sparks even if it's like I knew this, and now I know this deeper'. This change is personal, subjective, and can take different forms. One educator stated that this is when 'the learner self-reports on exit, 'I am not the same person I was at the start of the program.'

The varying descriptions of change here, supports the point made by Fischman and Gardner (2024), which is that the change that comes from higher education can neither be pre-designed or insisted on. While the exact result of this change cannot be predesigned, which is the beautiful risk of education that Biesta (2016) points to, what it does presuppose is the need for educational institutions to operate with that awareness and responsibility by creating the opportunities that can make this this possible.

3. Nurturing Curiosity

The nurturing of each learner's curiosity was also prevalent in the responses. One participant in reflecting on something very niche that they had just learned made the point that education nurtures that quest for knowledge and prolongs our learning trajectory. For another participant, a constant question throughout their education journey is 'does it (the education experience) satisfy the curiosity I have?' Similarly, another participant while recounting the joy of following one's interest in learning, described education as a key to a treasure chest: 'Education or knowledge is like a key to a treasure chest. It opens up a new space that can be explored. When the box is open, you would be surprised what you find.'

This love and quest for knowledge can be seen as a reflection of the fundamental and intellectual purpose of higher education. This connects to the contrast made by Jarvis (2014) on learning in the being mode and learning in the having mode. In the latter, certification is the goal, and the focus is on digesting what is being transmitted. However, in the being mode, which is where curiosity is nurtured, the learner is reflecting on the information, and actively participating (Jarvis, 2014).

4. Building 'True' Confidence

In addition to the development of one's unique capabilities, participants spoke about the importance of instilling confidence in each learner. One participant noted 'it is one thing to make you capable, and it is another thing to feel capable'. This distinction is supported by a statement by an educator who noted 'there are people that are very competent, but not confident.'

In the discussions, confidence came up as being important for learning, and also for thriving in the world at the end of one's formal education journey.

For one educator, confidence is something that can be deliberately fostered during the learning journey by proactively telling learners about the tension that comes from stepping out and importantly, encouraging them to rely on the work they have put in. They noted that this can be done by telling a student, 'you will be able to figure it out because you have listened, you have learned, and that should help you get through.'

For another participant, this means 'being ready for life and the awareness that anything can happen' and for another, it is the 'ability to see the complex, and ambiguous, and to find opportunities'. The role of confidence in education and learning denotes the idea that higher education should prepare learners not necessarily for specific roles in society but rather nurture the ability for them to dare to make sense of the complexities, and thrive amidst the changes in the world.

5. Contributing to Society

Following this, was the idea that ultimately, learners can use these nurtured capabilities to contribute to society in alignment with their unique strengths. This was aptly captured by a participant who invited us to 'Imagine if higher education could contribute in alignment with passion, purpose, and excitement - how much more productive the economy and society would be..' This contribution is one which happens through the learner and is of benefit to the learner. This was articulated by an educator who described the purpose of education as being about equipping learners to 'contribute to society, and to make meaningful change locally and internationally, while participating in issues to a higher degree in matters of concern.' This

contribution to society through participation was echoed by another participant who considered learning with higher education to involve the fostering of the ability to ask the right questions that can shift society.

Category 2: Education & Society (Higher Education's obligation to society)

Although a lot of participants spoke about higher education helping learners see how they can contribute to society, participants also spoke about the responsibility that higher education has to society. This cut across three main ideas; development of 'good' humans, promotion of stability, and ultimately about improving the world.

1. **Good Humans**

While acknowledging the role of higher education in the intellectual nurturing of learners, participants noted that it was more than skills and knowledge but also about 'preparing us to all be really good humans and work together'. Also generally speaking, one participant said ' I do agree with the kind of classical view of university education as being something for making people better citizens, better humans..' Another participant gave very specific examples of what this might look like including the concern for a classmate who might be going through a hard time, respectful interactions with the stranger at the store, or volunteering at a soup kitchen in the community but 'not for the purpose of including it in your resume, but to give back to society'. This participant also referred to social challenges within society (referencing their own city in Canada/North America) which according to them, there are no clear solutions for yet, and they wondered if and how higher education through its learners, can contribute to addressing them.

This idea of 'good' in the context of education, is one that Gardner has explored. In Educating for the True, the Beautiful, and the Good he describes a good individual as having a combination of excellence, engagement, and ethical practice (Gardner, 2024b).

For future research, it would be interesting to explore what constitutes a 'good human' in a rapidly changing and ideologically divided world.

2. Stability in Society

Beyond the learner, participants also spoke about higher education being central to the fostering of 'stability in society'. This includes as one participant said 'preparing enough people to address the challenges and potential instability', and this includes the skills and competencies for addressing these challenges as they come up. If this is considered alongside the point made earlier about 'good humans', one implication is that higher education should to the extent possible mirror the realities of society and give learners the opportunity to ponder on the challenges affecting society, and engage deeply but respectfully with different perspectives and people while maintaining stability.

This idea echoes Biesta (2015a)'s point that what is urgently needed in the world today is not technical expertise, but rather the ability for different people to engage and co-exist peacefully.

3. Higher Purpose

Overall, several participants found the question of 'purpose' to be important and one that they had not actively thought about in a while. One participant who had been thinking about this question even before the interview, stated that they had not found an answer yet, but if we are not ' talking about a greater purpose of community, of society, of improving the world, of knowledge mobilisation, if there is not a higher purpose, then higher education might cease to exist in the way we see it'.

This was echoed by another participant who drew a distinction between higher education and training by stating that 'you do not need higher education or formal education in order to get a job or to just learn a craft' because there 'is a longer arc of understanding education and not just training for a particular position'. Another participant in speaking about the obligation that those who go through higher education have to society stated that 'It is more than the trade or work you decide to pursue; one's contribution has to be beyond the professional title, beyond the job description'.

This idea of a higher purpose highlights the responsibility that comes with higher education (for all interest holders) and it also reinforces the point that there can be learning without

education, and that there is something distinct, or at least ought to be distinct about an education.

Category 3: What Education Is (Higher Education and its own ideals)

This idea of higher education being a composition of certain ideals or a place where certain activities can take place for everyone who comes through it, brought to mind Ken Robinson's proposition for education to move from the metaphor of an industrial model to a model that mirrors the principles of agriculture and recognises that:

> human flourishing is not a mechanical process; it's an organic process. And you cannot predict the outcome of human development. All you can do, like a farmer, is create the conditions under which they will begin to flourish'. (TED, 2010)

The conditions which emerged for what higher education should represent include: a place for inquiry, for practicing and positive failing, a bridge to the real world, a place for generating insights and opening up of one's perspective, and preparation for public engagement.

1. **A Place for Inquiry**

Participants referred to the intellectual purpose of higher education and the opportunity it offers for new knowledge. One participant, as stated earlier, in reflecting on what education has been to them, likened education to a key to a treasure chest which leads to surprising discoveries. This is supported by certain competencies which another participant noted as being fostered within higher education, such as, learning how to be a critical reader, to understand nuance, and research. Another participant in reflecting on their own personal experience, had stated that through higher education (and specifically the program they had chosen), they wanted to be able to apply the different sides of their brain while learning. Certainly, what makes the institution a place of inquiry is not primarily the buildings (that would have a role) but it is the people, it is the ideas that have been pondered on, evaluated and the new questions that emerges. This highlights the dialogical and communal nature of education, a point that Shulman (2004) highlights in Teaching as Community Property. He notes:

> Learning is least useful when it is private and hidden; it is most powerful when it becomes public and communal. Learning flourishes when we take what we think we

know and offer it as community property among fellow learners, so that it can be tested, examined, challenged, and improved before we internalise it (Shulman, 2004, pp. 36–37) .

2. For Practicing, and for Positive Failing

In addition to higher education being a place where curiosity is nurtured, participants spoke about higher education being a place for practicing, and for positive or safe failing. This was reported as important both for reinforcing learning and also for preparing learners for the realities of life beyond the institution. One participant commented that 'Learning has to be scaffolded to life experiences and simulated practice'. In the context of their own professional practice, they stated that within their field, it is done through mock clients, case scenarios, and placements. Another participant who is an educator commented on the benefits and need for students to be in continuous engagement with real clients and real problems. Through this, they are given the opportunity to practice what they are learning, and to see the implications of their decisions. This value in practicing and failing for learning and for life after the official end of an education program, mirrors the ideals of resilience and tenacity, one of the core capabilities presented in this research for deepening learning and developing expert learners.

3. A Bridge to the Real World

In addition, participants, particularly those in the learner category talked about higher education being a bridge to the real world. 'Education is not just about what you are taught in class. I think there needs to be a bridge to the real world, and institutions have a responsibility to make that bridge possible.' This could be an echo of desire that learners have to see the real life application of what they are learning, but it could also be a reflection of the natural concern and anxiety about life after an educational journey. This 'bridge' to the real world was both abstract and specific. For one participant, higher education should give one clarity on the next steps in life, and for another participant, this bridge can be created by a deliberate and much 'closer contact with the world outside the walls of the classroom.'

Beyond it being a bridge for learners, another participant highlighted the importance of higher education being connected to surrounding communities and industries, in order to serve society in the way that is needed.

To gain a deepened understanding of the response from participants on the purpose of education, the insights are framed using a Venn diagram. Each set in the Venn diagram represents **The Learner, Education, and Society.**

The Three Pillars of the Purpose of Education.

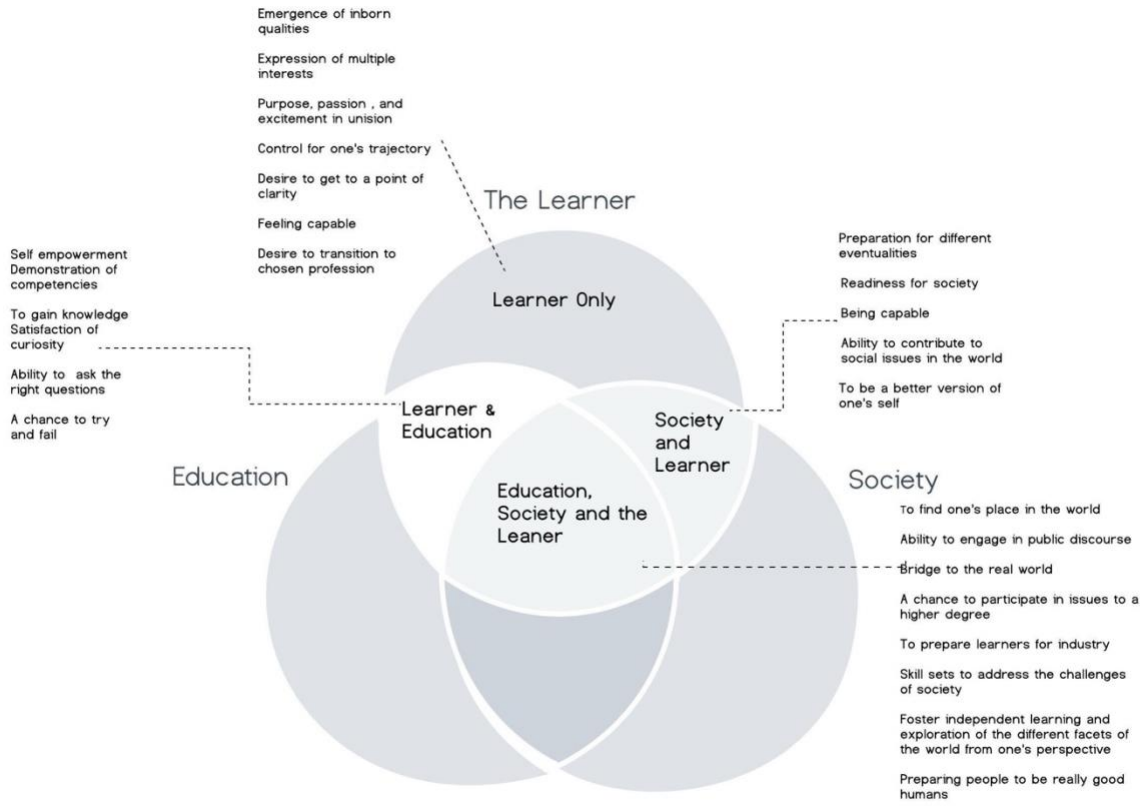

Figure 4: Purpose of Education Venn Diagram

The Three Pillars

Using a Venn Diagram, the responses from participants are categorised based on their fit and relevance to one or more of the three categories.

This categorisation was done by only the researcher, and it is possible that the categorisation might yield different results if done by someone else. Also, future research can be more inclusive by co-creating this with the participants.

The summary of the insights from this diagram is that educational institutions does exist for its own sake, and its obligations to its own ideals and society, must intersect with the needs of the learners.

1. **Education not in service to itself**

As is shown, there are no goals that are exclusively for education. This signifies the point that institutions, in this case, higher education institutions, do not exist for their own sake. This point was echoed by a participant while speaking about the purpose of higher education and the current challenges. The participant noted that the goal is 'not about keeping the university going or for money.' This insight has implications for institutional reforms and policy evaluations within higher education. As higher education institutions work to navigate the current challenges, this insight might help in making decisions around what is worth fighting for, and what is not. This idea is explored by Green et al. (2025) in 'Ontario Universities: An Act of Public Imagination'.

2. **To Society, through Leaners**

Similarly, higher education's responsibility to society is done through the learners as is shown in the diagram. This connects to the point raised in the previous section about higher education being 'A Bridge to the Real World'. This relationship between higher education institutions and society was also shared by a participant who had concerns around the disconnect between what they symbolised as X (institutions), Y(learner), and Z (society). They pointed out that X should speak to Z in order to help Y. This point could also be applied in the reverse, which is for X to engage Y, in order to help Z.

