

UNCOVERING DIGITAL AND AI COMPETENCY GAPS: A QUALITATIVE
STUDY OF GENERATION X EMPLOYEES IN UK PRIVATE HIGHER
EDUCATION SECTOR

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Dedication

This dissertation is dedicated to my three greatest motivators, my children: Fajar, Ali, and Haider.

To my daughter, Fajar, for your unwavering belief in me and your constant encouragement. Your quiet strength and thoughtful questions reminded me daily of the purpose behind this long journey. You have taught me that learning is a lifelong adventure, and I hope this achievement inspires you to pursue your own dreams with the same passion and dedication.

To my sons, Ali and Haider, for your boundless energy, infectious laughter, and endless patience. Thank you for the many days of "quiet time" and for your understanding when I had to disappear into the world of books. Your youthful curiosity and vibrant spirits were a constant source of joy and a powerful reminder of the bright future I am working to build.

This accomplishment is as much yours as it is mine. You are my reason, my strength, and my greatest inspiration. I did this for you, and I am immensely proud to be your parent.

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ABSTRACT

UNCOVERING DIGITAL AND AI COMPETENCY GAPS: A QUALITATIVE STUDY OF GENERATION X EMPLOYEES IN UK PRIVATE HIGHER EDUCATION SECTOR

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2025

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This qualitative doctoral study investigated the digital and Artificial Intelligence (AI) competencies of Generation X professionals within the UK private higher education sector. Employing a thematic analysis of 15 in-depth, semi-structured interviews, the research explored their lived experiences, self-perceptions, motivations, and attitudes towards digital transformation. Four principal themes emerged: "The Gen X Adaptive Journey: From Necessity to Fluency," highlighting their pragmatic digital proficiency; "Navigating Institutional and Systemic Barriers," detailing challenges like time constraints, institutional inertia, and inadequate support; "The Double-Edged Sword of AI," revealing a dual perception of AI's opportunities for efficiency and profound ethical threats; and "The Evolving Professional Identity and Institutional Voice," reflecting shifts in confidence and concerns about their influence in digital strategies. The findings underscore Generation X's crucial role as adaptable "digital immigrants" and emphasise the imperative for private

higher education institutions to develop human-centred, ethically informed digital strategies. This study contributes to generational theory in technology adoption and offers practical recommendations for tailored professional development and inclusive digital governance, ensuring this experienced cohort's vital contribution to the evolving educational landscape.

Keywords: Generation X, Digital Competencies, AI Competency, Digital Transformation, Workplace Learning, Private Higher Education UK

Table of Contents

<i>LIST of Abbreviations.....</i>	<i>xi</i>
<i>List of Figures.....</i>	<i>xiii</i>
<i>List of Tables.....</i>	<i>xiv</i>
Chapter 1: INTRODUCTION	1
1.1 INTRODUCTION.....	1
1.2 BACKGROUND	2
1.3 RESEARCH PROBLEM	4
1.4 RESEARCH AIMS AND OBJECTIVES.....	4
1.5 RESEARCH QUESTIONS	5
1.6 MOTIVATION AND IMPORTANCE.....	6
1.7 EXPECTED OUTCOMES.....	7
1.8 JUSTIFICATION FOR THE STUDY.....	8
1.9 DEFINITION OF TERMS	8
1.10 THESIS STRUCTURE	9
1.11 CHAPTER SUMMARY	10
Chapter 2: LITERATURE REVIEW.....	12
2.1 INTRODUCTION.....	12
2.2 THE STATE OF THE LITERATURE: STRENGTHS, WEAKNESSES, AND GAPS	12
2.3 CONTEXT	15
2.5.2 SELF-PERCEPTION THEORY	22
2.5.4 BARRIERS AND OPPORTUNITIES FOR ENHANCING DIGITAL AND AI COMPETENCIES	28
2.6.1 GENERATION X: FORMATIVE EXPERIENCES AND DEFINING TRAITS.....	30
2.5.2 Digital Competencies of Generation X in UK Private Higher Education	34
2.6.2.1 EMERGING THEMES	36
2.6.3 AI COMPETENCIES AND AWARENESS AMONG GENERATION X	37
2.6.4. CHALLENGES AND NUANCES IN UK PRIVATE HIGHER EDUCATION	38
2.6.6 ADAPTABILITY AND PROFESSIONAL IDENTITY.....	39
2.6.7 GEN X, ADAPTABILITY, AND DIGITAL/AI COMPETENCIES.....	41
2.6.8 NAVIGATING PROFESSIONAL IDENTITY IN UK PRIVATE HE.....	42
2.6.9 ADULT LEARNING	43
2.6.9.1. KNOWLES' PRINCIPLES APPLIED TO GEN X DIGITAL/AI COMPETENCY DEVELOPMENT	44
2.6.10 CONTEXTUAL CHALLENGES IN UK PRIVATE HIGHER EDUCATION	46

2.6.11 APPLICATION TO DIGITAL AND AI COMPETENCY DEVELOPMENT FOR GEN X	46
2.6.12 CHALLENGES IN APPLYING ADULT LEARNING PRINCIPLES	48
2.6.13. GAPS IN LITERATURE AND FUTURE RESEARCH DIRECTIONS.....	49
2.6.14 GEN X DIGITAL LITERACY RESKILLING STRATEGIES.	51
2.6.15. INSTITUTIONAL SUPPORT	53
2.6.16. DIGITAL CULTURE.....	55
2.7 CONCEPTUAL FRAMEWORK.....	57
Figure 01: Conceptual Framework.....	58
2.8 CHAPTER SUMMARY	61
<i>Chapter 3: METHODOLOGY</i>	<i>64</i>
3.1 INTRODUCTION.....	64
3.2 RESEARCH PROCESS	64
3.3 RESEARCH PHILOSOPHY.....	66
3.4 QUALITATIVE RESEARCH	68
3.6 SAMPLING AND PARTICIPANT RECRUITMENT	71
3.7 RESEARCH ETHICS.....	72
3.7.1 INSTITUTIONAL ETHICAL APPROVAL	72
3.7.2 INFORMED CONSENT AND VOLUNTARY PARTICIPATION	73
3.7.3 ANONYMITY AND CONFIDENTIALITY	74
3.7.4 DATA SECURITY AND MANAGEMENT.....	75
3.7.5 RESEARCHER REFLEXIVITY	75
3.7.6 DISSEMINATION OF FINDINGS.....	76
3.8 DATA COLLECTION.....	76
3.8.1 Data Analysis	76
3.9 CHAPTER SUMMARY	77
<i>Chapter 4: Findings of the research</i>	<i>79</i>
4.1 INTRODUCTION.....	79
4.2 DATA ANALYSIS PROCESS	80
Cluster 2 – Digitally Proficient but AI Cautious (High Digital Comfort + Low AI Engagement)	99
Cluster 4 – Digitally Moderate and AI Minimalists (Moderate Digital Comfort + Minimal AI Engagement)	100
4.4.1.2 KEY CROSS-GROUP OBSERVATIONS.....	101
4.4.2 PART TWO: INTERPRETIVE THEMATIC ANALYSIS OF DIGITAL AND AI COMPETENCIES	102
Theme 1: The Gen X Adaptive Journey – From Necessity to Fluency.....	104
Brief Introduction	104

1.1 Conscious vs. Intuitive Adaptation	104
1.2 The Role of Necessity & Personal Drive	105
1.3 Competence & Confidence in Core Tools	105
Thematic Narrative	106
Concluding Link to Research Question(s)	106
Theme 2: Navigating Institutional and Systemic Barriers.....	106
Brief Introduction	106
2.1 Time & Resource Constraints	107
2.2 Bureaucracy & Institutional Inertia	107
2.3 MISMATCH IN TRAINING & SUPPORT	107
Thematic Narrative.....	108
Concluding Link to Research Question(s)	108
Theme 3: The Double-Edged Sword of AI	108
Brief Introduction	108
3.1 Opportunities for Efficiency & Innovation	108
3.2 THREATS TO INTEGRITY & HUMAN CONNECTION	109
3.3 ETHICAL & LEGAL CONCERNS.....	109
Thematic Narrative	109
Concluding Link to Research Question(s)	110
Theme 4: The Evolving Professional Identity and Institutional Voice.....	110
Brief Introduction	110
4.2 PERCEIVED VOICE IN INSTITUTIONAL STRATEGY	110
4.3 BALANCING EXPERIENCE WITH NEW SKILLS	111
Thematic Narrative	111
Concluding Link to Research Question(s)	112
4.4. SUMMARY OF FINDINGS.....	112
<i>Chapter 5: Discussion</i>	<i>118</i>
5.1 INTRODUCTION.....	118
5.2 KEY FINDINGS IN CONTEXT OF ACADEMIC LITERATURE	118
5.2.1 THE GEN X ADAPTIVE JOURNEY AND DIGITAL COMPETENCE.....	119
5.2.2 INSTITUTIONAL BARRIERS AND THE PACE OF DIGITAL CHANGE	120
5.2.3 THE "DOUBLE-EDGED SWORD" OF AI.....	121
5.2.4 THE EVOLVING PROFESSIONAL IDENTITY AND INSTITUTIONAL VOICE.....	122
5.3 FOR FUTURE RESEARCH	123
5.4 CONCLUSION.....	123
5.5 CHAPTER SUMMARY	124
<i>Chapter 6: Conclusions and Recommendations</i>	<i>126</i>
6.1 INTRODUCTION.....	126
6.2 SUMMARY OF KEY FINDINGS.....	126
6.3 CONTRIBUTIONS OF THE STUDY	128
6.3.1 Theoretical Contributions.....	128
6.3.2 PRACTICAL CONTRIBUTIONS	129
6.4 RECOMMENDATIONS	129
6.4.1 FOR UK PRIVATE HIGHER EDUCATION INSTITUTIONS	129
6.4.2 FOR GENERATION X PROFESSIONALS	132
6.4.3 For Policymakers and Sector Bodies	133

6.5 LIMITATIONS OF THE STUDY	135
6.6 AVENUES FOR FUTURE RESEARCH.....	135
6.7 CONCLUDING REMARKS.....	136
<i>Reference list.....</i>	<i>138</i>
<i>APPENDICES.....</i>	<i>152</i>
APPENDIX 01: INTERVIEW QUESTIONS.....	152
APPENDIX 02: INTERVIEW INFORMED CONSENT FORM.....	155

LIST OF ABBREVIATIONS

- **4IR:** Fourth Industrial Revolution
- **AI:** Artificial Intelligence

- **BSc:** Bachelor of Science
- **CPD:** Continuing Professional Development
- **CRM:** Customer Relationship Management
- **DBA:** Doctor of Business Administration
- **ERP:** Enterprise Resource Planning
- **GDPR:** General Data Protection Regulation
- **HE:** Higher Education
- **HEPI:** Higher Education Policy Institute
- **LLiDA:** Learning Literacies for a Digital Age
- **MBA:** Master of Business Administration
- **MSc:** Master of Science
- **OECD:** Organisation for Economic Co-operation and Development
- **OfS:** Office for Students
- **P:** Participant
- **PhD:** Doctor of Philosophy
- **PIS:** Participant Information Sheet
- **PrHEIs:** Private Higher Education Institutions
- **PuHEIs:** Public Higher Education Institutions
- **SDT:** Self-Determination Theory
- **SPT:** Self-Perception Theory
- **T A:** Thematic Analysis
- **TPB:** Theory of Planned Behaviour
- **TPACK:** Technological Pedagogical Content Knowledge
- **UNO:** United Nation Organization
- **UK:** United Kingdom
- **VLEs:** Virtual Learning Environments

LIST OF FIGURES

Figure 01: Conceptual Framework

Figure 02: Research Process

Figure 03: Thematic Analysis Process

Figure 04 Digital Comfort vs Engagement – Quadrant Map

LIST OF TABLES

Table 01: X, Y and Z Generations

Table 02: Definition of Terms

Table 03: Thesis Structure

Table 04: Strengths and Weaknesses in Existing Literature

Table 05: Comparative Analysis of Key Digital Competency Frameworks

Table 06: Characteristics of X Generation

Table 07: Participants Demographics

Table 08: Themes, Sub themes and Research Questions

Table 09: Thematic Findings

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

This chapter lays the foundation for the study by situating it within the broader context of the Fourth Industrial Revolution (4IR) and the increasing digitalisation of higher education. It highlights the growing role of Artificial Intelligence (AI) and digital technologies in shaping teaching, learning, and institutional practices, with particular emphasis on the underexplored competencies of Generation X employees in UK private higher education institutions (PrHEIs). The chapter introduces the rationale for the study, the research problem, and its scholarly and practical relevance, before outlining the aims, objectives, and guiding research questions.

The discussion begins with the background section, which situates Generation X within the wider generational context of higher education, contrasting their role as senior academics and institutional leaders with the digital fluency often attributed to younger cohorts such as Millennials and Generation Z. This is followed by the research problem, which identifies the gap in empirical literature surrounding the digital and AI competencies of Generation X staff in PrHEIs, despite their critical influence on teaching quality, curriculum design, and institutional innovation.

The chapter then sets out the research aims and objectives, alongside five key research questions designed to capture how Generation X employees perceive, experience, and engage with digital and AI tools, and how institutional policies and support mechanisms shape their practices. The motivation and importance section explains both the personal

and professional drivers of the study and its contribution to knowledge, policy, and practice.

Subsequently, the chapter outlines the expected outcomes of the research, including the development of a typology of digital and AI competencies, a framework for identifying skills gaps, and actionable recommendations for professional development tailored to Generation X. The justification for the study further emphasises its originality, timeliness, and potential to inform inclusive digital transformation strategies within the UK private higher education sector. Key definitions central to the study are then presented to establish conceptual clarity.

Finally, the chapter concludes with an overview of the thesis structure, outlining how subsequent chapters build on this foundation—beginning with a review of relevant literature, progressing through the research methodology and thematic analysis of findings, and culminating in a discussion of implications, recommendations, and conclusions.

1.2 BACKGROUND

The Fourth Industrial Revolution (4IR) has fundamentally transformed how education systems operate, particularly through digitalisation and the proliferation of artificial intelligence (AI) in teaching, learning, and administrative processes (Kayembe & Nel, 2019; Voronkova et al., 2023). As the UK higher education (HE) sector continues to digitalise, the digital and AI competencies of its staff, specifically Generation X employees have become paramount.

Generational classifications vary slightly; for example, Howe (2014) classified the ‘X’ generation (1961 to 1981), while Bresman and Rao (2017) consider ‘X’ generation who were born before 1980, similarly other negligible variations, Bresman and Rao (2017) consider ‘Y’ generation (1984 to 1996) while Gurău, (2012) refers them who born between 1984 and 1996, ignoring minor variations, the table presents the three generations and notable occurrences of each generation.

Table 01: X, Y and Z Generations

Generation	Years (Born between)	Notable Occurrence
X	1965-85	Vietnam War, Cold War, Rise of Mass Media, Analogue childhood and digital adulthood
Y	1986-1996	End of Cold War, Disintegration of USSR, Rise of the Information Age/Internet, Novel modes of communication
Z	1997-2012	Dot com bubble Digital Globalisation, Emergence of Social Media

Source: Adopted from: Howe, 2014; Stankorb & Oelbaum, 2014; Sterbenz, 2015; Bresman and Rao, 2017 and Swanzen 2018.

However, for this study, the common understanding of Generations X, Y, and Z is considered. Currently, all three generations are present in higher education. Generation Z, the most recent cohort to enter higher education, contrasts with Generation X, which represents the last of these generations in the academic setting. Generation Y, notably the first high-tech generation (Norum, 2003), constitutes the majority student group in higher education.

While younger generations (Millennials (Y) and Gen Z) are often assumed to be digitally fluent, Generation X occupies a pivotal role as senior academics, managers, and decision-makers in many private higher education institutions (PrHEIs). However, their digital and

AI competencies remain underexplored in scholarly literature, especially in the context of UK private HEIs.

This thesis proposes a study that investigates how Generation X employees experience and navigate digital literacy, identifies the digital skills gaps among them and recommends strategies for enhancing their digital and AI capabilities within the private higher education sector.

1.3 RESEARCH PROBLEM

Despite the increasing importance of digital and AI tools in education, Generation X employees in private higher education institutions (HEIs) may lack the foundational training and adaptive skills necessary to fully leverage these technologies (Lissitsa & Ben-Porat, 2024). While these individuals often hold key leadership and teaching roles (Hannay & Fretwell, 2011; Sandeep, 2008), limited attention has been paid to their development of digital competency (Lissitsa, 2025). The lack of empirical data on their experiences and skill gaps creates barriers to institutional transformation, innovation, and quality enhancement.

1.4 RESEARCH AIMS AND OBJECTIVES

This research aims to comprehensively explore the intersection of digital transformation, AI integration, and the professional lives of Generation X employees within UK Private Higher Education Institutions (PrHEIs). Specifically, the objectives are to investigate their self-perceived digital and AI competencies, identify the challenges and enablers they face in acquiring and utilising these skills, and examine the influence of institutional policies and support mechanisms. Furthermore, the study seeks to understand how these competencies impact their professional practices and to gather forward-looking insights on

the evolving relationship between this demographic and the future of AI-enhanced education. To achieve this aim, the study addresses the following specific objectives:

1. To investigate the self-perceptions of Generation X employees regarding their digital literacy and AI readiness.
2. To identify and examine key challenges and enablers in acquiring and utilising digital and AI competencies in UK PrHEIs.
3. To explore institutional policies, training, and support mechanisms related to digital transformation and AI integration.
4. To understand how these competencies influence employees practices.
5. To capture forward-looking insights on the evolving relationship between Generation X employees and AI-enhanced education.