3. **A Learner's Ambition**

The learner appears to be at the centre of the purpose of education as the goals for education and society happens with and through the learner. However, this does not imply that everything is about the learner. This distinction is important considering the concerns around consumer-based model of education (Goyzueta Mejía et al., 2025) which infers that the learner gets anything the learner wants. On the contrary, what this shows is that as higher education institutions through their programs work to support learners, this must be done with certain principles and ideals, and with consideration for some societal goals.

In addition, this diagram also reflects the exclusive goals that learners have and hope to actualise through their educational experiences. This is a point which Chan(2016) also found in

his extensive study on the public and private purposes of higher education. In relation to the needs of students, he states:

> college students in the 21st century have multiple aims and purposes for higher education, including both extrinsic goals (e.g., to secure and/or to prepare for a future career) and intrinsic or personal reasons (e.g., to experience self-growth). Students are facing a future that increasingly requires deeper learning and labor-market-valued credentials, along with relevant work experience and civic engagement opportunities. (Chan, 2016, p. 13)

In addition to the multiplicity of purposes, it also reinforces the need for that personal experience for growth and emergence of the unique individual that ought to happen through higher education. This also aligns with the point Biesta (2015a) makes in speaking about learning as a response and not just acquisition. However, he notes that for the educational purpose to be achieved, educators and institutions to have an interest in the ideas and concerns of their students. This is not just a vision but a principle that has implications for 'pedagogy and the social organisation of learning (Biesta, 2015, p. 30).'

The practical application of this insight which will demand time and effort is likely to be threatened given the funding cuts which is leading to larger classrooms (The Local, 2025), making it difficult for a deeper engagement within the learning community.

4.Understanding Learning & the Core Capabilities

In the previous chapter I considered the purpose of education as a first step to understanding how to deepen learning and develop expert learners within higher education.

This was important as this study is interested in the futures of learning not just generally, but within higher education. A shared vision of purpose or the attempt at one, lays the foundation for the conversation on learning.

In this chapter, I proceed to have that conversation through a consideration of the capabilities that underpin deepened learning and expert learners.

One of the key outcomes of the initial literature review was the generation of six core capabilities as underpinning deepened learning and expert learners. These six capabilities were taken into the conversation with participants and following this, four more capabilities were found. In this chapter, I report on these findings.

Like the previous chapter, this chapter consists of three sections.

In the first section, Know Context, I briefly explore the meaning of learning, the idea of deepened learning and expert learners, and the initial six core capabilities.

In the second section, Know People, I present the insights from participants on the core capabilities and learning within higher education.

In the last section, Frame Insights, I present a reframed version of the ten core capabilities based on the insights from participants.

The goal of this section is to have a general understanding of the six core capabilities which I proposed as a possible representation of deepened learning and expert learners within higher education.

This starts with a brief discussion on learning using Knud Illeris' four typologies of learning. The four typologies are **cumulative, assimilative, accommodative, and transformative**. Through the discussion, I show that accommodative learning is most aligned with this study's vision of learning for higher education.

Following this, I explore the idea of deepened learning and expert learners and then I conclude with a discussion on the six core capabilities.

A Little Background on Learning: The Four Typologies

The meaning of 'Learning' is layered, contextual, and as we have seen in the previous chapter, sometimes contentious. Jarvis and Parker (2010a) in their introduction to 'Human Learning. An Holistic Approach' note that 'to study human learning is to study complexity'(2010a, p. xiii) as learning is a core component of human nature.

De Houwer et al., (2013), in their attempt to provide a definition of learning makes the point that 'even influential textbooks on learning do not always contain a definition of its subject matter' (p. 631). Given the focus of this research, which is on the form of learning that can happen within higher education, our concern is not so much with finding a single or all-encompassing definition of learning, as it is about understanding what learning entails, what impact it can have on learners, and ultimately, how it can achieve the goals of education as discussed in the previous chapter.

At this stage however, we proceed with Shulman's (1999) definition of learning being a dual process where the person doing the learning shares what is on the inside, and also takes in what is being shared from the outside.

This relatively less complex definition which is not necessarily tied to one theory or philosophy of learning, is chosen because it represents some of the fundamentals of learning in education which was described in the previous chapter. That is, the dialogical nature of learning (Jarvis, 2014), the idea of learning with others (Shulman, 1999), and the opportunity that learning within an education setting can give the learners to not only be a part of the construction of knowledge , but also for the learner's unique self to emerge (Biesta, 2015a) For Shulman, 'to take learning seriously, we need to take learners seriously' (1999, p. 36).

Illeris' (2017) typologies of learning recognises this complexity of learning and the fact that learning in school and beyond, can take place in different ways, with varying results, and with a range of possibilities for applying what is learned.

In 'How we Learn', Illeris (2017) builds on Piaget's (1952) assimilative and accommodative theory of learning. He draws on the work and definitions put forward by Nissen(1970) on cumulative learning, and Mezirow (2000) on transformative learning.

The Four Typologies of Learning

The four types of learning which Illeris (2017) presents are cumulative, assimilative, accommodative, and transformative. Here, I discuss each of them briefly and consider their implications for education. I also show that accommodative learning is the type of learning that represents this study's vision for learning.

1. **Cumulative (or mechanical) Learning**

This is a more mechanical form of learning which is used when the learner has no pre-existing information that can be used to connect or make sense of the new information to be learned (Illeris, 2017). This entails the memorisation of facts. In this case, recall is the goal.

Implications for Education

This learning which could take the form of rote learning or as is said, 'learning by heart' (Illeris, 2017, p. 37) is usually used in the early years of life and education to build foundational knowledge like the alphabets, multiplication tables, and historical data (Cox, 2023).

It is how we commit a song to memory, it is what we do when we need to simply remember a number, and it is also how we learn motor skills like riding a bicycle (Illeris, 2017).

In the context of higher education, this form of learning can be used for learning something in a different language, or to recall basic facts, figures and principles on a subject matter (Main, 2023).

2. **Assimilative Learning (or learning by addition)**

Assimilative learning occurs when new learning is taking in as an adaptation or extension of already existing 'mental schemes built up through earlier learning' (Illeris, 2017, p. 38). In this case, the goal might be recall or a more conceptual understanding of the subject matter (Wu, 1999), but it is distinct from cumulative learning on the basis that the learner already has a foundational knowledge that connects it to the new information being learned. Illeris (2017) notes that when a learner encounters new information, the learning becomes cumulative and not assimilative if the learner makes a mnemonic for it as this creates a connection between what the learner knows already, and the new information.

Implications for Education

In this type of learning, new knowledge is being built on existing knowledge.
Illeris (2017) asserts that this is representative of the type of learning that occurs in a traditional education system as **'**attempts are made within the various subjects to comprehensively extend the knowledge and skills structures that exist (p. 39)'. This learning allows for continuity and the development of the learner's knowledge based on what has been learned earlier. However, it is limiting to the extent that it is confined to existing mental schemes. Illeris (2003) notes that the limitation is seen in the difficulty that learner's experience in transferring the insights from one course to another, or to circumstances outside the walls of the classroom. Applying this to today's context, in a world with complex problems and rapid change (Illeris, 2017) a learning (particularly within higher education) that is primarily focused on existing mental schemes would inadvertently, be limited in its ability to foster the kind of thinking and thinkers that are needed to address the challenges of today.

3. Accommodative Learning

With accommodative learning we move beyond the goal of mere recall and the development of existing mental schemes. In this mode, existing mental schemes are wholly or partially restructured for the new information to be taken in (Illeris, 2017). Illeris describes this learning as 'transcendent' because it requires a 'going beyond' (p. 39) what the learner already knows. This form of learning 'is precisely at the centre of the concept of competence'(Illeris, 2017, p. 42) as it requires critical thinking, and demands ownership and initiative (Illeris, 2017) in the learning process from the learner.

Implications for Education

When we engage in accommodative learning, there is a possibility of letting go of our preconceived notions, in order to accept new and different information (Illeris, 2003). It is a lot more demanding and mentally straining (Illeris, 2017) but the result of it is more lasting recall and the application of the insights to contexts outside of where it was learned (Illeris, 2003).
Importantly, beyond a more intense internalisation of what is being learned, in this mode, our individuality (forms of understanding and comprehension) as learners, emerges or what Illeris describes as 'the individual stamp'(2017, p. 40) is placed on what is being learned, and this supports the application of that knowledge when required. This connects to Per Schultz Jorgensen's (1999 as cited in Illeris, 2017) definition of competence. Jorgensen (1999) defines

competence as more than the application of professional knowledge. Rather, it is when professional knowledge can be applied in different contexts and in a way that is unique to the person doing the application. For Jorgensen (1999), this is:

> 'in relation to the requirements inherent in a situation which perhaps in addition, is uncertain and unpredictable. Thus competence also includes the person's assessments and attitudes, and ability to draw on a considerable part of his/her more personal qualifications (p.4, as cited in Illeris, 2017, p. 126).

Overall, with accommodative learning, students are learning to apply the knowledge outside of the context of which it was learned, and also to 'uncertain and unpredictable' circumstances. Therefore, I argue that this is the learning at the core of deeper learning and expert learners. It is the type of learning within higher education that will foster the thinking and thinkers that can not only thrive in today's world, but also contribute through their respective fields and areas of interest, to addressing the complex and diverse challenges that the world faces.

4. **Transformative Learning**

Transformative learning is the form of learning that impacts the identity of the learner (Illeris, 2014).

Illeris adopts Jack Mezirow's definition of transformative learning as

> 'the process by which we transform our taken-for-granted frames of reference (meaning perspectives, habits of mind, mid-sets), to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action' (Mezirow 2000, pp.7-8 as cited in Illeris, 2017, p. 45).

This form of learning which has parallels with adult liberation movements is more demanding (Illeris, 2003), is said to occur when the learner 'has no other way out' (Illeris, 2017, p. 45), and usually has a social and physical dimension to it (Illeris, 2007).

Implications for Education

Although the term transformative learning has been used in recent years to refer to a range of educational practices, it has been criticised for lacking 'a clear and immediately understandable definition' (Illeris, 2014, p. 150) that can separate transformative learning from other good adult educational practices (Newman 2012, as cited in Illeris, 2014) that are not

necessarily transformative learning. In 'An overview of transformative learning' Mezirow (2009)outlines some of the criticisms and alternate perspectives of transformative learning.

While transformative learning as presented by Mezirow is desirable, particularly his description of it as ' the process by which adults learn to think critically for themselves rather than take assumptions supporting a point of view for granted' (Mezirow, 2009, p. 103), transformative learning in the theoretical sense of the word, is not the learning that this study proposes. This is because of the ambiguity in its meaning.

Nonetheless, there are some overlaps between some of the ideas put forward by Mezirow on transformative learning and what can be achieved through cumulative learning. These include self-reflection, dialogic reasoning, engaging in mindful efforts to learn, seeking to understand the true meaning of what is being communicated, amongst others (Mezirow, 2009).
Notably, participants referred to 'change', 'not being the same person they were before an educational experience', and other terms that connotes some type of transformation in the colloquial sense of the word.

Deeper Learning and Expert Learners

Illeris (2007) is clear in his submission that these typologies cannot simply be thought of as being better than the other as their relevance will ultimately depend on the demands of the context.

In Illeris' typologies, beyond the descriptions, he invites the reader to consider the type of learning that is most suited for an uncertain and rapidly changing world. He argues that the type of learning that is at the core of competence, requiring a lot of mental strain and possibly an identity shift, is accommodative and transformative learning, although education systems according to him, operate at assimilative learning.
Similarly, this research's motivation for exploring opportunities for deeper learning and the fostering of expert learners, was an attempt to consider a type of learning that offers opportunities for learners with diverse skills and ways of learning, to interact deeply with their learning, to contribute uniquely, and to personally understand what it is they are learning, and how it can be applied beyond the walls of the classroom. In addition to the learning process, like Illeris, I also wondered about the 'who' behind the learning and the type of learning that

might be crucial for thriving in a rapidly changing world. These considerations informed the need for deeper learning and the expert learners.

Therefore, my vision of learning for this research, is accommodative learning as presented by Illeris. That is, the type of learning that involves an exchange between the learner and what is being learned. This is a demanding and sometimes painful process that involves reflection, critical thinking, (Illeris, 2017), and if required, the letting go of pre-conceived notions (Illeris, 2003).

Deeper Learning

In its simplest terms, deeper learning is the opposite of shallow learning (Manalo, 2020b) or the learning with the sole aim of recalling information.

This distinction is evident in Jarvis' (2014) comparison between having knowledge and knowing knowledge. He describes this as 'the difference between actively participating in the process of creating knowledge, on the one hand, and on the other hand digesting whatever others transmit' (2014, p. 148)

This contrast with deeper learning and mere digestion of information is also reflected in Bitter and Loney's (2015) description of deeper learning as 'the combination of a deeper understanding of core academic content, the ability to apply that understanding to new situations, and a range of competencies related to human interaction and self-management'(2015, p. 1). This definition also has similar connotations to Illeris' (2017) description of accommodative learning, particularly the ability to apply what has been learned to various other contexts.

Bitter and Loney (2015) also refer to William and Flora's (2013) deeper learning framework which describes deeper learning as being built on the foundation of six competencies:

- mastery of academic content
- critical thinking and complex problem solving
- effective communication
- collaborative work
- learning how to learn

- development of an academic mindset

William and Flora's framework throws light on the other capabilities beyond content mastery that constitutes deeper learning. In the context of learning within higher education, it shows how the pursuit of a qualification can be an opportunity for critical thinking, deep engagement, and the understanding of self and others.

In Learning in Depth, Egan (2010) makes a case for aiming for depth in learning by highlighting the internalization and ownership of knowledge, when things are learned in depth. Egan states:

> By learning something in depth we come to grasp it from the inside, as it were, rather than the way in which we remain always somehow on the outside of that accumulated breadth of knowledge. With regard to the knowledge we learn in breadth, we rely always on the expertise of others; when learning in depth, we develop our own expertise (2010, p. 6).