1.5 RESEARCH QUESTIONS

Five key questions guide this research. These are designed to explore Generation X employees' self-perceived digital and AI competencies, investigate associated challenges and opportunities, examine the influence of institutional support, assess the impact on professional practices and identity, and capture their vision for digital and AI's future role in the sector. The specific research questions are as follows:

1. How do Generation X employees in UK PrHEIs perceive their current digital and AI competencies?
2. What are the primary challenges and opportunities Generation X employees encounter in developing and applying digital and AI competencies in their professional roles within UK PrHEIs?

3. How have institutional strategies, policies, and support mechanisms in UK PrHEIs influenced Generation X employees' engagement with digital tools and AI technologies?
4. What impact do digital, and AI competencies have on the professional practices and identity of Generation X employees in UK PrHEIs?
5. How do Generation X employees in UK PrHEIs **envision the future role of AI** in their work and the broader private higher education sector?

1.6 MOTIVATION AND IMPORTANCE

This research is motivated by a critical gap in both academic literature and institutional practice and is deeply rooted in my professional journey.

During the COVID-19 pandemic, researcher observed many Generation X senior staff members struggle with the rapid transition to online teaching and remote work, highlighting digital competency gaps. Building on prior research into the *satisfaction of mature undergraduate students with online teaching during the COVID-19 pandemic*, this study extends the focus to academic staff, particularly Generation X employees, who are often overlooked in tailored digital upskilling initiatives. This study's importance is twofold:

- **Industry Practice:** Private HEIs risk teaching quality and agility if experienced Gen X staff are not digitally supported. This research offers actionable insights for HR and academic developers.
- **Knowledge Advancement:** By focusing on Generation X in private HE, the study addresses digital equity, intergenerational competence, and how AI reshapes education workforces, contributing a vital, under-researched perspective.

This research is, therefore, not only timely and relevant, but it is also profoundly informed by lived experience and scholarly engagement with the challenges and opportunities surrounding digital transformation in private higher education.

1.7 EXPECTED OUTCOMES

The anticipated outcomes of this research are multifaceted and positioned to contribute both theoretically and practically to the discourse on digital transformation in higher education. First, the study seeks to develop a typology of digital and AI competencies among Generation X employees working in UK private higher education institutions (PrHEIs). Such a typology will build on existing digital capability frameworks (Jisc, 2019; Redecker, 2017), while addressing the specific generational and institutional contexts that are often underrepresented in the literature. This contribution will advance understanding of how technological fluency intersects with career stage and sectoral constraints.

Second, the research aims to produce an evidence-based framework identifying the most prevalent digital skills gaps within this demographic. This framework will be grounded in empirical findings and informed by prior studies that have mapped skills deficits across educational contexts (van Laar et al., 2017; Beetham et al., 2022). By doing so, it will provide a diagnostic tool to support targeted interventions at both institutional and policy levels.

Third, the study will generate recommendations for continuing professional development (CPD) programmes, mentoring initiatives, and peer-learning schemes tailored explicitly to Generation X employees in PrHEIs. These recommendations will draw on best practice models in professional learning (Darling-Hammond et al., 2017; Kennedy, 2014) and

respond to calls for inclusive, context-sensitive strategies that enhance digital and AI readiness among diverse staff cohorts.

Finally, the findings will inform policy discussions surrounding inclusive digital transformation and professional development strategies in the private higher education sector. By integrating perspectives from organisational change theory (Fullan, 2020) and digital inclusion research (Selwyn, 2022), the study will offer actionable insights to shape institutional strategies and national frameworks that recognise the unique needs and contributions of mid-career academics.

1.8 JUSTIFICATION FOR THE STUDY

This study is both timely and essential. It addresses the overlooked yet strategically critical Generation X employees in private higher education institutions. X Gen plays a central role in teaching quality, curriculum innovation, and institutional resilience.

There is a lack of targeted empirical studies examining how Generation X employees in UK private HEIs perceive, experience, and respond to digital and AI technologies. By investigating their digital and AI competencies, this research will inform targeted interventions, institutional strategies, and policy frameworks for inclusive digital transformation. It will contribute original insights to academic debates on workforce readiness, intergenerational learning, and digital equity in education.

1.9 DEFINITION OF TERMS

The following table 02 provides definitions of key terms that are used in the study.

Table 02: Definition of Terms

Term	Definition
Digital Literacy	Digital literacy is “the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse, and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and reflect upon this process” (Martin, 2005, p. 135; Ng, 2012).
Artificial Intelligence (AI)	AI he word “artificial” as something not natural (Ikpenmosa. 2025), “intelligence”, which is considered alien to physical reality (Ford 2018; West 2018).AI as “computational agents that act <i>intelligently</i> (Poole and Mackworth 2010, p. 3) “The term AI is used to refer both to the capacity of a machine to exhibit or simulate intelligent human behaviour and a branch of computer science concerned with this capability”. (United Nations General Assembly 2023; United Nations Commission on International Trade Law 2023; McCarthy 2007)
Digital Competence	The concept of digital competence, often broadly defined as the set of knowledge, skills, and attitudes required to use digital technologies and the internet to perform tasks, solve problems, communicate, manage information, collaborate, create and share content, and ensure personal and professional safety (Ferrari, 2013)
Digital pedagogical competence	encompassing the ability to effectively integrate digital tools into teaching and learning processes to enhance student engagement and outcomes (Jisc, 2020).
Upskilling	In the upskilling process, employees train and learn new technical skills to become more successful; employees use upskilling for advancement opportunities in their current career trajectories (Jaiswal et al., 2021). Upskilling “prepares employees for advancing within their current career tracks” (Bennett & McWhorter, 2021, p. 6).
Private Education Institutions (HEIs) within the UK context	Private Higher Education Institutions (HEIs) in the UK are typically defined by their primary funding model, which relies predominantly on student tuition fees and private investments rather than direct government grants (Hasan et al., 2025; Hunt, & Boliver, 2021)

Source: Author’s own selection of definitions

1.10 THESIS STRUCTURE

The following document outlines a comprehensive thesis structure for a doctoral study investigating the digital and AI competencies of Generation X professionals within the unique context of UK private higher education. It builds upon the theoretical foundations, generational characteristics, and identified literature gaps previously discussed.

Table 03: Thesis Structure

Chapter 1 Introduction	This chapter outlines the research's purpose, scope, and significance, with a focus on Generation X. It establishes a foundation for understanding their role in navigating professional, technological, and societal change, and highlights their relevance in examining workplace transformation, digital competency, and intergenerational dynamics.
Chapter 2 Literature Review	This chapter reviews the existing literature on Generation X within the context of private higher education, exploring their values, learning preferences, and engagement patterns. It critically examines how the unique characteristics of this cohort influence their educational experiences and expectations, particularly in digitally evolving academic environments.
Chapter 3 Research Methodology	This chapter outlines the research methodology adopted to explore the experiences of Generation X in private higher education, guided by an interpretivist philosophy. A qualitative approach was employed, using in-depth interviews to gain rich, contextual insights into participants' perspectives, behaviours, and motivations.
Chapter 4 Findings of the Research	This chapter presents data and analyses the key findings from in-depth interviews with Generation X participants in private higher education. Emerging themes highlight their motivations, adaptability to digital learning, and perceptions of institutional support, offering valuable insights into their educational engagement and professional aspirations.
Chapter 5 Discussion	This chapter interprets the findings in light of existing literature, discussing how Generation X in private higher education balances lifelong learning with professional responsibilities. It explores their adaptive strategies, digital engagement, and the implications for policy and practice within evolving educational environments.
Chapter 6 Conclusion & Recommendations	This chapter concludes the study by summarising key insights into the experiences and needs of Generation X in private higher education. It offers practical recommendations for institutions to enhance support, digital inclusion, and lifelong learning strategies tailored to this cohort.

Source: Author

1.11 CHAPTER SUMMARY

This introductory chapter establishes the critical context of the Fourth Industrial Revolution and the pervasive integration of digitalisation and Artificial Intelligence (AI) within the global higher education landscape, with a specific focus on the UK private higher education sector. It highlights the pivotal role of Generation X professionals within these institutions and identifies a significant gap in current literature regarding their digital and AI competencies. The chapter outlines the study's comprehensive aim, specific objectives and questions, which include investigating Gen X's self-perceived competencies, challenges, institutional influences, impact on professional practices, and future visions for AI. It

presents five guiding research questions, details the theoretical, practical, and policy significance of the study, and defines key terms essential for understanding the research. Finally, it provides an overview of the entire thesis structure.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The integration of digital and AI technologies is reshaping HE worldwide, transforming teaching and learning practices, administrative processes, and strategic priorities (Berisha Qehaja, 2025; Selwyn, 2022; Zawacki-Richter et al., 2019). However, research has extensively explored the digital competencies of students and early-career academics, predominantly Millennials and Generation Z (Ng, 2012; van Laar et al., 2017). However, Generation X professionals (aged 45–60) have received comparatively limited scholarly attention. This gap is particularly pronounced in the context of the United Kingdom's private higher education institutions (PrHEIs).

Generation X occupies pivotal positions in HEIs as senior academics, administrators, and institutional leaders (McHaney, 2023; Ouwerkerk, 2016). Their decisions influence curriculum design, organisational strategy, and the adoption of emerging technologies (Asoba, 2022; Helsper & Eynon, 2010; Prensky, 2001). However, the extent to which they possess and actively develop the necessary digital and AI competencies is underexplored, especially in UK PrHEIs, where competitive market pressures and flexible governance structures create distinctive operational environments (Ahmad, 2024; Fumasoli & Huisman, 2013).

2.2 THE STATE OF THE LITERATURE: STRENGTHS, WEAKNESSES, AND GAPS

The integration of digital and AI technologies into HE has generated a significant body of research. This preliminary review synthesises key areas of scholarship to establish a

foundation for this study, highlighting both the contributions of existing work and the critical gaps that necessitate further research.

Table 4 summarises the strengths and weaknesses of the existing literature, clearly highlighting the gaps that this study aims to address. While the body of scholarship on digital transformation in higher education has grown considerably, it exhibits several key limitations that are particularly relevant to this research on Generation X in private higher education

Table 04: Strengths and Weaknesses in Existing Literature

Strengths	Weaknesses
Rich conceptual frameworks (e.g., TPACK, Jisc) exist for assessing digital capability.	Lack of focus on Generation X, especially in private HE contexts
Growing research on digital learning post-COVID-19.	Digital literacy research often conflates age with resistance without nuance.
Strong studies on AI and automation in education.	Minimal empirical evidence linking AI readiness with generational workforce dynamics.
Sociological analysis of educator reluctance to adopt technology.	Most literature focuses on students or junior faculty rather than mid-career staff.

Source: Author

The body of scholarship on digital transformation in higher education provides a strong foundation but also reveals significant gaps, particularly concerning Generation X professionals in UK PrHE. The existing literature offers rich conceptual frameworks, such as TPACK (Mishra & Koehler, 2006) and the Jisc Digital Capability model (Jisc, 2019), which are essential for defining and assessing digital competence. The post-COVID-19 era has also generated a growing volume of research on digital learning and AI in education (e.g., Luckin et al., 2022; Tlili et al., 2024), offering insights into pedagogical and operational shifts. Furthermore, a developing body of sociological analysis highlights that

educator reluctance to adopt technology often stems from a philosophical misalignment with pedagogical values rather than a simple lack of skill (Henderson et al., 2020).

Despite these strengths, critical weaknesses persist. A key gap is the *lack of empirical evidence linking AI readiness with generational workforce dynamics*, especially in the under-researched context of UK PrHE. Much of the literature on digital literacy conflates age with resistance, oversimplifying the complex motivations of mid-career professionals. Research tends to focus on students or junior faculty, leaving a significant void in our understanding of Generation X as a distinct cohort. This synthesis demonstrates that while the literature provides a broad overview, it lacks the specific, granular focus necessary to understand the unique challenges and motivations of this particular demographic and sector.

This study directly addresses these gaps by structuring its literature review around three interrelated themes:

1. **Digital and AI competency frameworks relevant to Generation X:** *Digital and AI Competency Frameworks* are critically examined through established models such as the Jisc Digital Capability Model, Technological Pedagogical Content Knowledge (TPACK), and the European Digital Competence Framework (DigComp), with particular attention to their applicability and limitations for evaluating the skills of Generation X professionals in the PrHE sector.
2. **Generational challenges in digital skill adoption:** *Generational Challenges in Digital Skill Adoption* are explored by engaging with the “digital native” versus “digital immigrant” debate, and by applying Self-Perception Theory (SPT)

alongside motivation theories such as Self-Determination Theory (SDT) to explain how cognitive, attitudinal, and socio-cultural factors influence Generation X's engagement with emerging technologies and barriers & opportunities

3. **The specific digital needs and transformation processes in UK PrHE:** *The UK Private Higher Education Context* is analysed through a synthesis of characteristics of X Generation, organisational, cultural, regulatory, and resource-related factors that shape digital transformation in PrHEIs, highlighting the implications for Generation X employees, particularly in relation to adult learning principles and institutional capability building.

2.3 CONTEXT

In this study, *competency gaps* are defined as measurable discrepancies between the digital and AI skills required for effective performance (Kudryavtsev, 2024; Sánchez-Canut, 2023) and those currently demonstrated by Generation X employees in UK PrHEIs. These gaps are considered across three categories:

- **AI-specific technical skills** – capabilities for integrating AI tools into teaching, assessment, administrative decision-making, and analytics (Luckin, 2017; Van Haefen et al., 2024).
- **Digital collaboration skills** – effective use of platforms to facilitate remote, cross-institutional, and interdisciplinary teamwork (van Laar et al., 2020).
- **Critical AI literacy** – the ability to assess AI-generated content, identify algorithmic bias, and address ethical and governance issues in AI use (Carmi et al., 2020; Mena-Guacas, 2023).

These skill areas are shaped not only by technological developments but also by generational factors, workplace cultures, and sector-specific challenges. In the UK PrHE sector, rapid technological adoption is driven by market competition, flexible curricula, and pressure to deliver high-quality student experiences at scale. Unlike public HEIs, where bureaucratic structures can slow change, PrHEIs often have shorter innovation cycles, requiring staff, particularly senior professionals, to adapt quickly while maintaining operational and academic standards (Marginson, 2022).

By focusing on these three thematic areas, this review builds a conceptual foundation for understanding the intersection of generational characteristics, digital competency requirements, and sector-specific transformation pressures. This framing also guides the research questions and design, ensuring that the study addresses both theoretical and applied dimensions of digital and AI skill development for Generation X in UK PrHEIs.

Each theme builds towards a deeper theoretical foundation, incorporating psychological, sociological, and adult learning perspectives to position Generation X within the broader digital and AI competency discourse.

2.4 DIGITAL AND AI COMPETENCY FRAMEWORKS

This literature review provides a critical examination of prominent digital and AI competency frameworks, offering a synthesis of their conceptual underpinnings, applications, and limitations. The frameworks considered—Learning Literacies for a Digital Age (LLiDA), Jisc’s Digital Capability Model, Technological Pedagogical Content Knowledge (TPACK), and the European Digital Competence Framework (DigComp)-

represent influential models in digital pedagogy and readiness, each contributing distinct perspectives on the nature and scope of digital competence in education.

The LLiDA framework, developed by Beetham et al. (2009), was among the earliest to conceptualise digital competence as a multi-dimensional construct. Moving beyond the narrow definition of “digital literacy,” LLiDA outlines six interrelated literacies: information literacy, media literacy, communication literacy, ethical literacy, technical literacy, and critical literacy. This approach recognises that digital capability encompasses not only technical proficiency but also critical engagement with the social, political, and ethical contexts of digital tools. One of its notable strengths lies in its alignment with critical pedagogy, positioning learners as active, reflective participants in digital environments. However, being a pre-AI era model, LLiDA does not explicitly address competencies required for interacting with or creating AI systems, an omission that limits its applicability in contemporary contexts.

The Jisc Digital Capability Model (2019) offers a more granular, practice-oriented framework widely adopted in UK higher education. Defining digital capability as the competencies needed for living, learning, and working in a digital society, it sets out six key elements: digital citizenship and identity, communication and collaboration, information and data literacy, creativity and problem-solving, digital learning and development, and technical proficiency. A key strength of this model is its attention to digital well-being and identity, reflecting a nuanced understanding of how individuals manage their presence and participation in online spaces. While Jisc’s framework remains highly relevant for institutional planning and staff development, it similarly predates the widespread adoption of generative AI. It thus lacks explicit guidance on emerging AI-

related competencies such as prompt engineering, critical evaluation of AI-generated outputs, and AI ethics.

In contrast, the TPACK framework (Mishra & Koehler, 2006) focuses specifically on the integration of technology into teaching and learning. Centred on the interplay between content knowledge, pedagogical knowledge, and technological knowledge, TPACK emphasises the importance of understanding how these domains intersect to produce effective technology-enhanced instruction. Its conceptual innovation lies in recognising the dynamic, contextual nature of technology integration, with the central “TPACK” intersection representing the holistic knowledge required for effective digital pedagogy. Although highly valuable in teacher training and professional development, TPACK is not designed as a general digital competence framework for all learners and does not explicitly define AI-specific pedagogical or content knowledge, requiring adaptation for contemporary AI-integrated education.