This idea of building one's own expertise and being a part of what is being learned reinforces the earlier discussion around competence as defined by Jorgensen (1999 as cited in Illeris, 2017), and which Illeris notes as an outcome of accommodative learning.

In addition, Egan (2010) also highlights some of the benefits of learning in depth, some of which are the stimulation of the imagination, 'the opportunity to 'connect with the layer of human understanding that we often vaguely call wisdom' (p.12) and the humility 'before the world of knowledge' (p.13). that comes from knowing how little we know.

For this study, deepened learning is considered through the process of pursuing of one's degree. In the context of higher education, it is the person's field of study. However, our conception of deepened learning as shown through the discussion above, is that the goal moves from mere content mastery or digestion of information to a deep and personal understanding, engagement with the subject matter, with self, and others. It is through this process that Illeris' conception of accommodative learning happens.

Mehta & Fine (2020) in 'The Search for Deeper Learning' presents a summary that captures my understanding of some of the core components of deeper learning as embedded in the earlier

definitions. They describe deeper learning as occurring at the intersection of mastery, identity, and creativity. Mastery, representing the substantive knowledge, identity being the learner's perception of the content, and creativity being the ability to use the knowledge to create something in the field.

Expert Learners

If deepening learning is the process of engaging with knowledge and a student's field of study, an expert learner is who the learner becomes through the process.

In 'The Expert Learner: Strategic, Self-regulated, and Reflective', Ertmer & Newby (1996) describe expert learners as those who possess 'planfulness, control and reflection' (1996, p. 1). At the core of being an expert learner is a strong self-regulation and metacognitive self awareness, which enables students to persist with challenges, learn from mistakes, and redirect their plans (Navaitiene & Stasiunaitiene, 2021) as required. While substantial knowledge and experience does not guarantee expert learning, (Persky & Robinson, 2017), deep knowledge (Stobart, 2014)is a prerequisite for expertise.

In considering what it would take for educators and institutions to develop expert learners, Stobart (2014) makes the point that 'Digging Deep', an activity that expert learners embark on, is more reflective of 'the effort needed and the quality of learning to be achieved' (p. 60). Based on his study, he notes that expertise:

- is learned, not inherited;
- involves high expectations and clear goals;
- requires strong motivation and resilience;
- uses powerful mental frameworks;
- needs extensive deliberate practice;
- incorporates skilled diagnostics and feedback. (2014, p. 60)

The first three points are particularly important because they show that expert learning is within reach for everyone and not an approach for a select few. More importantly, in the context of education, it is a goal that can be actively pursued by educators and institutions.

In ‘A practical guide to expert learner skills in the research environment’ Duncan (2023) also notes that the attributes of expert learners are not ‘some native and untrainable talent’ (2023, p. 34) but more of a mindset and an approach. One of the pathways to facilitating expert learning which Duncan highlights is mentorship. That is, a continuous dialogue between the mentor and the student that encourages self-awareness, planning, reflection on performance, and an opportunity for the mentor to share their own mistakes with the learner.

Similarly, Stobart (2014) emphasizes the role of the educator in fostering expert learners. This includes avoiding ‘fixed ability talk’ (2014, p. 61) engaging with learners (regardless of their prior performances) in a manner that encourages reflection, having and expressing high expectations from learners in an encouraging way, making deep demands of them by setting challenging tasks, and finally, by motivating them to reach their goals.

In some respect the goal of expert learning might begin to appear to be simply about expert performance or content mastery, but this is not the case. While having a deep knowledge is important and is usually a consequence of the expert learning approach, it is not the content itself that makes one an expert learner but rather the deep approach (Stobart, 2014) to learning. This point is highlighted in the distinction that Stobart (2014) makes between a strictly strategic approach to exam preparation, and a deep approach to same. In the strictly strategic approach, the learner’s goal is to achieve the highest possible grades and in the deep approach, the learner’s goal is beyond grades but about understanding the subject matter and developing their own ideas. While the strictly strategic approach would most likely lead to the highest possible grades, it comes with the risk that what is learned is not ‘carried forward and integrated into a wider competency’(2014, p. 71).

Overall, as shown, deeper learning and expert learners are two sides of the same coin or two attributes that reinforce each other. Expert learners seek out deeper learning approaches and in embarking on deeper learning, the capabilities of expert learners are fostered.

The Path to Deeper Learning and the Fostering of Expert Learners: The Six Core Capabilities

Building on this understanding of deepened learning and expert learners, as well as additional research on the skills for the future of work and learning, I identified six capabilities as underpinning deeper learning and expert learners. They are Profound Understanding; Critical Thinking; Strategic Thinking; Communication & Dialogue; Resilience and Tenacity; and Collaboration and Co-creation.

In 'Teaching as Community Property' as Shulman (1999) introduces his taxonomies, he makes the point that there are no new taxonomies. Similarly, as I present the six capabilities, they are not new capabilities to education and learning. However, I present them as a group and for the purposes of this research, I propose that they represent the core capabilities that underpin deeper learning and expert learners. However, one of the core goals of this research was to interrogate this proposition through the interviews with participants. I share the results of this in subsequent sessions.

Profound Understanding

I came across the term profound understanding from 'Deeper Learning, Dialogic Learning and Critical Thinking', where Manalo (2020a) describes the profound understanding of knowledge as an outcome of deeper learning. This capability directly relates to the learner's academic life and engagement with their main course of study. For example, for the law student, it is in trying to understand tort law, criminal law, or whatever course they are taking, and for the strategy and foresight student, it could be in understanding the principles from business and design thinking, systems thinking, and any other course content.

However, this capability is more than the acquisition of knowledge. It is that exchange between the learner and the knowledge which leads to a type of ownership for the knowledge (Shulman, 1999) because the learner has transformed and understood it in a way that is unique to them. It is the process that happens through accommodative learning (Illeris, 2017) and what Egan (2010) describes as 'like knowing something from the inside' (2010, p. 8). An outcome of this process is the ability to apply the knowledge outside of the context in which it was learned.

Critical Thinking

Paul & Elder (2009) define critical thinking as an art which involves the analysis and evaluation of one's thinking with the goal of improving it, while Noddings (2006) describes critical thinking as the diligent and skillful use of reason which should be applied to every human activity. Together, this reflects the self-directed nature of critical thinking, its rigor, and also adaptability. In 'Critical Lessons: What our Schools Should Teach' Noddings (2006) acknowledges the benefits of critical thinking being taught directly but highlights the danger of it being formulaic, causing learners to view it as something that is done to others and not for strengthening their own thinking. Similarly, I believe that it is valuable for it to be taught directly as it gives students a mental checklist that can guide self-monitoring, but it really comes alive when it is embedded across courses and on a range of issues.

While Paul and Elder's (2009) framework gives a comprehensive guide to critical thinking (8 elements of thought, 9 intellectual standards, and 8 intellectual virtues), for the purposes of this study, I adopt a summarized version of their nine intellectual standards and their proposed guiding questions.
This captures the self-reflective and dialogic approach to critical thinking, as well as the responsibility to have more information before evaluating a position (Noddings, 2006).

Standard	Question
Clarity	Could you elaborate further on that point?
Accuracy	How can we verify that information?
Precision	Could you give me more details?
Relevance	How is that connected to the question?
Depth	Are you dealing with the most significant factors?
Breadth	Do we need to consider another point of view?
Logic	Does this really make sense?
Significance	Is this the central idea to focus on?

Fairness	Are we considering all relevant points in good faith?

Table 2: Critical Thinking Checklist (Adapted from Paul and Elder, 2009)

Strategic Thinking

In understanding strategic thinking, I adopt both Mintzberg (1994) and Conway's (2009) definitions. Together, they capture the human and creative dimension to strategic thinking, as well as its consideration for the future.

Mintzberg (1994) distinguishes strategic thinking from the more formal and structured process of strategic planning. In contrast to strategic planning, strategic thinking is about synthesis and leads to a vision of direction (Mintzberg, 1994): 'it involves intuition and creativity. The outcome of strategic thinking is an integrated perspective..' (1994, p. 108). On the other hand, Conway (2009) defines strategic thinking as a consideration of the future in order to make better decisions today.

While most definitions of strategic thinking are in the context of organizational design or in achieving an academic goal as we saw in the earlier conversation on expert learners, in thinking about this as a core capability, I wondered if the principles can be fostered in learners regardless of their disciplines and for different spheres of their lives.

Communication & Dialogue

While they are considered as one capability in this study, I discuss them separately to highlight their connection.

Communication

In understanding communication, I adopt the principle of 'Communicative Competence' which is attributed to Dell Hymes (Whyte, 2019) . This refers to the capacity to successfully achieve the goal of what is to be communicated in a manner that is appropriate to the context (Vorwerg, 2015).

While it appears that Hymes conceived of this primarily for oral communication (Whyte, 2019), the underlining principles can be applied to all modes of communication. Communicative competence acknowledges the social dimension (Whyte, 2019) of communication, goes beyond grammatical knowledge and recognizes multiple forms of communication including writing, singing, and drumming (Lillis, 2006).

This conception is best suited for a discussion on communication in a digital and integrated world, and more so, considering the culturally diverse nature of the higher education population.
In today's digital age, the meaning of communication continues to evolve. However, for the purposes of this study, I consider the Four Skills (EBSCO, 2025) of 'Reading, Writing, Listening, and Speaking', as well as storytelling (Policy Horizons Canada, 2024).

This does not capture all the forms of communication but represents what can be said to be the foundational modes of communication within formal and higher education.

Dialogue

Dialogue is a form of communication that goes beyond the effective transmission of a message (Schein, 1993). I adopt both Swidler (2014) and Isaacs (2008)'s construct of dialogue. Together, they capture both the process and the demands of this capability.

In 'Dialogue and the Art of Thinking Together', Isaacs (2008) defines dialogue as 'a shared inquiry, a way of thinking and reflecting together. It is not something you do to another person. It is something you do with people' (2008, p. 9). Swiddler (2014) on the other hand, presents what I consider to be a more provocative but necessary definition of dialogue given the growing social, political, and ideological divide in the world. He defines dialogue as 'a two-way communication between persons who hold significantly differing views on a subject, with the purpose of learning more truth about that subject from the other person' (2014, p. 20). To foster this, Isaacs (2008) proposes four essential capacities which includes the ability to listen, to engage respectfully, openness to suspending one's views, and finally, to voice one's true opinion.

In that sense, dialogue requires effective communication but effective communication is not always dialogue.

If we refer to the previous conversation on the purpose of education and cumulative learning where the discussion showed the dialogic form of education which requires learners expressing their views, participating actively in the construction of knowledge, and changing their perspectives if required, it is clear that communication and dialogue are critical embodiments of deeper learning and expert learners.

Tenacity & Resilience

Like communication and dialogue, **Tenacity and Resilience** are considered as a pair in this study. To highlight their distinction and how they complement each other, I explain them separately.

Tenacity

I adopt Dweck et al., (2014)'s definition of tenacity because it is developed through an educational lens but despite its focus on 'academic tenacity', its explanation is neither too narrow or too broad and can be applied outside of an academic context.

In their conception, academic tenacity is critical for promoting long-term learning and achievement. Specifically, it is defined as 'the mindsets and skills that allow students to: look beyond short-term concerns to longer-term or higher -order goals, and withstand challenges and setbacks to persevere toward these goals' (Dweck et al., 2014, p. 4).

A few of the qualities of tenacious students are that:

> They are not derailed by difficulty, be it intellectual or social. They see a setback as an opportunity for learning or a problem to be solved rather than as a humiliation, a condemnation of their ability or worth, a symbol of future failures, or a confirmation that they do not belong.' (Dweck et al., 2014, p. 4)

Although most of the research reviewed in Dweck et al., (2014)'s report was for pre-secondary and secondary students, the fundamental principles of tenacity are captured within their definition.

Resilience

While tenacity keeps a person focused on the goal amidst the challenges, resilience allows for a positive adaptation in the face of adversity (Brewer et al., 2019). It is the bouncing back after a failure or set back and figuring out a different way if required, to achieve one's goal.
In being resilient, one is able to 'exhibit resourcefulness by using internal and external recourses in response to different contextual and developmental challenges' (Pooley & Cohen, 2010, p. 34) while maintaining internal stability (Perera, 2023).

Together, tenacity keeps the individual focused on a set goal and resilience fosters creative and positive ways of staying on track in the face of setbacks and disappointments. In a world with rapid changes as well as new and complex challenges, resilience and tenacity are essential capabilities to foster.

Collaboration and Co-creation

As was done with the previous two sets of capabilities, I would explain **collaboration and co-creation** separately.

Collaboration

Collaboration is a capability that is sometimes considered important for the sake of acquiring other skills (like for collaborative learning) or it is considered to be important for its own sake (Lai et al., 2017). For the purposes of this study, I consider it to be both. Collaboration supports learning (Alozie et al., 2023) and it is fostered in the process of learning, but the ultimate goal is that learners embody this capability and are able to exhibit it even outside the walls of the classroom.
There are various definitions of collaboration highlighting its importance in the workplace and in education with a lot of them describing it as an interaction between parties in fulfilment of a common goal (Bedwell et al., 2012), (OECD, 2024b).

While I don't disagree with these definitions, I consider them insufficient in capturing what really defines collaboration in practice. Scoular et al., (2020)'s definition comes close to my conception of collaboration for the purposes of this study. They define it as:

> the capacity of an individual to contribute effectively in a group. This involves perseverance, contributing to team knowledge, valuing the contributions of others, and resolving differences. Effective collaboration involves a division of labour with participants who are engaged in active discourse that results in a compilation of their efforts. (Scoular et al., 2020, p. 2)

This definition stands out because it considers teamwork at the individual level, goes beyond a surface level description of working together, and incorporates some of the principles of collaboration. In addition, it also leaves room for highlighting the distinction between collaboration and co-creation.