The most comprehensive in scope is DigComp, the European Digital Competence Framework, which offers a standardised approach to digital skills applicable across education, work, and society. The latest version, DigComp 2.2, defines five core areas: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving. Significantly, the updated framework incorporates competencies relevant to AI and emerging technologies, including the evaluation of AI-generated content, understanding algorithmic bias, and applying AI tools ethically and effectively. This makes DigComp particularly relevant for addressing the intersection of digital and AI literacies in both policy and practice.

Taken together, these frameworks illustrate the evolution of thinking about digital competence from LLiDA's critical literacies to Jisc's practical capabilities, TPACK's pedagogical integration, and DigComp's comprehensive, future-oriented model. While earlier frameworks provide strong conceptual foundations, their lack of explicit AI focus limits their relevance in the current technological landscape. DigComp 2.2's explicit integration of AI-related skills marks a significant step towards ensuring that digital competency models remain aligned with the realities of an AI-driven society, suggesting a need for further adaptation and cross-framework synthesis to fully address the challenges and opportunities of the digital and AI era.

A significant strength of DigComp 2.2 is its recent update to include competencies relevant to *AI and emerging technologies*. It now explicitly mentions skills such as evaluating the trustworthiness of AI-generated content, understanding the ethical implications of algorithms, and using AI tools effectively. This makes it particularly relevant for contemporary discussions on AI literacy.

The frameworks reviewed offer a progression in a researcher's understanding of digital competency. LLiDA laid the groundwork by moving beyond mere technical skills to include critical and ethical dimensions. Jisc's model added a focus on personal identity and well-being. TPACK provided a critical lens for educators, while DigComp emerged as a robust, globally recognised standard that has now been updated to directly address the challenges and opportunities of the AI era.

A key gap in the pre-AI frameworks is the lack of explicit competencies related to AI literacy. This includes skills like *prompt engineering*, *algorithmic bias detection*, and

understanding the *socio-technical implications* of machine learning. The evolution of frameworks like DigComp 2.2 demonstrates a clear need to integrate these new skills into future models. The next generation of competency frameworks must move beyond a static view of “digital literacy” to embrace a dynamic, adaptive model of “**AI readiness**,” which prioritizes critical thinking, ethical reasoning, and the ability to navigate a world where human and machine intelligences are increasingly intertwined.

Table 05: Comparative Analysis of Key Digital Competency Frameworks

Framework	Key Focus	Target Audience	AI/Emerging Tech Competencies
LLiDA	Critical pedagogy and learning	Students, educators	Implicit, pre-AI era
Jisc	Holistic digital identity and well-being	UK higher education	Implicit, pre-AI era
TPACK	Technology integration in teaching	Teachers	Can be adapted, but not explicit
DigComp	Comprehensive, all-encompassing	All citizens, global	Explicitly updated in DigComp 2.2

Source: Author

The table 05 “*Comparative Analysis of Key Digital Competency Frameworks*” summarises four influential models—LLiDA, Jisc Digital Capability Model, TPACK, and DigComp—highlighting their primary focus, intended audience, and explicitness in addressing AI or emerging technology competencies. While earlier frameworks such as LLiDA and Jisc were developed in a pre-AI context and emphasise broader digital literacy, more recent models like DigComp (particularly in its 2.2 update) explicitly incorporate AI-related skills and critical evaluation of emerging technologies. This comparison underscores the need to adapt or extend existing frameworks to capture the unique competency requirements of Generation X professionals in the UK PrHE sector.

2.5 GENERATIONAL CHALLENGES IN DIGITAL SKILL

ADOPTION

This theme explores the “digital native” vs. “digital immigrant” debate, integrating Self-Perception Theory (SPT) and motivation theories such as Self-Determination Theory (SDT) to explain Generation X’s engagement with digital technologies.

2.5.1 DIGITAL NATIVE VS. DIGITAL IMMIGRANT DEBATE

The proliferation of digital technologies within higher education has necessitated a re-evaluation of pedagogical norms, yet this transformation is not universally embraced. A persistent "digital divide" extends beyond mere access to encompass significant variations in adoption and comfort among faculty. A foundational, albeit contentious, framework for understanding these differences is Marc Prensky's (2001) distinction between "digital natives" and "digital immigrants." While Prensky's original thesis, which posits a fundamental generational chasm rooted in differing cognitive architectures, has been widely critiqued for its oversimplification and lack of empirical support (Bennett, Maton, & Kervin, 2008), it drew attention to a genuine phenomenon. More nuanced frameworks, such as White and Le Cornu's (2011) "digital resident" and "digital visitor" model, shift the focus from a fixed generational identity to a more fluid, contextual understanding of engagement, suggesting a continuum of purpose-driven digital use.

However, the persistent differences in technology adoption among age cohorts, particularly the resistance among mid-to-late-career academics, require a more sophisticated explanation than technical anxiety or generational determinism. Research indicates that this resistance is often a complex interplay of habituation and, more importantly, deeply held professional values (Henderson et al., 2020). For many academics, resistance is not a

technical deficit but a philosophical disagreement with the perceived values embedded within digital-first pedagogy. The integration of technology can be viewed as an unwelcome intrusion that disrupts highly valued pedagogical models, such as the Socratic dialogue of a face-to-face seminar. Furthermore, digital tools can challenge established power structures and the academic's traditional role as the sole authority, with the rise of open resources and student-generated content potentially diminishing the professor's unique expertise. This form of resistance represents a principled defence of a pedagogical and professional identity cultivated over decades, often compounded by institutional pressures to adopt technology for reasons of efficiency and scalability, which can be seen as a corporatising force at odds with the humanist traditions of the academy.

Thus, an understanding of this phenomenon moves beyond a simplistic technical or generational divide to a nuanced, value-driven explanation. Resistance among mid-to-late-career academics is not mere technical illiteracy; it is a profound professional response to a perceived threat to established pedagogical values, academic authority, and the very identity of the scholar. Addressing these divides effectively requires higher education institutions to move beyond technical training and engage in meaningful dialogue that acknowledges and respects the professional values and philosophical stances of all academics, to foster an inclusive academic culture where all pedagogical approaches are empowered.

2.5.2 SELF-PERCEPTION THEORY

Self-Perception Theory (SPT) provides a valuable conceptual lens for examining the attitudes, behaviours, and adaptive responses of Generation X in contemporary professional environments, particularly within increasingly digital and AI-mediated

contexts. First proposed by Daryl Bem (1972), SPT posits that individuals form attitudes and beliefs by observing their own behaviour and the circumstances surrounding it, particularly when internal cues—such as strong pre-existing attitudes or emotions—are weak or ambiguous (Daughtridge, 2024; Mandelbaum, 2016). Rather than assuming that attitudes necessarily precede behaviour, SPT suggests that behaviour can, under certain conditions, precede and actively shape attitudes (Olufemi, 2012). For instance, an employee who repeatedly engages in online professional development without overt external incentives may come to infer that they value continuous learning and digital competency development.

This behavioural precedence highlights the attributional process central to SPT, wherein individuals interpret their actions as self-observers, attributing them either to internal factors (e.g., personal interest, skill, or motivation) or to external factors (e.g., rewards, institutional requirements, or coercion). In scenarios where external justifications are insufficient, internal attributions become more likely, thereby reinforcing or generating attitudes (Fazio, 2014; Pauker et al., 2010). This mechanism is particularly relevant for Generation X, whose formative years straddled the transition from analogue to digital cultures, shaping their professional identities through a blend of pragmatic adaptability, self-directed learning, and a cautious approach to rapid technological change (Drange, 2021; Marawar & Chaudhari, 2024).

In an era marked by the growing influence of AI and digital transformation, SPT can help explain both the acquisition of new competencies and resistance to certain innovations among Generation X professionals. Their self-inference processes often emerge from

observing their own patterns of engagement—whether adopting collaborative AI tools, pursuing digital literacy training, or avoiding platforms perceived as overly complex or misaligned with their work values (Hendricks, 2024; Rauterberg, 2021). These behavioural observations, in turn, influence how they perceive their role, competence, and value in an increasingly automated and data-driven workplace (Lamovšek & Uršič, 2025).

SPT's explanatory power becomes even more apparent when contrasted with Cognitive Dissonance Theory (Festinger, 1957). While cognitive dissonance theory addresses the psychological discomfort arising when pre-existing attitudes conflict with behaviour—often resulting in attitude change to restore consistency—SPT addresses the formative stages of attitudes, especially in situations where such attitudes are nascent or undefined (McCartan, 2020; Heyong, 2025). Both frameworks emphasise the dynamic interplay between action and cognition but differ in their temporal and causal assumptions. This distinction is crucial when analysing how Generation X professionals navigate technological change: some adapt out of necessity and later internalise a positive orientation toward digital tools, while others maintain ambivalence until repeated exposure reshapes their self-perception.

The implications of SPT extend beyond individual attitude formation to encompass motivation and identity development. Research suggests that extrinsic rewards can sometimes undermine intrinsic motivation by shifting self-perceptions from internal enjoyment to externally driven obligation (Hanesová & Theodoulides, 2022). This dynamic is particularly pertinent in the private higher education (PrHE) sector, where Generation X employees may engage in digital upskilling either as part of institutional

mandates or as self-motivated professional development. Understanding whether such behaviours are attributed internally or externally can illuminate why some professionals fully embrace digital and AI integration while others remain reluctant. In this way, SPT not only informs the theoretical underpinnings of this study but also offers practical insight into designing institutional strategies that foster sustainable, intrinsically motivated engagement with emerging technologies.

2.5.3 THE MOTIVATIONAL AND ATTITUDINAL LANDSCAPE OF GENERATION X

Understanding Generation X's engagement with digital and AI competencies requires a synthesis of established psychological theories that explain both their intrinsic motivations and their attitudes toward technological change. This cohort's adoption of new tools is not simply a matter of technical proficiency but is a nuanced process shaped by their formative experiences and professional values.

2.5.3.1 THE SELF-DETERMINED AND PRAGMATIC PROFESSIONAL

Self-Determination Theory (SDT) (Ryan & Deci, 2000) offers a robust lens for understanding the intrinsic drivers behind Generation X's engagement with digital and AI competencies. SDT posits that motivation flourishes when three innate psychological needs are met: autonomy, competence, **and** relatedness. For Generation X professionals—often characterised by independence and self-reliance (Zemke et al., 2000)—autonomy is especially critical. They are more likely to adopt new digital and AI tools when they feel a sense of choice and control over learning, whereas mandated, top-down training can trigger

resistance or passive compliance. Flexible, self-paced, and project-based learning approaches align well with their preference for ownership and self-direction.

The need for competence—a sense of efficacy and mastery—is equally influential. As “digital immigrants” who have consciously developed their skills throughout their careers (Okros & Okros, 2020), Generation X tends to value tools that clearly enhance professional effectiveness. Technologies that streamline workflows, improve research efficiency, or enable personalised pedagogy are particularly motivating, as they support their desire to maintain professional mastery and relevance (Jaiswal et al., 2021).

Although relatedness may appear less central to technology adoption, it plays a pivotal role in sustaining engagement. Collaborative, peer-to-peer learning environments, mentorship, and professional communities of practice offer the social support and shared learning experiences that mitigate feelings of isolation or inadequacy in the face of rapid technological change (Litchfield et al., 2016).

This intrinsic drive is complemented by a pragmatic, cognitive calculus explained by Expectancy Theory (Vroom, 1964). Generation X’s willingness to invest effort in digital upskilling is shaped by their belief that (a) the effort will lead to tangible skill acquisition (expectancy), (b) these skills will deliver valuable professional outcomes (instrumentality), and (c) the outcomes are worth pursuing (valence). Where institutional strategies fail to make these connections explicit, motivation can diminish significantly.

2.5.3.2 ATTITUDES, CONTEXT, AND THE THEORY OF PLANNED BEHAVIOUR

While motivation provides the initial impetus for change, attitudes serve as a critical determinant of whether adoption is sustained. The Theory of Planned Behaviour (Ajzen, 1991) provides a lens for this, suggesting that their intention to adopt new tools is influenced by their personal attitude toward the behaviour, the perceived social pressure from colleagues and leadership (subjective norms), and their self-efficacy. This highlights that a philosophical alignment with pedagogical values, not just technical skill, is crucial for sustained engagement (Henderson et al., 2020).

The process of attitude formation can also be explained by Self-Perception Theory (Bem, 1972) and Cognitive Dissonance Theory (Festinger, 1957). If Generation X staff are required to use a new tool and find it effective, their successful engagement (behaviour) can foster a retrospective positive attitude (self-perception). Conversely, if the technology is ineffective, the resulting dissonance between their effort and the poor outcome can reinforce negative attitudes.

In sum, Generation X's engagement with digital and AI competencies is a complex, self-determined process rooted in a pragmatic and selective approach to innovation. Their adoption patterns reflect a strategic, value-driven approach that weighs professional relevance, self-efficacy, and a supportive institutional context before committing to new tools. This understanding is crucial for designing effective, targeted professional development strategies that can successfully bridge the digital and AI competency gaps in UK PrHEIs.

2.5.4 BARRIERS AND OPPORTUNITIES FOR ENHANCING DIGITAL AND AI COMPETENCIES

Generation X in UK private higher education occupies a distinctive position as a “bridge generation” between the analogue and digital eras. Their careers have been shaped by profound technological and economic transitions, fostering adaptability and resilience but also requiring a continuous redefinition of professional identity as digital transformation accelerates into the AI-driven era.

Barriers to this adaptation are both institutional and psychological. Institutionally, insufficient digital skills among some educators hinder the broader implementation of digital transformation initiatives (Bond et al., 2021). Many face inadequate support, limited resources, and lack of time for reskilling, compounded by organisational inertia that struggles to keep pace with technological change (Ndaba & Naidoo, 2024; Deacon, 2025). Training is often delivered in traditional, top-down formats, which can fail to resonate with Generation X, who are typically more responsive to problem-based and autonomous learning (Bova & Kroth, 2001). Psychologically, while this generation has often been described as “conscious adapters” (Zemke, Raines & Filipczak, 2000), the constant need to update skills can create fatigue, uncertainty, and the sense of always “playing catch-up,” particularly with disruptive technologies like AI. Resistance, technophobia, or over-reliance on established pedagogical methods can also slow integration.

Socioeconomic factors further complicate these challenges. The cost of advanced AI tools and platforms risks widening existing digital divides, potentially disadvantaging staff and

students with limited resources. This raises equity concerns around access to AI skills development opportunities within private higher education.

Despite these barriers, significant opportunities exist. Generation X's adaptive trajectory equips them with a valuable blend of human-centred pedagogical values and acquired digital fluency, positioning them as connectors across generational and technological divides. Their cautious, critical stance toward AI—often framed as scepticism—can be reframed as an institutional asset, enabling leadership in areas such as ethical governance, academic integrity, and responsible adoption of AI (Asoba & Mefi, 2022; Repsol, 2024).

Institutions are also increasingly offering professional development workshops and digital literacy training, including emerging AI-focused initiatives. Partnerships with external organisations specialising in AI training can further enhance this capacity. By creating spaces for peer-led learning, low-risk experimentation, and co-creation of digital strategies, institutions can unlock Generation X's potential not just as adopters but as leaders of responsible digital transformation (Watermeyer et al., 2022).

In sum, the duality of barriers and opportunities highlights that Generation X are not merely passive participants in digital transformation but are actively engaged in redefining what it means to be educators, researchers, and leaders in a digital and AI-driven era. Their involvement is critical for ensuring that innovation in higher education is balanced with ethical, inclusive, and human-centred values.

2.6 THE SPECIFIC DIGITAL NEEDS AND TRANSFORMATION PROCESSES IN UK PRHE

The literature on digital needs and transformation in the UK private PrHE highlights a complex interplay between Generation X's unique characteristics and the sector's distinct operational environment. This cohort, characterised by pragmatic adaptability and self-reliance, approaches digital competencies and AI awareness with a cautious yet pragmatic mindset. Their motivation to upskill is often tied to a desire for professional efficacy and autonomy, yet the market-driven nature and varying resource constraints of PrHE institutions influence it. The literature emphasises that, as adult learners, Generation X professionals respond best to andragogical approaches that are problem-centred and directly relevant to their professional roles. Therefore, adequate institutional support, including tailored, flexible learning opportunities and clear policies on AI, is crucial for bridging competency gaps and empowering this generation to lead the digital transformation.

2.6.1 GENERATION X: FORMATIVE EXPERIENCES AND DEFINING TRAITS

Generation X (Gen X) broadly refers to individuals born between the mid-1960s and early 1980s (Howe, 2014; Bresman & Rao, 2017). This cohort experienced formative socio-economic and technological shifts that differentiate them from both Baby Boomers and Millennials. Often described as the “latchkey generation,” they grew up amid rising divorce rates and dual-income households, which cultivated independence and self-reliance. Their early careers were shaped by economic turbulence, corporate downsizing, and the decline

of lifelong career paths, which reinforced pragmatism and adaptability in navigating fluid, project-based work environments.

Technologically, Gen X is characterised as “digital immigrants” (Prensky, 2001), having transitioned from an analogue childhood to a digitally saturated adulthood. Unlike Millennials and Gen Z “digital natives,” they adopted personal computers, the internet, and mobile phones as adults, consciously learning and adapting to successive technological waves (Okros & Okros, 2020). This trajectory has fostered adaptability, resourcefulness, and a critical stance toward institutional promises and technological trends. Traits such as independence, scepticism, and emphasis on work–life balance remain defining features of this cohort, alongside a capacity for pragmatic problem-solving and competence-driven professionalism.