Co-creation

Co-creation is a collaborative (Suhaimi et al., 2025) and collective decision making process (Jamil & Howard-Matthews, 2025). It is the active engagement of interest holders to define complex problems and develop relevant solutions (Romero & Rivera, 2025). I would also define it as the thinking and designing together of a shared thing (product, service, concept) which ends up being co-owned in the creative sense of the word. It can happen between internal and external parties (for example, a designer and a user, a student group and a mock client) but it also happens internally at the team level. In the best of circumstances, this joint work would represent the unique strengths and insights of each person.
Like communication and dialogue, co-creation involves collaboration, but collaboration does not always mean co-creation.

In this section, I present the results from the interviews with participants on the core capabilities that underpin deeper learning and expert learners.

Ahead of the interviews, participants were presented with the six initial capabilities; **Profound Understanding, Critical Thinking, Strategic Thinking, Collaboration and Co-creation, Communication and Dialogue, Resilience and Tenacity.**

The goal was to evaluate these capabilities, get the perspectives of the participants on the importance of these capabilities, and to explore other possible capabilities that underpin deeper learning and expert learners.

While most participants commented on each capability, there were a few instances where this was not possible due to time constraints and the participants preferred area of focus.

Nevertheless, in all cases, participants referred to capabilities that they believed were important and this also informed the insights.

In addition to the six capabilities, four other capabilities emerged prominently based on the responses from participants.

Below, I present a summary of the insights from the responses to each capability and an outline of the other capabilities that emerged.

The Core Capabilities

In the interviews, participants had the opportunity to comment on the six capabilities and to also suggest other capabilities that they considered to be important.

Profound Understanding

Important, but not static.

This capability caught the attention of participants in a distinct way because of the word 'profound'. It appeared to resonate deeply in some participants who commented on its importance. One participant stated that 'first and foremost, you have to have a deep understanding of the knowledge that you are trying to obtain'. Another participant considered it important and then commented on the ways it could be fostered; 'through affective, cognitive, and somatic learning (feeling, thinking, and sensing)'. Another participant speaking from the perspective of design research stated 'I really think it is very important. If you are going to propose something, the understanding of context and culture is so important. Without this, every idea won't work.'

In addition to this, participants also commented on the need for flexibility in the 'what' of profound understanding. One participant, while commenting on the importance of a foundational understanding of concepts, considered profound understanding to be a less important capability because 'profound understanding comes with time and by being applied to something'. Another participant made the point that while things would always have to be deeply understood, the very thing itself, that is, the subject matter that has to be understood is subject to change.

Interestingly, some participants showed resistance to the word 'profound'. One participant considered it to be 'pretty deep', noting 'that's a very high standard', while another participant requested further elaboration on the choice of the word 'profound', and also indicated a concern for how profound is measured.

Critical Thinking

A fundamental skill.

There was a unanimous acknowledgment on the importance of critical thinking. One participant, who ranked critical thinking as '5 out of 5 in importance', stated that 'we need to teach people how to learn, think, and make decisions for themselves and not to rely on technology'.

Another participant commented on critical thinking being the skill that is most lacking in the world but 'if I was to recommend the skills that people should have, it would be top three, and I don't think it is number three'. Echoing the same sentiments, another participant considered it to be the core capability that should be sought after, stating 'I think critical thinking should be the goal. I think that is first and foremost.'

Finally, a participant described it as a life skill while another participant considered it to be very important for life because 'it gives you perspective on your place and your purpose', and for another participant, it is 'a skill set that helps us to survive in life'. Overall, participants considered to it to be fundamental.

Strategic Thinking

Important but could be challenging

Participants noted the importance of strategic thinking but commented on the difficulty in fostering it.

One participant who commented on it being 'a powerful competency' with 'an anticipatory stance' also noted that the embodiment of a strategic mindset (as opposed to the use of strategic thinking tools or the 'doing of strategy') would be hard to foster if students had limited life and work experiences. This led to a conversation on the importance of encouraging students to reflect on their life experiences and to integrate it with what is being learned. Another participant noted that strategic thinking, especially when used with futures thinking would give those who do an advantage, but alluded to the fact that the ability to think far ahead might be a privilege that isn't available to everyone in the face of daily struggles and limited resources.

Resilience and Tenacity

A *life skill*

Participants appeared to 'like' resilience and tenacity and considered it to be critical for life.

One participant commented on it being 'an important skill to survive this world' because as noted by another participant ' you don't know what the world will be like in the next five minutes, anything can happen at any time. It is a good thing to have'.

Participants made interesting connections to this capability. One participant considered it to be linked to wellbeing and mental health, a point which was made in Perera's (2023) research on how higher education systems can foster resilience in students. Also, another participant considered it to be critical for humility because 'failure should never be an end to a question.'

Overall, while participants considered it to be an important capability that should be fostered, there was a divide in the responses between those who thought it could be fostered within an educational context, and those who expressed uncertainty about that being possible.

One of the participants who thought it could be fostered within higher education, commented that 'I think that everybody needs to learn it through life. Sometimes that happens in a classroom, if you're trying to learn, in struggling to understand a subject, you keep going back.' While another participant noted 'learning new things is so difficult. You need willingness and curiosity to foster this competence and in terms of resilience and education, I think for me that speaks to being receptive to being challenged, you're never going to know everything'. On the other end, one participant commented that 'I don't know if I think it's a skill for learning to have taken place. I do think it's an important skill to survive this world'. Another participant while speaking about resilience, noted that there are opportunities outside of the university for fostering this capability.

Overall, this was considered to be an important capability for life and for learning.

Communication and Dialogue

It starts and ends with listening

Most participants generally considered communication and dialogue to be an important capability. Without being prompted, when it came to this, a number of participants reflected on its application to their academic or professional work, with some participants commenting on the ease or difficulty of communication and dialogue. However, one participant stated that they did not consider communication to be fundamental to their area of work.

One prominent feature of participants responses was the reference to listening as being critical. One participant noted that 'there are a lot of polarizing perspectives and a lot of information. It is important to listen very well before talking. Try to understand the other person's point of view. Just listen. '

One participant also noted that communication and dialogue meant more than the delivery of a message but is about 'understanding the context in which one is operating and being able to decipher the needs and language of that context'. This is very similar to the principle of communicative competence which was discussed earlier.

Collaboration and Co-creation

Similar but different

Unlike the other 2 competencies that were in pairs, (resilience and tenacity; communication and dialogue) most participants wanted to speak about collaboration and co-creation separately as they had different and sometimes opposing perspectives on their importance.

Participants commented on the importance of knowing how to work and create with others. However, they also pointed out the limitations with both.

One participant remarked that they 'think collaboration is overrated' pointing to the fact that some people are better off working independently.

Conversely, another participant (a student) who thought collaboration was very important to 'move the needle on issues' expressed a love hate relationship with co-creation because based

on their experience, priority is given to the middle ground or the reaching of a consensus, rather than the best work.

Other Competencies

In addition to the six capabilities, participants referred to other capabilities that they considered essential. The most prominent of them were **humility, empathy, self-awareness, and confidence.**

In this section, the insights from the participants responses on the capabilities are framed using a concept map and the iceberg model.

The concept map allowed me to visualise the connections between the different capabilities and with the iceberg model, I was able to place them within sub-categories and show their distinctiveness.

Framing these insights deepened my understanding of the responses from participants and allowed for a greater appreciation of their implications.

Following the responses from the participants, the ten capabilities that were considered with the concept map and the iceberg model are: **Profound understanding, critical thinking, strategic thinking, communication and dialogue, collaboration and co-creation, resilience and tenacity, humility, empathy, self-awareness, and confidence.**

The Ten Capabilities

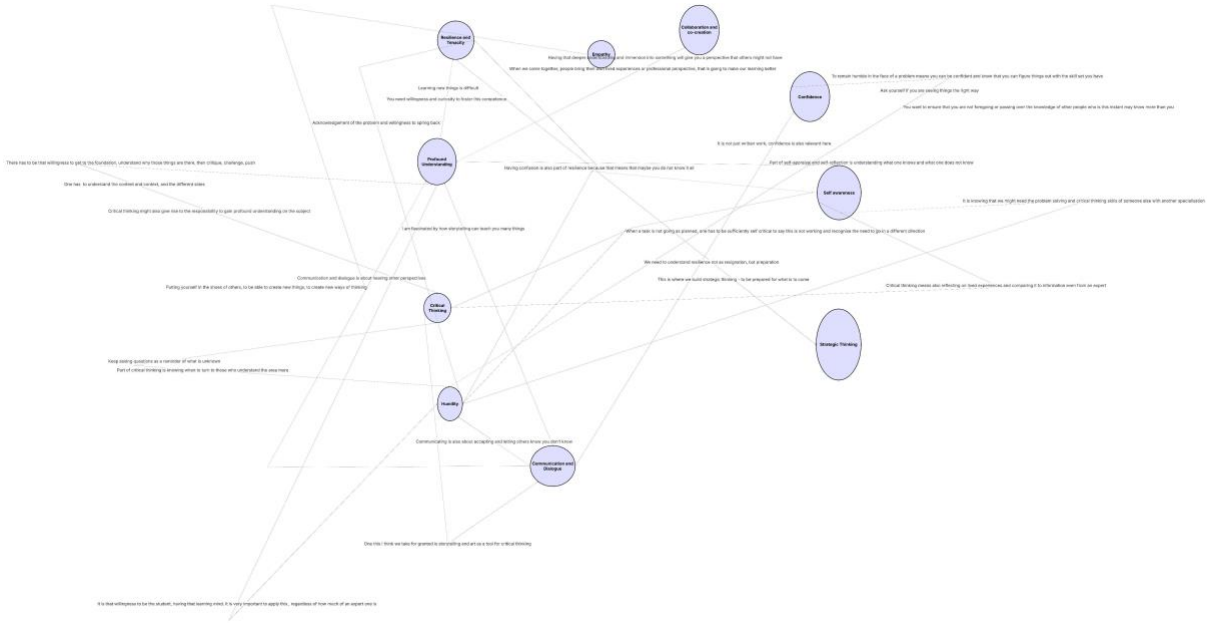

Figure 5: The Ten Capabilities Connection Map.

These relationships were mapped based on the responses from the participants. For example, a statement like 'learning new things is so difficult, you need willingness and curiosity to foster this competence' established the connection between profound understanding and resilience and tenacity, while a statement like 'keep asking questions as a reminder of what is unknown' established a connection between critical thinking and humility.

Please see Appendix B for an outline of the connecting statements and capabilities.

Three Main Insights

Following this mapping, there were three things that stood out; humility having the most connection, understanding being a path for critical thinking, and the power of not knowing.

Humility – the most connection

Humility had the most connection with the other capabilities. In some cases this connection was established through a direct mention like 'to remain humble in the face of a problem means you can be confident and know that you can figure things out..' (**confidence),** in other cases, it was in being able to acknowledge the challenges in the learning process and start again if required (**resilience and tenacity),** or in seeing the limitation in one's understanding (**self-awareness)**, in knowing when to turn to others who know more (**critical thinking; collaboration and co-creation)** and overall, in the willingness to be a student and 'have that learning mind.. regardless of how much of an expert one is' (**profound understanding).**

Based on this, humility is shown to be a fundamental capability for learning.

This was a surprising insight considering the fact that humility was not one of the six core capabilities that this research had presented. Although Egan (2010) had highlighted humility as one of the benefits of learning in depth, I had not considered it as a capability that could be actively fostered within higher education.

Understanding as a Prerequisite for Critical Thinking

While critical thinking was considered a fundamental capability, this map revealed that a prerequisite to it is the openness to understand the subject matter that one is trying to engage critically with. The connecting quotes to critical thinking referred to the importance of asking questions for this capability to be fostered, the need to 'understand the content, context and different sides', and the willingness to get a foundational understanding before one proceeds to 'critique, challenge, and push'.

This reflects the responsibility that comes with critical thinking. The responsibility to put in the effort to understand, to have clarity on the definitions of things, a point which Paul & Elder (2009) make in their framework, and ultimately to listen. This can be paradoxical and

particularly difficult as we tend to apply critical thinking to the things that we do not agree with, which sometimes are the things that we least understand.

The Power of not knowing

This map revealed how embedded the idea of 'not knowing' was in the participants' responses across the different capabilities.

This was either in the context of being able to communicate one's lack of knowledge, a constant review of what one does not know, or the recognition that others may know more. Two participants emphasised the difficulty and importance of this principle. One participant in referring to the work of design practitioners, pointed out the damage that can be caused by (those considered to be) experts who are unable to accept the limitations of their knowledge and capacity. Another participant made the point that expertise is on a case-by-case basis and as such, while it can be difficult, experts must be willing and able to say 'honestly, I am not really sure, it is not within my scope of understanding.' This **Power of not Knowing** gives some specificity to how humility as a capability can play out. In the context of teaching and learning within higher education, this might be an invitation to reconsider what contributing to a discourse in the classroom might look like. Perhaps, this might mean actively encouraging learners to share their thoughts not only when they think they have something valuable to add, but also to acknowledge new information and to admit to not knowing something.

Understanding of the Capabilities through The Iceberg Model

Based on the responses from participants, the iceberg model is used to understand the capabilities better.

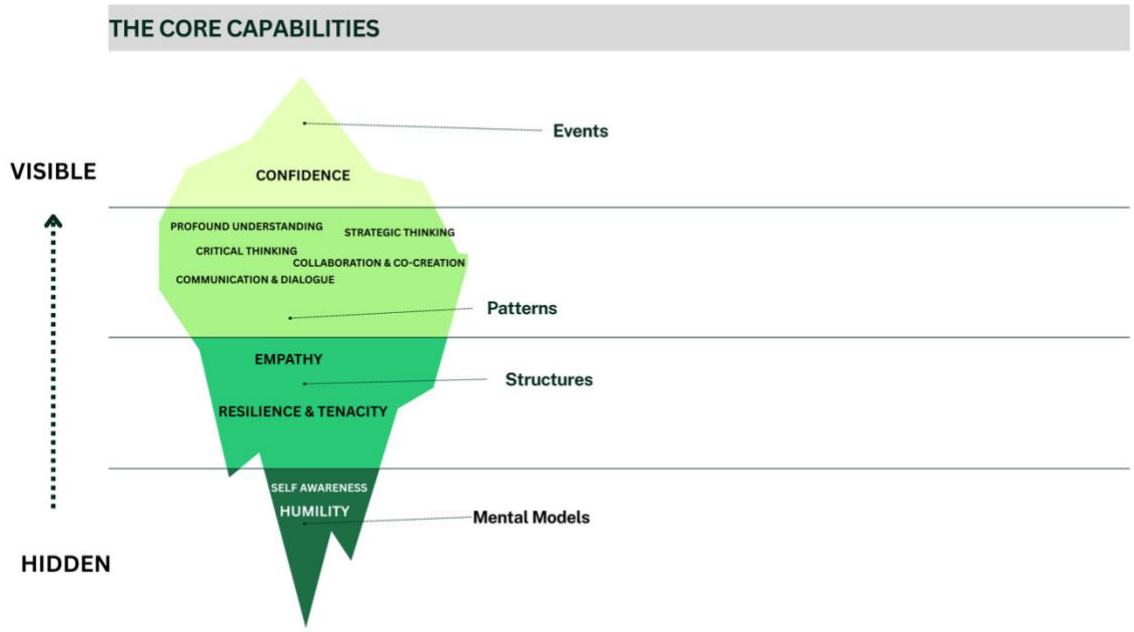

Figure 6: The Ten Capabilities in the Iceberg Model

(Adapted from Schools that Learn, Senge, 2012, p. 127)

The Iceberg Model

The iceberg model is used as a visualisation tool for understanding and depicting the uniqueness of each capability. Through the iceberg, we consider the private (internal to the learner) and public (visible to others) nature of the capabilities.

I adapt the questions from the iceberg in Senge (2012)'s 'Schools that Learn' to align with the goals of this exercise.

Step	Inquiry	Inquiry (Adaptation)

Events	What just happened?	What does the world see and/or experience in the learner?
Patterns	What has been happening?	What capabilities can be fostered directly through teaching?
Systemic Structures	What are the forces at play contributing to these patterns?	What personal capabilities support learning?
Mental Models	What about our thinking allows this situation to persist?	What capabilities are the most private to the learner but most connected to other capabilities?

Table 3: Capabilities Iceberg Adaptation

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1. Event: what does the world see and/or experience in the learner?

Confidence is represented at the tip of the iceberg because of the public and external nature of this capability. However, it is also an internal capability but compared to the other capabilities, I argue that it has a much stronger external component. The internal and external dimensions are closely connected and interdependent (Perkins, 2018).

I define self-confidence from the internal perspective as a positive belief in one's ability which leads to action or inaction. It is both rational and ambitious, it is grounded to some extent on reality but also propels risk taking. Self-confidence is usually associated with self-efficacy (Perry, 2011) which Bandura (1986), describes as 'people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances' (Artino Jr., 2012, p. 77).

With self-efficacy, it is not enough to have the capability, it is very much about feeling able and ready to act based on the capability (Sander & Sanders, 2006). This is precisely the point that

was made by a participant who noted 'it is one thing to be capable, it is another thing to feel capable'.

These actions (or inactions) based on whether the learner feels capable or not, is where the external component of self-confidence is exhibited.

In Perkin's (2018) research on an integrated model of self-confidence, they found that external confidence is mainly shown through:

- affectivity/optimism;
- taking action, risks, and initiative
- Nonverbal communication
- Verbal communication
- Independence in thought and action
- Trust in one's own decisions and judgment (2018, p. 176)

2. What activities might be embedded in the day-to-day activities that constitutes teaching and learning?

Profound Understanding, Critical Thinking, Strategic Thinking, Collaboration & Co-creation, Communication & Dialogue

I refer readers to the explanation provided in the previous section on each of these capabilities. They are placed just below the tip of the iceberg as a reflection of their visibility compared to the other capabilities below. In addition, these capabilities to different degrees, are less abstract and relatively more prevalent in courses and programs within higher education.

3. What personal capabilities allows the learner to keep going even when things get hard (pushing through one's setbacks and understanding the setbacks of others)?

Empathy

In fostering empathy, learners develop the capacity to set aside their views, and try to understand the views of others, which sometimes might be very different from one's own (Stibbards, 2023).

Cooper (2011) in synthesising the definitions of different researchers, defines empathy as 'a sense of understanding between people, an area of common ground, a sharing of feeling and emotion, an ability to feel and see things through the eyes of others'. (2011, p. 7)

This openness to learning from the others is also at the core of all the other capabilities.

Resilience and Tenacity

Like empathy, resilience and tenacity are largely personal (Connor & Davidson, 2003) and internal (Light et al., 2009) but they support the other more visible capabilities.

In the previous section, this capability was explored through the definitions put forward by Dweck et al (2014).

As noted by a participant, resilience and tenacity are critical for knowing that failure is not the end. They enable learners to keep pursuing their ambitions even when faced with difficulties.

4. Mental Models: What capabilities are the most private to the learner but most connected to other capabilities?

Humility and Self Awareness

This is the foundation of the iceberg and here, we have the very private and internal capabilities.

Humility

Humility is a broad term largely considered a virtue (Krumrei-Mancuso et al., 2020) and with different dimensions. For the purposes of this study, I narrow the scope of this capability to intellectual humility.

Krumrei-Manusco & Rouse, (2016 as cited in Krumrei-Mancuso et al., (2020) defines intellectual humility as 'a non-threatening awareness of one's intellectual fallibility' (2020, p. 155). Roberts (2015) in 'Learning Intellectual Humility' points out that at the core of intellectual humility is the love for knowledge and something bigger than self. In his words:

> Intellectual humility, by reducing the concern for favorable attention, the snobbish interest in prestige, the domineering interest in influence, and the hyper-autonomous enthusiasm for originality, clears the way for the more authentically intellectual concern: the love of understanding and truth (2015, pp. 223–224).

This idea of a focus on 'the more authentically intellectual concern' is captured in the four dimensions of intellectual humility by Alfano et al., (2017) in the context of healthcare. They are:

1. Open-mindedness: this is the acknowledgment of the limitations of one's knowledge and the desire to gain knowledge from 'others' irrespective of status
2. Intellectual modesty: this is little concern for one's own intellect or intellectual reputation as regarded by others
3. Engagement: the motivation to investigate things that one does not understand and to research new ideas
4. Corrigibility: showing emotional resilience when corrected or when one's idea is challenged by others

Self-Awareness

Self-awareness constitutes accurate self-knowledge (Seal et al., 2011) and 'understanding of one's emotional state, assessing one's strengths and limitations, and recognising one's preferences'. It is critical for 'developing confident and reflective lifelong learners' (OECD, 2024b, p. 1).

5.Gen AI's Impact on Learning

In this chapter, I investigate the perceived impact of Gen AI on learning.

The goal is to explore opportunities that exist for deepening learning and developing expert learners within higher education, amidst the changes that Gen AI presents.

As was the case with the previous chapters, this chapter is divided into three key sections; Know Context, Know People, and Frame Insights.

In Know Context, I discuss some of the emerging concerns on Gen AI's impact on learning, as well as the insights from a conversation with an AI expert and educator.

In Know People, I share the key ideas and themes that emerged from the interviews with participants.

Finally, in Frame Insights, using the Three Horizon Map as a visualisation tool, I capture participants fears, hopes, and ideas on the future of learning in higher education.

In this section, I present the result of this study's effort to understand Gen AI both as a technology, and also its implications for learning.

This is done and presented in two main ways:

First, a brief review of the literature that considers what Gen AI is, its impact generally, and some of the concerns and promises that it holds as it relates to learning.

The second part of this section presents the insights from an interview with an AI expert and educator.

Generative Artificial Intelligence (Gen AI): Background

Generative Artificial Intelligence (Gen AI) is a type of Artificial Intelligence Technology which generates multimodal content including pictures, videos, and text by modelling features from datasets (Canada, 2023).

With a prompt by the user, poems, jokes, lyrics, long form essays (Martineau, 2023) and anything else as requested can be generated.

In November 2022, Open AI launched ChatGPT, (Ha, 2025) an AI chatbot which was considered 'a breakthrough in Generative AI technology' (Eke, 2023, p. 1). Although the technological infrastructure supporting ChatGPT was not particularly new, its ease and accessibility to the public due to its ability to dialogue in a human like manner (Heaven, 2023) on any topic made it stand out.

ChatGPT like other AI chatbots has been trained on large amounts of data and have the ability to understand and generate human like responses. (Stryker, 2021). As at 2023, the language model behind ChatGPT 'GPT3' was said to have been trained on about 45 terabytes of text data (McKinsey & Company, 2024) which is equivalent to about 23 million books (assuming the average book is 2mb).

In addition to ChatGPT, which is built to excel in producing human-like responses and conversation-based tasks (Ray, 2023), there are numerous other Gen AI tools. Some of them are: Notebook LM by Google Labs which can transform documents to audio conversations (NotebookLM, n.d.), and Midjourney by Midjourney inc that can create high quality visuals (Turing, 2025).

Since ChatGPT's launch in 2022, there has been a significant uptake in the use of Gen AI by individuals and organisations. The 2025 Gen AI adoption index which surveyed 753 business leaders in Canada, reported a 93% enterprise level use of Gen AI which is an increase from 61% in the previous year (KPMG, 2025).

Alongside this, there has been a surge in investments in Gen AI (Samborska, 2024) which continues to fuel its capabilities and reach. As at 2024, the private investment in Gen AI was at $33.9billion which was an 18.7% increase from the previous year (Maslej et al., 2025), and by

mid-2025, it was reported that Gen AI start-ups had raised over $69.6 billion in venture capital investments (Groszkowska, 2025).

Altogether, this shows the growing impact and relevance of Gen AI across various spheres of life and society, and the need to seriously consider its implications in relevant areas of concern.

Gen AI & Learning

In the context of learning, the wide ranging capabilities of Gen AI has been said to have immense benefits including its potential for more personalised learning (Yan et al., 2024), provision of tools to support students with special needs (Walter, 2024) and the capacity to work as an intelligent tutor that can give immediate feedback (Sharma & Sharma, 2023).

However, there are also some serious concerns about its potential to be an outcome-based tool that reduces the human engagement and expected intellectual growth that comes from the process of rumbling with ideas.

In a study with close to one thousand high school students, Bastani et al., (2024) investigated the impact of Gen AI on human learning. This was done by studying the impact of working with Gen AI tools, specifically GPT-4 in the learning and solving of math equations. To do this, there were three groups involved: a control group of students who only had access to regular study resources, another group that used a standard chat interface like ChatGPT (the GPT base group) and a third group that used a special interface that had additional teacher input (GPT Tutor).

They found that compared to the control group, the GPT tutor group had a 127% performance increase while doing practice problem questions with the interface and the GPT base group also saw a 48% performance increase while doing the same.

However, in the exam for the same content, where there was no access to any of the GPTs, no improvement was recorded for the GPT tutor group compared to the control group and in the GPT base group, a 17% decrease in performance was recorded. With this, Bastani et al., (2024) concludes that the use of Gen AI without appropriate guardrails can significantly inhibit learning. This is because it appears that students rely on it excessively during the learning

process and do not develop the competencies to allow them perform to the same standard without it.

Based on their findings, the main cause of the inhibition to learning in the GPT Base group is the partial engagement with the learning material and a dependence on the answers given. This decreased performance was not recorded in the GPT Tutor group as the prompt for that group included an instruction to guide the students without giving them the answers.

This distinction between work output while using Gen AI and actual learning was also reflected in the survey with 423 Canadian students by KPMG in Canada (2024). Of the 423 students surveyed, 59% reported using Gen AI for their academic work, and 75% percent reported that it improved the quality of their work while 67% expressed doubt about whether they had actually learned. Notably, over 80% of the participants were post-secondary students (KPMG in Canada, 2024).

In addition to the change in performance in Bastani et al., (2024)'s research, they also found noteworthy distinctions in the students' perception of their own learning. While information is not provided on the perception of the control group (those that only had access to regular study resources), it was found that the students in the GPT Base group (with a 17% decrease in performance) did not perceive that there was a decrease in their performance. Similarly, those in the GPT Tutor group (who did not perform better compared to the control group) believed that they had done significantly better. This 'performance paradox' (Yan ,10) highlights the risk of an illusion of learning and lack of self-regulation that can come from learning with a tool 'with linguistic fluency, conversational tone that gives an aura of competence and confidence' (Joseph et al., 2025, p. 1) . The implication of this illusion of learning is not only the lack of awareness of one's performance, but also the inherent risk that there are wrong conceptions of the things they have attempted to learn. In 'Taking Learning Seriously', Shulman (1999) referred to this phenomenon as fantasia. That is, 'illusory understanding or persistent misconceptions' (1999, p. 37). He considers this to be dangerous because:

> New learning rests on old learning. A strategically held misconception can interfere with significant amounts of later good teaching. In that sense, misconceptions become insidious, a sort of intellectual land mine (or perhaps a "mind mine"). (Shulman, 1999, p. 38)

He also notes that the true implications of these illusions are not always apparent immediately but much later in the future: 'I suspect that forms of fantasia are endemic among students and graduates of higher education, many lying in wait for years before manifesting themselves at critical moments' (p.38). This concern for the practical implications of accurate understanding and the awareness of it or a lack of, was a point that two participants emphasised. In their responses, they noted the importance of learners (who then become future practitioners) being aware of their knowledge at a given time and being able to communicate limitations in their knowledge when applicable.