While widely studied in sociological and workplace research, Generation X’s characteristics take on new relevance when considered in the context of digital transformation in UK private higher education. Positioned as a bridging generation, they straddle analogue-era traditions and digitally driven workplace norms, enabling them to mediate between Baby Boomers and Millennials in professional environments. This dual fluency makes them valuable contributors to intergenerational collaboration, while also presenting unique challenges in relation to digital and AI adoption.

2.6.2 CHARACTERISTICS OF GENERATION X

While Generation X has been widely explored in sociological and workplace studies, their distinctive characteristics take on new significance when examined through the lens of

digital transformation in the UK private higher education sector. Positioned between analogue era traditions and digitally driven workplace norms, they have navigated and adapted to the complete transformation of work technologies over their careers. This transitional experience makes them both valuable contributors to and, at times, cautious adopters of emerging tools such as artificial intelligence (AI).

Table 06 summarises the key characteristics, motivations, and behavioural drivers of Generation X as they relate to digital and AI competency development in the UK private higher education sector. Rather than serving as a generic generational profile, the table 06 synthesises traits most relevant to their capacity, readiness, and potential barriers in adopting new technologies. This targeted framing is essential because Generation X professionals currently make up a significant portion of academic and administrative staff in private higher education institutions. In these settings, AI-driven systems are increasingly embedded in teaching, research, and operational workflows.

From this synthesis, three themes emerge that directly inform the research focus.

First, *independence and self-reliance*—hallmarks of Generation X—align closely with self-directed learning models, suggesting that flexible, autonomy-supportive training programmes may be more effective than rigid, centrally mandated ones. However, this same autonomy can contribute to selective engagement, where technology adoption occurs only if individuals see clear, immediate value to their work.

Second, their position as a *bridging generation* gives them an advantage in intergenerational collaboration, enabling them to mentor younger “digital natives” while also understanding the reservations of older colleagues. This dual fluency has potential for

accelerating AI integration within higher education teams—provided training acknowledges and leverages this mediator role.

Table 06: Characteristics of X Generation

Category	Characteristics	Key Drivers & Motivations
Work Ethic & Professionalism	Independent & Self-Reliant: Often called the "latchkey kids" generation, they value autonomy and self-sufficiency, preferring a hands-off management style (Tivian, 2025).	They are results-driven and value being trusted to get the job done without micromanagement (Globacare, 2023)
	Pragmatic & Resourceful: Shaped by economic fluctuations and a less-than-rosy job market, they are realistic and skeptical of institutional promises. They are problem-solvers who can "get things done without relying on sophisticated technology" but are adept at using it when necessary (Repsol, 2024;	They are motivated by practicality and efficiency, seeking solutions that are effective and logical.
	Bridging Generation: They have witnessed the complete evolution from analog to digital, making them uniquely positioned to bridge the gap between Baby Boomers and Millennials. They understand both traditional methods and new technologies (Tivian, 2025; Pew Research Center, 2019).	They are seen as valuable mentors who can help younger and older generations understand each other's communication and work styles
Technology Adoption	Conscious Adapters: Not "digital natives," they have had to consciously learn and adapt to each new wave of technology, from personal computers to the internet and now AI. They are often proficient but may lack the intuitive fluency of younger generations (Repsol, 2024)	They adopt new technology when it is relevant and provides a clear benefit to their work, focusing on value over novelty .
	Skeptical & Critical: They approach technology with a pragmatic and often skeptical eye, questioning its purpose and potential downsides. This is particularly evident with AI, where they are keenly aware of ethical risks and data privacy concerns (Britannica, 2025).	They are motivated to understand the strategic and ethical implications of technology, not just the technical aspects.
Work-Life Balance	Pioneers of Work-Life Balance: Having observed the workaholic tendencies of their Baby Boomer parents, they place a high value on a clear separation between work and personal life. They are loyal to employers who respect this boundary (Tivian, 2025).	They are motivated by flexible work arrangements, remote work options, and benefits that support their family and personal lives (Britannica, 2025).
Financial & Social Outlook	Pragmatic & Financially Cautious: Shaped by recessions and economic instability, they are financially savvy and value job stability and security. They are the generation most likely to be high earners and build wealth.	They are motivated by financial security and tend to be brand-loyal consumers, prioritizing value and quality over trends (Repsol, 2024).

Source: Author

Third, their *pragmatism and scepticism* towards technology, particularly AI, may serve as both a safeguard and a barrier. On one hand, critical scrutiny can help institutions identify ethical risks and operational weaknesses before large-scale adoption. On the other hand, excessive caution could slow down the pace of skill acquisition and adaptation unless institutional strategies explicitly address their concerns about ethics, data privacy, and long-term job security.

By embedding these generational insights into the broader discussion of digital and AI competency gaps, the table moves beyond description to offer explanatory value, clarifying *why* specific adoption patterns occur and *how* institutional approaches might be tailored to maximise engagement and capability development among Generation X staff in private higher education.

2.5.2 Digital Competencies of Generation X in UK Private Higher Education

The digital literacy of faculty plays a pivotal role in integrating technology into teaching and learning within higher education (Mardiana, 2024). In the UK private higher education (PrHE) sector, Generation X demonstrates a broad spectrum of digital proficiency, shaped by discipline, specific practices, prior professional development, and personal engagement with technology (Lai & Hong, 2015). While many in this cohort have adapted successfully to core technologies, such as Virtual Learning Environments (VLEs) like Moodle and Blackboard, the depth and breadth of their engagement with emerging, interactive, and AI-enabled tools varies considerably. The diversity within Generation X means some have accrued extensive experience through early adoption. In contrast, others remain reliant on more traditional methods, reflecting the uneven diffusion of innovation within the group.

The established presence of VLEs has made them a digital comfort zone for many Generation X educators. However, reliance on these platforms may foster established routines that hinder experimentation with newer pedagogical technologies, such as immersive simulations, adaptive learning systems, or AI-assisted assessment tools. This tendency is consistent with research on technology adoption that emphasises habit formation and perceived ease of use as key drivers of continued tool preference. For communication, Generation X often blends digital efficiency—through email and instant messaging, with a continued preference for face-to-face interactions. This hybrid approach reflects their transitional positioning between pre-digital and digital-native cultures, enabling them to navigate diverse communication modes effectively, albeit sometimes with caution toward untested platforms.

Despite adaptability, challenges remain. The PrHE sector exhibits signs of a digital divide, not only among students but also within the academic workforce. Faculty from less digitally intensive disciplines, or those with limited access to targeted upskilling, may feel apprehensive about integrating emerging technologies into their practice. Furthermore, socio-economic disparities in the student body mean that some learners arrive with advanced AI competencies, while others lack foundational digital literacy. Without targeted interventions—such as scaffolded digital skills training, discipline-specific AI workshops, and mentoring—these disparities risk undermining both teaching effectiveness and student equity. For Generation X faculty in particular, sustained professional development and confidence-building initiatives are critical to bridging the gap between established competencies and the demands of a rapidly evolving digital and AI-enhanced academic environment.

2.6.2.1 EMERGING THEMES

From this synthesis, three themes emerge that directly inform the research focus:

1. INDEPENDENCE AND SELF-RELIANCE

Generation X's strong preference for autonomy aligns with self-directed learning models, suggesting that flexible, personalised training is more effective than rigid, centrally imposed programmes. However, this independence also risks selective engagement, where new technologies are adopted only when immediate value is perceived.

2. BRIDGING GENERATION AND MEDIATOR ROLE

Their lived experience across analogue and digital eras enables them to act as intergenerational connectors. They can mentor younger digital natives while understanding the reservations of older colleagues. This role positions them as valuable mediators in the integration of AI and digital tools within higher education teams.

3. PRAGMATISM AND SCEPTICISM TOWARD TECHNOLOGY

Gen X's cautious and often critical stance toward digital transformation—especially regarding AI's ethical implications, data privacy, and job security—functions as both a safeguard and a barrier. While critical scrutiny helps institutions anticipate risks, excessive scepticism can slow adaptation unless institutions explicitly address these concerns.

By embedding these generational insights into the wider discussion of digital and AI competencies, the analysis of Generation X moves beyond static description toward explanatory value. Their formative experiences and defining traits help explain adoption patterns, illuminate barriers, and suggest tailored institutional strategies for maximising engagement and capability development among this cohort in UK private higher education.

2.6.3 AI COMPETENCIES AND AWARENESS AMONG GENERATION X

The integration of artificial intelligence (AI) into higher education is reshaping both teaching and learning processes, and Generation X in UK PrHE is increasingly engaging with these technologies. Students report widespread awareness of generative AI and its academic applications, often using tools for grammar correction, summarisation, and idea generation. However, task-specific use does not necessarily equate to conceptual understanding. Many lack insight into how AI systems function, their algorithmic biases, or the broader societal implications of their deployment. This gap between operational fluency and critical literacy mirrors broader trends in digital competency research, highlighting the need for pedagogical frameworks that combine technical skills with ethical and contextual understanding.