These concerns are also shared by educators in post-secondary institutions in Canada. A 2024 survey (Yang & Stadnicki, 2024) with 402 educators reported the top concerns with the use of Gen AI to be its use for cheating, submission of unoriginal work, and its effect on critical thinking and genuine learning.

Outside of the academic environment but still in relation to learning, Lee et al., (2025) carried out a study on the impact of the use of Gen AI tools on critical thinking with 319 knowledge workers. One of the goals of the research was to investigate when and how the use of Gen AI affects the application of critical thinking in knowledge workflows.

Their study found that the more confidence people had in Gen AI, the less likely they were to enact their critical thinking skills when completing a task, while those who had more self-confidence as it relates to the task, enacted more critical thinking. This is explained by the fact that:

> High task confidence is associated with users' ability to delegate tasks effectively, fostering better stewardship while maintaining accountability. Conversely, lower self-confidence may lead users to rely more on AI, potentially diminishing their critical engagement and independent problem-solving skills (Lee et al., 2025, p. 14).

Interestingly, confidence as discussed in the previous chapter, was one of the additional core capabilities that I found after the interviews with participants. The insight from this research throws more light on the role that confidence alongside profound understanding can play in strengthening critical thinking even with the use of Gen AI. In concluding their report, Lee et al (2025) considers the possibility 'that fostering workers domain expertise and associated self-confidence may result in improved critical thinking when using Gen AI'(p.14). Similarly, I propose that future research on learning in higher education consider the unique role of

confidence within higher education and the ways it can be fostered to improve critical thinking and other capabilities, even with the use of Gen AI.

In addition, Lee et al's (2025) research also highlighted the possible change in the meaning and application of critical thinking with the use of Gen AI tools. The study adopted Bloom et al's taxonomy of critical thinking. Across the six characteristics of Bloom et al's taxonomy, Lee et al, observed that critical thinking is fostered in very different ways when using Gen AI tools:

> 'for Knowledge and Comprehension, the effort shifts from information gathering to information verification; for Application, effort shifts from problem-solving to AI response integration; and for Analysis, Synthesis, and Evaluation, effort shifts from task execution to task stewardship (2025, p. 12).'

Following this, they propose that future training programs on critical thinking consider reflecting these changes while 'maintaining foundational skills in information gathering and problem-solving' (P.15) in order to prevent an over reliance on Gen AI.

This need to consider alternative ways of teaching critical thinking was a point that a participant pondered on:

> If AI takes away the way we have previously taught critical thinking, is there another way to teach it? … I think AI will take away some level of critical thinking because of the way we have taught it. I think the response should be 'how else can we teach these things?', outside of the traditional ways that we have done it.

Together, this points to the future of teaching within higher education. Even when critical thinking and the other capabilities are considered important and worth fostering, what changes in teaching practices might the use of Gen AI call for?

In closing this discussion, amongst the different questions raised and pathways for future research, there is an indication that Gen AI is redefining the relationships between interest holders within higher education. This is yet another area that future research can explore.

Insights from A Conversation with an AI Expert & Educator

As part of the process of understanding this context, I had an extensive conversation with an AI subject matter expert & educator.

The goal was to get a perspective on Gen AI that combined both a technical understanding and the educational implications.

The expert in this interview, referred to learning within higher education as 'creation'. Following this, three main approaches emerged for learning: **Human only, Human & Gen AI, and fully Gen AI,** and in the three approaches the human is the expert (human only), driver (human and Gen AI), and director (fully Gen AI).

Creation Approach	User	Starting Point	Requirement	Resources
1.	Human Only (Expert)	Creating from scratch	Adequate baseline understanding	Ample time and mental strain/human resources
2.	Human & Gen AI Collaboration (Driver)	Using what is available to create	A vision and understanding of how to use what is available	Ample time required for 'coupling'
3.	Gen AI (Director)	Selecting what has already been created	Access to the possible choices	Minimal time

Table 4: Summary of the Three Creation Approaches

In addition to these three approaches, there were three main themes from this conversation.

The Human Effect

Despite the changes in learning which Gen AI presents, including approach three, the role of the human (in this case, the student), was highlighted as being fundamental. In their words 'the thing to recognise is that the human or user's interest, taste, and drive does not get less important. It gets more important'. They believe that this technology can enhance human capability but 'part of the tension is that we are focusing on the result and not focusing on how the technology can enhance one's capability'.

The School of the Future

One of the central ideas in this conversation was the implications of Gen AI for the future of higher education. Using an analogy, they noted the task ahead for higher education:

> With the availability of the washing machine, we don't have to wash everything by hand, except in the case where it is necessary to do so, and this frees up time and resources for us to do 'bigger and better' things. Similarly, with the presence of Gen AI, the school of the future has to enable learners find out what those bigger and better things are within their context.

Notwithstanding, they note that institutions have to comfortably navigate within these three approaches and be able to give learners the opportunity to operate within them. With this, 'choices can be made based on what one is trying to achieve'. Finally, for this expert, being able to ask the right questions is a central part of good education and with that, they make the point that 'the person who has mastered the technology, and also understands the baseline of the task, is able to ask better questions'.

Perception of Gen AI

For this expert, Gen AI represents data: 'this is what we have learned about the world and all the data that we have produced'. In response to the concerns and resistance to Gen AI, they note, 'to fight this in a certain way, is kind of to say, I do not want to use anything that learned all of the data that there is in society'.

Similarly, in the conversation with participants, there were a range of descriptions on what Gen AI represents. Like this expert, there were those who considered it more for its technical capacity (accumulation of knowledge) and there were those who questioned the source of its information and the implications of all the data that it has been trained on and can access.

Conclusion

The overall takeaway from this conversation is a point that has been apparent all through the research process: there are choices to be made by all interest holders within higher education.

With the volume of data and range of learning pathways that a technology like Gen AI presents, alongside its accessibility, one must be aware of the trade-offs and potential benefits that comes with every approach taken.

This fact reinforces the importance of the question on 'The Purpose of Education' and clarity on the capabilities that underpin one's vision of learning. Together, they can serve as a guide in making choices around the approach(es) to adopt.

To address the third secondary question, participants were invited to consider the impact of Gen AI on learning and on the core capabilities.

In responding, most participants shared their general perception, concerns, and also hopes for Gen AI.

Participants were also asked about their perception on the importance of these capabilities in a world where education and learning were not tied to any extrinsic benefits such as income, prosperity, and survival in general.

Finally, they were invited to and share their hopes and aspirations for education and learning regardless of the direction Gen AI takes.

In this section, I present the findings around these discussion points. I start with the insight on participants' self-reported relationship with Gen AI, and this is followed by the six identified themes.

Background: Participants Relationship with Gen AI

All participants who commented on their use of Gen AI (about 16) reported to have some degree of familiarity with it.

Slowpoke v Good Friend

One participant reported being an 'AI slowpoke' and described this as a possible protest. On the other end, another participant described Gen AI as 'a good friend', stating that they use it often.

Thought Partner

In between these two ends, the predominant description of participants' relationship with it, was it being a thought partner and being very helpful with brainstorming, strategy, planning.

One participant, while expressing reservations with Gen AI, did state that they respect it and would engage with it for strengthening their arguments. Another participant who also questioned the permanence of Gen AI, stated not being opposed to it generally and being open to having an AI agent, but using it meaningfully.

This reflects the multiplicity and complexity of people's engagement with Gen AI.

Key Themes

The six main themes from the interviews with participants were: Gen AI's permanence, trust & scepticism, freedom & power, intelligence or plagiarism, the future of critical thinking and Gen AI as a bridge builder.

Permanence & Gen AI

Irrespective of identified relationships, some participants referred to Gen AI as the new reality and hence the need for educational institutions to come to terms with this reality.

One participant noted that 'I think it is here to stay', while another participant stated that they 'can see how it would be essential in the future'.
However, one participant pushed back on the idea of this permanence, asking 'Is its use really inevitable?', also citing concerns with Gen AI and energy consumption. The way participants perceive the permanence of Gen AI, might influence the intensity and urgency with which they engage with it.

Trust & Scepticism

While participants generally reported that Gen AI might be the new reality, most expressed the need for a bit of scepticism and intention in the use of it.
One participant noted 'I don't trust it yet', while another participant advised that Gen AI should be engaged with like 'a clumsy research assistant whose heart is in a good place'. This participant went on to express hesitation and distrust in using it for educational tasks with the exception of image generation. Another participant who also believed that learners need to be familiar with the use of it, expressed concern for an over reliance on it 'too much and too soon' as little is know about the changes that this reliance might cause to the human brain.

Freedom and Power

In response to the question of whether the capabilities and learning would be important in a 'world of abundance', in addition to a unanimous yes, most participants referred to the loss of freedom and concerns around the power being given to the major institutions driving the growth of Gen AI.

Freedom in this context is the intellectual freedom that is potentially lost from a decrease in critical thinking and the disembodiment of knowledge that can come from an excessive delegation to Gen AI. This is also described as cognitive offloading. One participant expressed concern with how 'we are giving technology a lot of power over the work that we do'. Another participant noted that critical thinking would be very important as AI becomes more prevalent. They noted that this is important in order to reduce the risk of being manipulated by the system. This risk of manipulation was shared by another participant who noted that the comfort from this world of abundance can come at a cost of freedom of expression. They noted:

> We do not want to be uncomfortable, but we are at our weakest and most vulnerable when we are comfortable, why would we allow that?.. why would I not want to be as

> strong, resilient, ethical, and moral? To put it a different way, why would I not want to be independent if I choose to be?

Beyond the potential loss of intellectual freedom on an individual level, one participant noted the societal impact. While commenting on the impact of Gen AI being embedded everywhere (within and out of education systems) they compared Gen AI to social media because 'you don't have a choice, so there is a loss of flexibility.'

This tension between freedom and power in the context of Gen AI has interesting connotations with the idea of permanence. In the context of education and learning, it raises questions on the approach that institutions might take in engaging Gen AI. Would it be from a feeling of agency, or would it be from a place of resistance, or would it be a highly regulated and fearful approach? The way an institution goes about it, will have implications for learning. This is an area that future research can explore.

Intelligence or Plagiarism

Similar to participants' relationship to Gen AI, there were two very opposing views on the description of Gen AI. While most participants generally referred to it as artificial intelligence, one participant considered it to be more representative of human intelligence as they noted it is 'just a collection, it is just gathering all human intelligence that we have got up to this point, and synthesising it, and making an assistant out of it'. On the opposing end, another participant, based on the same gathering and synthesising function, considered it to be more plagiarism than intelligence. While admitting to having a limited understanding of Gen AI, they described it as 'like tapping into google and getting all these, the AI is taking the most frequently written information on this topic or as I call it, artificial plagiarism.'

The Future of Critical Thinking

Critical thinking was the capability that participants expressed the most concern and interest in as it relates to Gen AI.

There were concerns around what constitutes the information that learners access with Gen AI, with one participant noting that 'it has only been trained with what it is on the internet' and another participant noting that Gen AI itself is in need of critical thought. In addition, participants were concerned about the potential loss of nuance, insights, and independent thought due to cognitive offloading to Gen AI.

While participants acknowledged the risk that Gen AI might present to critical thinking, some participants pushed back on the idea that critical thinking would inevitably be affected by Gen AI with a participant commenting that 'I don't think AI is going to make us stop thinking or stop doing. I think we need to give ourselves some credit.' Instead, they called for a rethink on how critical thinking is taught, asking ' If AI takes away the way we have previously taught critical thinking, is there another way to teach it?' One proposition to this was put forward by a participant who stated that one of the most critical ways for fostering critical thinking is by getting learners to actively engage with other perspectives by participating in debates.

Gen. AI as the Bridge Builder and Universal Language.

Amidst all the concerns around Gen AI, there was a unanimous optimism on the benefits that Gen AI could present for removing language barriers in learning and making learning possible for more people.

Participants spoke about the role Gen AI could play in facilitating communication in a multilingual classroom and how that can be a compelling case for its ability to democratise knowledge.

Interestingly, the value of this was shown to be more than just translation. Two educators recounted examples of how Gen AI has been used by their students. In one case, the availability of the tool enabled a learner to engage with the reading content in their own language and the student was then able to express their views (something that they had not done before) on the topic in class. In another case, the student had translated the readings to their own language and had reported about 90% accuracy in the translation. Given the complexity of the articles in that situation, the educator noted that even for a person who did not have to translate, it would be about the same level of comprehension.

Participants also spoke about the role of Gen AI and language translation in facilitating communication between students and in removing the language barriers in design research. One participant noted 'it can help with facilitating workshops in other languages'.

This gives a glimpse of the potential benefits that Gen AI, when used for language translation, can have on some of the core capabilities, specifically: communication & dialogue, profound understanding, confidence, and collaboration & co-creation.

In this section, the three horizons is used to visualise and further analyse participants' hopes and concerns for Gen AI and higher education in general. Through the three time horizons (H1 – Present, H3- Future, H2 -The Transition) the responses are distributed based on if they are current or future concerns.

Gen AI & Learning: Hopes, Fears, & Agency

To deepen my understanding of the perceived impact of Gen AI on learning, the three horizons map was used to analyze the interview responses based on the present – H1 (things that are already happening), the future -H3 (things that might happen), and the transition – H2 (actions that can be taken to go from the present to the desired future).

The three horizons map is typically used in a facilitative process with the different interest holders (Sharpe et al., 2016). I adapt it here as a sensemaking tool for understanding the relationship between the events of today and the concerns and hopes for the future (Sharpe et al., 2016).

Participants perception on the impact of Gen AI on learning contained both fears and concerns, as well as the actions they are already taking to continue to foster learning. In addition, participants also shared their concerns and hopes for the future of higher education.

In H1 (the present), I show the realised benefits of Gen AI as reported by the participants, the fears around Gen AI, and the concerns around higher education generally.

In H3 (the future), I capture the hopes and fears that participants have concerning Gen AI's impact on learning, as well as the hopes and aspirations for the future of higher education.

In H2 (the transition), I capture the ideas shared by participants on the actions that can be taken to bring about a preferred future for learning in higher education.

In addition, participants shared some of the initiatives that they are taking to address some of their future concerns around Gen AI & learning. This is captured in H1 as part of the 'pockets of the future in the present' (Sharpe et al., 2016, p. 5).

By combining the responses on Gen AI and higher education within each horizon, I was able to consider the perceived impact of Gen AI not in isolation, but within the larger context of education.

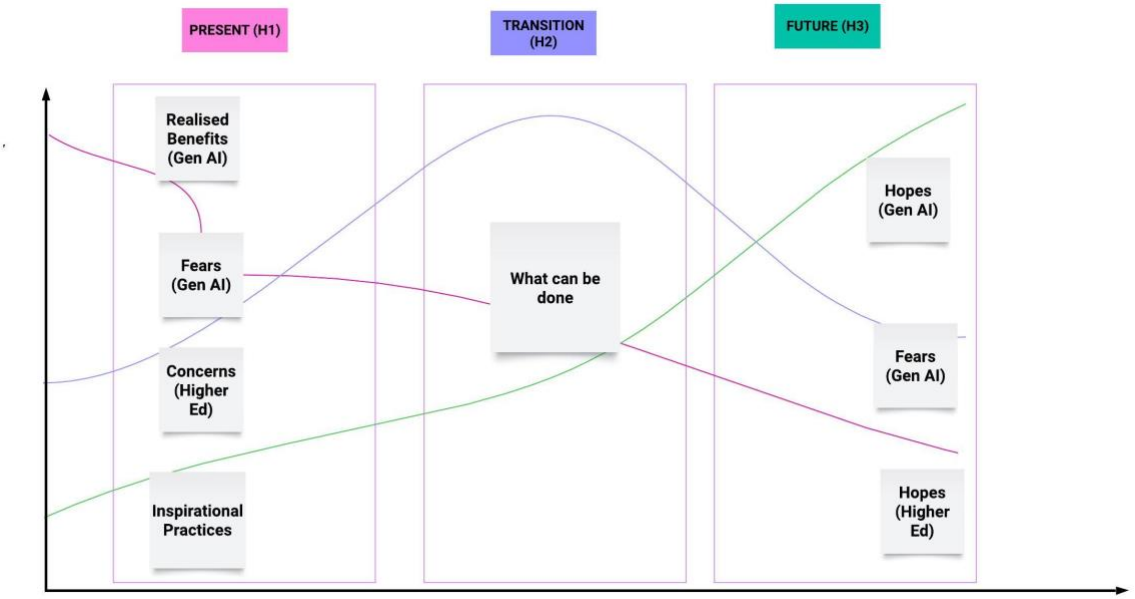

Figure 7: Applied Three Horizons (Adapted from Sharpe et al. (2016))

Horizon	Factors	Responses
Present (H1)	Realised Benefits (Gen AI)	An intellectual companion, structuring thoughts, exploring ideas and counter arguments, a good starting point, exposes you to other models
	Fears (Gen AI)	Saves time but decreases genuine understanding, illusion of learning, Gen AI being trained by what is on the internet
	Concerns (Higher Ed)	Lack of accessibility, education has been used as a tool to divide, high cost of higher education
	Inspirational practices in the present	Getting learners to use it and reflect on the capabilities of AI, for counter arguments to one's perspective, still keeping certain things analog (pencil

		and paper), encouraging introspection by taking 5 minutes to reflect before class
Transition (H2)	What can be done	Should be engaged with critically, AI ethics and regulations, a clear AI response plan, training for educators and learners on how to use Gen AI, consideration of Gen AI's relevance to the world of work, and preparation for it, on and off model, consider alternative models of teaching and assessment, starting with the granular to allow for an appreciation of the foundations, increased awareness of the importance of accountability and acknowledgement in research
Future (H3)	Hopes (Gen AI)	Gen AI increasing access to education for the excluded, lifting of the language barrier, more time for experimenting and deeper engagement for learners, AI and education are helping to develop the core capabilities to allow students reach their full potential, purposeful digitisation
	Hopes (Higher Ed)	Foundations of research and higher education are preserved through more traditional ways, AI and education are helping to develop the core capabilities to allow students reach their full potential, higher education for learning and not for survival, free expression of thoughts, honouring and appreciating different knowledge systems, more life centred and transformative design, curiosity driven learning, a place of discomfort that leads to growth, where multiple view points can thrive, a place for positive conflict and growth, helping people understand how to navigate wicked problems better
	Fears	Risk of critical thinking being offloaded to Gen AI, energy/environmental concerns, risk of falling into

		errors of reasoning, disregard for academic authority (referencing), genuine thoughts becoming rare because of the default to AI, lack of preparation for the rough times, the world might be moving to the slavery of AI

Table 5: Three Horizons Analysis

H1 - The Present: Beyond Gen AI. The Big Picture.

While there are real concerns around genuine understanding and the illusion of learning, Gen AI is already informing the way people work, create, and learn as shown by the realised benefits. Together, this shows that the conversation around Gen AI & learning cannot be short sighted or polarised. Higher education institutions must have a clear vision for learning and a strategy (that takes AI into consideration) for actualising that vision.

However, the most important insight to me is the fact that there are concerns around higher education that are not necessarily linked to Gen AI. This reinforces the obvious but easily forgotten point that Gen AI is one of a number of other issues affecting learning in higher education and it should be treated as such.

The inspirational practices in the present highlights the agency that educators and learners have within their areas of influence. However, in comparing the inspirational practices with the fears for the future (H3), it is clear that to really address the issues holistically, a wider group of interest holders must be engaged including institutional leadership and policy makers.

H3 - The Future: Advancing & Retaining the Core

There are some very serious concerns around Gen AI's impact on learning such as the loss of genuine thoughts and the fear of moving into the slavery of AI. However, there is also a lot of optimism.

Interestingly, amidst the fears, there are hopes for the role that Gen AI can play in addressing some of the fundamentals of higher education such as increasing access to learning to those

excluded for different reasons, and in creating a learning experience that nurtures the uniqueness of each learner. Alongside this, is the hope that certain traditions within higher education will be preserved, such as the foundations of research.

This might be an indication that institutions have to move beyond adapting to the changes that Gen AI brings to a critical consideration on if and how Gen AI can be used to achieve certain goals without compromising on human learning.

H2 - The Transition: A Call for Human and Strategic Leadership

The ideas within H2 cut across values, research, curriculum design, institutional policy, amongst others. The range of these initiatives reflects the multiple ways that Gen AI might be affecting learning within higher education. This also reflects the complexity and magnitude of the work confronting higher education institutions.

Also, this transition from H1 to H3 will involve a lot of risk taking, strategic thinking, experimentation, and ultimately accountability. In other words, someone (or people) have to be responsible for the transition. For this reason, the insight from this horizon is the need for human and strategic leadership across different levels in higher education.

6.Recommendations

In this chapter, I present my recommendations for educators and higher education institutions looking to deepen learning and develop expert learners.

In doing this, the design stage has moved to exploring concepts and framing solutions which builds on the insights from the three previous chapters.

The goal of the explore concepts mode is to 'jump from the world of inquiries into the world of possibilities' (Kumar, 2013, p. 195). Frame solutions is about 'making judgments about which concepts and combinations of concepts brings most value to the insights and principles generated in the previous modes'(Kumar, 2013, p. 248).

The mindsets of these two design modes which includes standing in the future, exploring concepts at the fringes, conceiving options, and making value judgements are embedded in the design of the framework. In that way, it is the participants that explores concepts and frame solutions that are relevant to their context.

The framework is a culmination of all the insights from the three previous chapters. It is an idea generation tool that can be used to explore initiatives for deepening learning and developing expert learners.

The conceptualisation of the framework was inspired and enriched by the ideas and principles in 101 Design Methods (Kumar, 2013), The Fifth Discipline (Senge, 2006) Gamestorming (Gray et al., 2010), and Business Model Generation (Osterwalder & Pigneur, 2013).

The Learning Design Framework

An Idea Generation Tool for Interest holders in Higher Education

The Learning Design Framework (LDF) is an idea generation tool that combines the key insights from the study across the three main areas of inquiry: 1) The Purpose of Education, 2) The Core Capabilities, 3) Gen AI & Learning.

The Design Structure

1. At the base of the foundation of the framework is 'Purpose of Education'. This is informed by the three pillars which this study found to encapsulate the purpose of education: 1) The needs of the learner (Learner) 2) Higher Education's obligation to society (Society) and 3) Higher Education's own ideals (Education). This reflects the findings in the study that the purpose of education lies at the intersection of the needs of the leaner, higher education's obligation to society, and its obligation to its own ideals. The 'Learner' category is deliberately placed in the middle to reflect the insight that any initiative taken by higher education institutions for society and for its own ideals must always intersect with the needs of the learner.

2.The second level of the framework are the core capabilities that underpin deeper learning and expert learners. At the end of this study, ten core capabilities were found to underpin deeper learning and expert learners. They are: 1) Humility, 2) Self-awareness, 3) Empathy, 4) Resilience & Tenacity, 5) Profound Understanding, 6) Critical Thinking, 7) Communication & Dialogue, 8) Strategic Thinking, 9) Collaboration & Co-creation, 10) Confidence.

Within this level, the capabilities are also arranged according to their level of visibility. Following this, humility and self-awareness are shown to be foundational capabilities as they are more personal and less visible. On the other end, confidence is at the top to reflect its external manifestation and visibility. Communication and dialogue as a pair, is placed in the middle with a different colour to reflect its central role in fostering the other capabilities.

3.The third and final level represents the insights on what higher education institutions can do to navigate the change brought by Gen AI. The three insights and recommendations are for: 1) Higher Education Institutions to keep a big picture perspective while dealing with the changes brought by Gen AI, 2) Institutions to preserve some of its fundamentals (like the principles of research) while exploring the ways Gen AI could address some of the inequities (socio-economic barriers) within higher education, and 3) the need for human and strategic leadership to facilitate the transition through these changes.

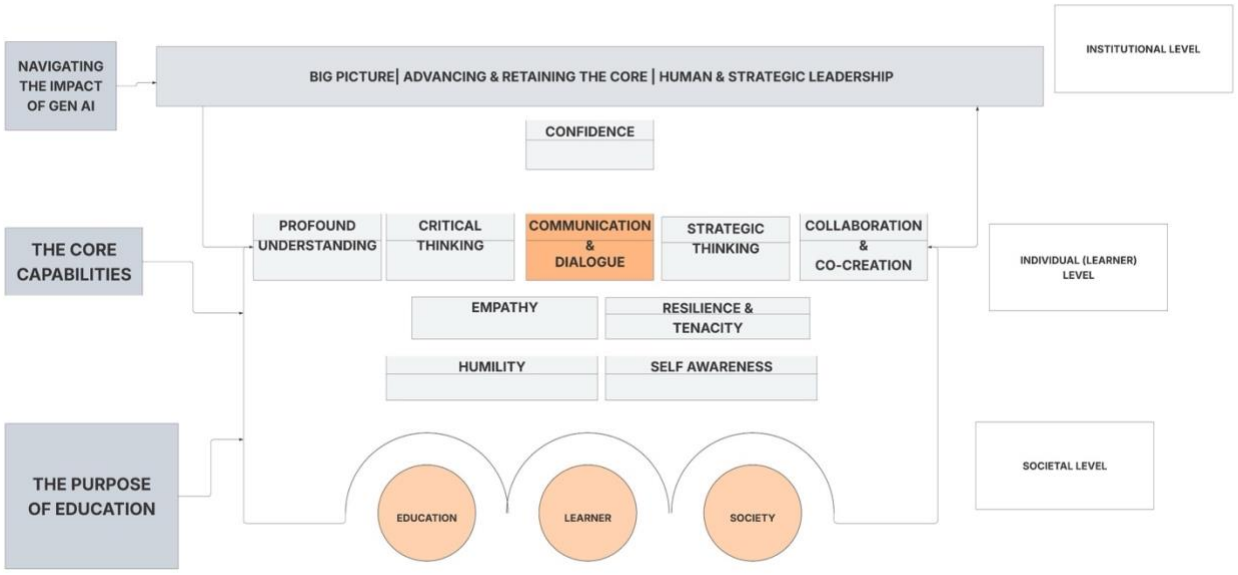

Figure 8: The Learning Design Framework

The Process

The LDF is designed to be an idea generation tool which interest holders within higher education can use for reflecting on the relevance and application of the issues explored in this study to their respective contexts. At this conceptual stage, it is envisioned that this idea generation process would go through four stages: 1) Asking the Key Questions, 2) Creating a Vision, 3) Moving from Insights to Initiatives, and 4) Aligning Initiatives with the Defined Purpose of Education.

Key Questions

While this framework is designed around this study's response to the key questions, participants who use the framework would have to first reflect on their own responses to the questions before proceeding. The questions are:

1. What constitutes the purpose of education for us?
2. What core capabilities do we want to foster in learners?
3. What is our approach for navigating the changes brought by Gen AI?

Creating a Shared Vision

The responses from the previous stage (whether it is the same as captured in the framework or new ones generated) is broad. In this stage, the goal is to reflect on those responses and to synthesise it to a shared and succinct vision which can be used to inform the initiatives. For example, a vision for the core capabilities section could be to use the communication and dialogue capability as a leverage for fostering other capabilities.

Moving from Insights to Initiatives

Following the development of a shared vision, the next goal is to consider initiatives that could actualise this vision. The term 'initiatives' is used as an umbrella term to capture any type of intervention that might be required for actualising the vision. This might include designing policies, consultations, courses, or the decision to not take any action but rather to observe.

Aligning Initiatives with Defined Purpose of Education

The final stage is in ensuring that the initiatives fit within the defined purpose of education. If using the insights from this framework, this would mean checking for where the initiatives fit in within the three categories of Learner, Education, and Society. In addition, it would also mean ensuring that all initiatives within the education and society categories intersects with the learner category. This is based on the insight from this study that any initiative taken by higher education institutions for society and for its own ideals must always intersect with the needs of the learner.

Guiding Principles

Adopting some of the underlining tenets of a learning organisation (Senge, 2006), I propose three guiding principles for participants while using the framework.

Dialogue & Discussion

In prioritising and mapping the initiatives, participants should be encouraged to explain and defend (discussion) their proposed placements of the initiatives, and they should be open to it being analysed by others (Senge, 2006).

Alongside this, the spirit of dialogue must be maintained through the collective exploration of the issues being discussed to find new meaning (Senge, 2006). In dialogue, participants are not trying to defend a position, but all participants are jointly digging deeper on a particular point to understand it more and perhaps to generate new insights.

Holding Creative tension

Senge (2006) defines creative tension as the gap between vision and reality. With creative tension, there are two options 'pull reality toward the vision or pull the vision toward reality' (Senge, 2006, p. 140). This might feel uncomfortable as one is confronted with the limitations that seem apparent based on reality. Senge (2006) proposes that this tension can be used as creative energy to forge ahead.

As participants explore the potential initiatives for their institutions, a willingness to hold creative tension would remove restrictions in the imagination. The focus should be primarily on what is needed to actualise the vision for the respective category and not what is perceived to be possible.

Commitment to the Truth

A commitment to the truth is an awareness of the institution's ground zero or starting point in light of the vision and proposed initiatives (Senge, 2006). The goal of this awareness is not to pull the vision down to reality but to pull reality towards the vision in a clear and strategic way.

Limitations

There are two key limitations of this framework: It is yet to be explored with the proposed users, and it stops at the idea generation phase.

Research Gap

The framework as presented here is only a concept and has not been tested with participants. It was designed based on the insights from the study and the examples provided were from the researcher. Therefore, there is a high possibility that this design does not capture the realities of an idea generation session. To fully develop the framework, it would have to be explored with interest holders within higher education to get feedback on its use.

Implementation

While the Learning Framework is designed to generate ideas, it does not take into account the complexity of implementation and the unique circumstances of each institution. The challenge with this is that while good ideas might come from the process, they might not be actualised. Future development of the framework will explore if and how this can be taken into consideration.

7.Conclusion

In this chapter, I conclude this research journey by providing a summary of the insights, recommendations for future research, and my next steps.

The Journey So Far

The desire to learn is at the core of the human person because of the opportunity that it offers not only to grow but for the individual to emerge. Higher education institutions are uniquely positioned to facilitate this growth. However, as higher education institutions go through the current challenges of dwindling public trust, funding cuts, and technological changes like Generative Artificial Intelligence (Gen AI), learning within higher education is threatened.

This research, adopting the concepts of deeper learning and expert learners, sought to explore the opportunities for fostering learning within higher education. In this study, deeper learning and expert learners are explored through six core capabilities: These capabilities are:

1. Profound Understanding,
2. Critical Thinking,
3. Strategic Thinking,
4. Resilience and Tenacity,
5. Communication and Dialogue,
6. Collaboration and Co-creation.

Following the interviews with participants, this study found four additional capabilities. They are: **humility, self-awareness, empathy, and confidence.**

The research methodology adapted the Seven Modes of Innovation from Vijay Kumar's Design Innovation Process. The Seven Modes are : 1) Sense Intent, 2) Know Context, 3) Know People, 4) Frame Insights, 5) Explore Concepts, 6) Frame Solutions, 7) Realise Offerings.

Findings

For this exploration, an extensive literature review was carried out and interviews conducted with 19 educators and learners.

The study begins with an inquiry into the purpose of education, this is followed by an exploration of learning and the core capabilities that underpin deeper learning and expert learners, and finally, a consideration of the perceived impact of Gen AI on learning. These three areas of inquiry informed the design and structure of this study, and the insights from the study are based on these groupings.

1. **On the Purpose of Education**

This study found the purpose of (higher) education to be at the intersection of fulfilling the needs of learners, serving society, and upholding certain educational ideals. Within this, it also found that while higher education might have certain obligations that are exclusively for learners, its obligations to society and in upholding its ideals, must always intersect with the needs of learners.

2. **On the Core Capabilities that Underpin Deeper Learning and Expert Learners**

The study found ten core capabilities as underpinning deeper learning and expert learners. They are: Confidence, Profound Understanding, Critical Thinking, Strategic Thinking, Communication & Dialogue, Collaboration and Co-creation, Resilience and Tenacity, Empathy, Humility, and Self-awareness.

Using the iceberg model, these capabilities were also visualised based on their level of visibility, with humility and self-awareness being at the bottom of the iceberg and confidence at the top of the iceberg.

3. **On the Impact of Gen AI on Learning**

Participants expressed both hope, fear, and a sense of agency in terms of what can be done to continue to foster learning amidst Gen AI.

An outcome of this inquiry was a set of principles to guide educators and institutions in navigating change. They include: maintaining a big picture perspective in thinking about the

future of learning in higher education, preserving the fundamentals of higher education (research and rigour) while considering the way technology can be used to address some of the inequities in higher education, and the need for human and strategic leadership within institutions to direct the transition.

Limitations

One of the main limitations of this study was the absence of co-creation in generating and evaluating the insights.

While the input from the interviews was the main data source, the sensemaking and insights generation was carried out through my own lens. Although not deliberately done, there is a tendency that my own passion and aspirations for higher education and learning might have influenced the framing of the insights.

In addition, eighteen out of the nineteen participants were recruited from the OCAD University network with seventeen of them either being current students, alumni, and/or educators of the Strategic Foresight and Innovation (SFI) Program, my institution and program. This was deliberately done because of their interdisciplinary knowledge and experiences, as well as the SFI program's focus on futures and change. However, due to this, the insights generated might be more reflective of the perspective of members of the SFI program. Future research can explore this with a different group or through a random selection of participants.

Future Research

In addition to carrying out a similar study with a different group of participants, I propose the following areas for future research:

The Future of Critical Thinking and the Role of Confidence in Fostering it

The findings on the impact of Gen AI on critical thinking was not entirely conclusive. While some studies showed that critical thinking could be at risk of being reduced with the use of Gen AI, and participants expressed a lot of concern for it, some participants were optimistic about a future where critical thinking could continue to thrive even with the use of Gen AI. In addition, there was a study that showed that confidence in a task might have a role to play in improving critical engagement with a task (Lee et al., 2025). Therefore, I recommend that future research explores the impact of Gen AI on critical thinking within higher education and if and how confidence in learners can be used to foster critical thinking.

Higher Education's Response to Gen AI & its Implications

This study highlighted the various ways higher education institutions might respond to the changes brought about by Gen AI but it was outside the scope of this study to investigate this further. Over time, as higher education institutions start to take a clear stance and adopt specific policies on Gen AI, future research can consider the different approaches that institutions take and its implications for deeper learning.

Implementation Pathways for the ten Core Capabilities

The iceberg model was used in this study to categorise the ten capabilities based on their level of visibility. Future research can interrogate this categorisation with interest holders within higher education and consider if the level of visibility has any implications for the ease and complexity in designing pathways for fostering them.

Good Humans: The Core Capabilities within an Ethical Framework

One participant has stated that one of the purposes of higher education was developing good humans. I found the use of the word 'good' very interesting but noted that it was beyond the scope of this study to investigate this further. I am aware that the ten capabilities (arguably with the exception of humility) are neither good nor bad in themselves. While they are very important capabilities, the context and intention behind its use is a completely different but equally important question. This is a point that Gardner (2024a) makes in his essay on

'Educating for the True, Beautiful, and Good.' This is also highlighted in '5 Minds of the Future' where Gardner(2009) discusses the role of educators in nurturing and ethical mind.
Building on this, I propose that future research explores what it would mean to develop the core capabilities within an ethical framework in higher education.

Next Steps

This research journey has been deeply transformative, both personally, and professionally. While I have learned so much about education and learning through this journey, I have also been humbled by how much more there is to know. To put it bluntly, I know I have only scratched a tiny bit of the surface, a scratch that I am deeply grateful for.
Moving forward, I hope to build on the knowledge and insights I have gained, through these three ways.

The Learning Design Framework

I would work on developing the Learning Design Framework further. This would be done by engaging educators to co-create with them, get feedback, and modify the framework to take into account the realities of implementation. I hope to be able to disseminate it further.

A Conversation on the Futures of Learning

In the early days of this study, I had planned to produce and present the findings of this study as a podcast or documentary. The goal was to disseminate the insights in a form that people could engage with and experience more deeply.

However, as I went further in, I realised that was not best suited for it at that moment but I maintained the spirit of dialogue and learning in carrying out the interviews, and in my analysis of the literature and the interview responses.

Now that this study is over, I am left with a deeper appreciation of the power of dialogue in understanding complexities and in finding new meanings. Therefore, if I have the opportunity, I would want to disseminate the knowledge and insights in various creative forms and more importantly, have more conversations and the opportunity to 'think together' with others on the Futures of Learning.

Public Scholarship

While this study has reinforced my belief in the importance of learning within higher education, I have also come to appreciate the knowledge and learning that exists outside the formal structures of higher education but within one's personal community and private relationships. In my engagement with friends who accompanied me in this journey as well as in the interviews, I was inspired by the different creative ways people make sense of knowledge and the wisdom that is embedded in it. Much later in the future, if I have the opportunity, I would want to create a platform where this unique peer to peer knowledge could be shared.

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Appendices

APPENDIX A: THREE PILLARS OF EDUCATION CONTENT

Set	Content
LEARNER	Emergence of inborn qualities Expression of multiple interests Purpose, passion, and excitement in unison Control for one's trajectory Desire to get to a point of clarity Feeling capable Desire to transition to chosen profession
EDUCATION, SOCIETY, AND LEARNER	To find one's place in the world Ability to engage in public discourse Bridge to the real world A chance to participate in issues to a higher degree To prepare learners for industry Skill sets to address the challenges of society Foster independent learning and exploration of the different facets of the world from one's perspective Preparing people to be really good humans Preparing people to work together Citizens with multi-disciplinary skills Looking out for others Citizens asking the right questions Promote stability
LEARNER & EDUCATION	Self-empowerment Demonstration of competencies To gain knowledge Satisfaction of curiosity Ability to ask the right questions The sweet spot: what one is passionate about and what is practical

	A learning trail A chance to try and fail
SOCIETY & LEARNER	Preparation for different eventualities Readiness for society Being capable Ability to contribute to social issues in the world To be a better version of one's self

APPENDIX B: TEN CAPABILITIES CONNECTION MAP CONTENT

Capability 1	Capability 2	Quotes
Profound Understanding	Resilience and Tenacity	Learning new things is so difficult You need willingness and curiosity to foster this competence
Critical thinking	Humility	Keep asking questions as a reminder of what is unknown
Resilience and Tenacity	Humility	Acknowledgement of the problem and willingness to spring back Must be willing to do the exact same thing over, this is part of improving Failure should never be the end
Communication and dialogue	Humility	Communicating when you do not know something Learning to accept that you do not know and that you are learning things Communication is also about accepting and letting others know that you do not know
Communication and dialogue	Critical thinking	One thing that I think we take for granted is storytelling and art as a tool for critical thinking
Communication and dialogue	Profound understanding	I am fascinated by how storytelling can teach you so many things
Resilience and Tenacity	Humility	Having confusion is also part of resilience because that means that maybe you don't know it all
Profound understanding	Collaboration & co-creation	when we come together and we are learning or we are working on something, people bring their own lived experiences or professional perspective

Communication and dialogue	Profound understanding Communication and dialogue Empathy	It is about hearing other perspectives, putting yourself in the shoes of others, to be able to create new things, to create new ways of thinking, to help in understanding other people's point of view
Resilience	Strategic thinking	We need to understand resilience not as resignation but preparation. This is where we build strategic thinking - to be prepared for what is to come
Critical thinking	Self-awareness Humility Resilience and tenacity	When one is in the middle of a task and it is not going as planned, and there is a need to improvise, one has to be sufficiently self-critical to say this is not working and recognise the need to go in a different direction
Communication and dialogue	Confidence	It is not just written work. Learners sometimes lack the confidence to present (communicate) their work to a different & larger crowd
Self-awareness	Profound understanding	Part of self-appraisal and self-reflection is understanding what one knows and what one does not know
Profound understanding	Critical thinking	There has to be that willingness to get to the foundation, understand why those things are there, then critique, challenge, push, evolve and so on. We want you to do that. We want you to have that critical thinking
Critical thinking	Self-awareness	Critical thinking means also reflecting on lived experiences and comparing it to information presented even from an expert

Critical thinking	Self-awareness Humility	Part of critical thinking is knowing when to turn to those who understand the area more and then taking it and using it
Self-awareness	Humility	It is knowing that we might need the problem solving and critical thinking skills of someone else with another specialisation
Confidence	Humility	To remain humble in the face of a problem means you can be confident and know that you can figure things out with the skill-sets you have You want to ensure that you are not foregoing or passing over the knowledge of other people who in this instant may know more than you
Humility	Profound understanding	It is that willingness to be the student, having that learning mind