Faculty members—particularly within Generation X—are beginning to experiment with AI in ways that extend beyond student applications. Early adoption includes leveraging AI for administrative streamlining, resource creation, and personalised feedback mechanisms. These practices indicate a gradual shift toward integrating AI into core academic functions, driven in part by improved accessibility and user-friendly design. Positive perceptions of

AI are common, with many recognising its potential to enhance accessibility, support personalised learning, and improve workload management. This optimism reflects a pragmatic openness to innovation, characteristic of a generation that has navigated multiple waves of technological change.

2.6.4. CHALLENGES AND NUANCES IN UK PRIVATE HIGHER EDUCATION

The unique context of UK private HEIs introduces additional layers to understanding Gen X's motivations and attitudes:

- **Resource Constraints and Investment:** Private HEIs often operate with different funding models, relying heavily on tuition fees (Brown, 2011; Tight, 2012). This can influence the availability and quality of digital infrastructure and professional development opportunities. Gen X staff in these institutions may be motivated by digital tools that offer cost-effectiveness or efficiency gains, but their attitudes might be negatively impacted if resources for training or implementation are perceived as inadequate (Pringle, 2023).
- **Market Pressures and Responsiveness:** Private HEIs are highly responsive to market demands (Paradeise & Pasetto, 2015). This can motivate Gen X staff to adopt digital and AI competencies that enhance program attractiveness or student employability. However, rapid shifts driven by market trends without adequate support could lead to stress and negative attitudes if staff feel ill-equipped.
- **Leadership Roles and Institutional Transformation:** Gen X often occupies senior academic and administrative positions in private HEIs. Their motivations for autonomy and competence, coupled with their pragmatic attitudes, make them

crucial agents for driving digital transformation. However, if they perceive a lack of institutional commitment or support for their own digital upskilling, it can hinder their willingness to champion such changes (Lissitsa & Ben-Porat, 2024).

- **Regulatory Environment:** While private HEIs are regulated (OfS, 2018), the specific nuances of this oversight can influence institutional priorities for digital investment and staff development, which in turn affects Gen X's opportunities and perceived value of acquiring new competencies

2.6.6 ADAPTABILITY AND PROFESSIONAL IDENTITY

The professional journey of Generation X is defined by a unique interplay between adaptability and the dynamic reconstruction of professional identity. This cohort, born between the mid-1960s and early 1980s, came of age during a period of significant economic flux, witnessing the decline of lifelong employment and the rise of a more precarious, project-based work culture (Howe & Strauss, 2000). Consequently, they were compelled to become "architects of their own identity," forging careers through self-reliance and continuous adaptation rather than through the linear, institutional pathways of previous generations (Bresman & Rao, 2017). This cultivated a protean career orientation, where individuals proactively manage their own professional development and define success in terms of personal fulfillment and competence, rather than solely through organisational advancement (Hall, 2004).

This inherent adaptability has been tested and refined by the profound digital transformation that has defined their careers. As "digital immigrants" (Okros & Okros, 2020), Generation X professionals did not simply acquire new skills; they consciously

adapted their professional identities to remain relevant in a rapidly digitizing world. Their self-perception as capable and effective professionals became increasingly linked to their digital competence, a process of "digital identity" construction that serves as a vital signal of their professional value (Bawden & Robinson, 2009). This is a source of both professional **confidence and anxiety**; confidence is derived from successfully mastering new technologies and maintaining their relevance, while anxiety stems from the relentless pace of change and the fear of their core expertise becoming obsolete (Trivellas & Tsaknis, 2024).

Within the higher education sector, this dynamic is particularly salient. Generation X professionals are not just adapting their administrative or pedagogical methods; they are navigating a fundamental shift in what it means to be an educator, researcher, or leader in a digital institution (Watermeyer et al., 2022). Their unique position as a bridge generation offers a crucial opportunity. They possess a deep understanding of traditional, human-centred pedagogical approaches, coupled with a learned fluency in digital tools. This allows them to embody a professional identity that is both grounded in foundational expertise and forward-looking in its embrace of technology. This makes them ideal leaders for a human-centred digital transformation, capable of modelling a balanced, critical, and ethical approach to AI integration that younger generations may take for granted (Wainwright & Marwick, 2020).

However, this process of identity reconstruction is not automatic. Institutions must provide more than just technical training; they must foster a culture that supports this ongoing identity work. This involves creating an environment where the professional experiences

and wisdom of Generation X are valued and actively integrated into digital strategy, rather than being sidelined by a purely tech-centric vision. By providing opportunities for low-stakes experimentation, peer mentorship, and collaborative problem-solving, institutions can empower this experienced cohort to confidently evolve their professional identities, ensuring their continued leadership and invaluable contribution to the future of higher education (Bova & Kroth, 2001).

2.6.7 GEN X, ADAPTABILITY, AND DIGITAL/AI COMPETENCIES

Generation X's unique formative experiences have arguably endowed them with an inherent capacity for adaptability that is highly relevant to the digital and AI era. As "digital immigrants" (Prensky, 2001; Okros & Okros, 2020), they were compelled to adapt to successive waves of technological innovation throughout their careers. This active process of learning and integration, unlike the more passive immersion of "digital natives," has cultivated a learned adaptability and problem-solving orientation (Bennett et al., 2008).

This learned adaptability means that Gen X professionals are often willing to embrace new digital and AI competencies, provided they perceive the value and are given appropriate support. Their pragmatic nature (Stankorb & Oelbaum, 2014) translates into a motivation to adapt when new tools offer clear efficiency gains or enhance their professional effectiveness. However, challenges to their adaptability can arise if the perceived benefits are unclear, if training is inadequate, or if the new technologies fundamentally conflict with deeply held pedagogical values, potentially leading to resistance (Radovanović, Hogan & Lalić, 2015). The cognitive load associated with continuous learning and adaptation, particularly for mid-to-late career professionals, also needs careful consideration.

2.6.8 NAVIGATING PROFESSIONAL IDENTITY IN UK PRIVATE HE

Within the UK private HE sector, the interplay of adaptability and professional identity for Gen X is further nuanced by specific contextual factors:

- **Market Responsiveness:** Private HEIs often operate in a competitive market, requiring rapid adaptation to student demands and industry trends (Paradeise & Pasetto, 2015). This pressure can motivate Gen X staff to adapt their professional identities to incorporate new digital/AI-driven roles (e.g., online course design, AI-assisted student support) to ensure institutional and personal relevance.
- **Resource Constraints:** Compared to some larger public institutions, private HEIs may face varying resource constraints (Brown, 2011; Tight, 2012). This can impact the availability of high-quality professional development for digital and AI competencies, potentially challenging Gen X's ability to adapt and integrate new skills into their professional identity effectively.
- **Regulatory Demands:** The regulatory environment, such as that overseen by the Office for Students (OfS, 2018), mandates certain standards for digital learning and student experience. This external pressure can drive the need for Gen X staff to adapt their professional identities to align with these requirements, impacting their roles in quality assurance and program delivery.
- **Role in Institutional Transformation:** As senior professionals, Gen X individuals are often expected to lead digital transformation efforts, which requires them to not only adapt their own professional identity but also to facilitate this process for others. Their ability to embody a digitally fluent professional identity can

significantly influence the broader institutional culture (Lissitsa & Ben-Porat, 2024).

Professional development initiatives play a crucial role in supporting this identity reconstruction. Programs that acknowledge Gen X's existing adaptability, focus on practical application, and provide opportunities for successful integration of new digital/AI skills can foster a positive evolution of their professional identity, ensuring they remain effective and confident contributors in the digitally evolving HE landscape.

2.6.9 ADULT LEARNING

Andragogy, a field of study focused on the unique characteristics of adult learners, offers a distinct alternative to traditional, teacher-directed pedagogy. Pioneered by Malcolm Knowles (1980), this approach is built on several core principles that are highly relevant to professional development. Adults are typically self-directed, preferring to take ownership of their learning decisions. They bring a wealth of life and work experience, which serves as a rich resource for new knowledge. Their readiness to learn is often tied to the perceived relevance of new skills to their professional roles, and they are primarily motivated by a desire to solve real-world problems. This emphasis on problem-centred, experiential learning, and intrinsic motivation makes andragogy a crucial framework for designing effective training for Generation X professionals. However, a successful application must also consider the specific institutional realities, varying digital confidence, and the rapid pace of technological change that this cohort faces.

2.6.9.1. KNOWLES' PRINCIPLES APPLIED TO GEN X DIGITAL/AI COMPETENCY DEVELOPMENT

Understanding the principles of adult learning, primarily through the lens of **Andragogy** (Knowles, 1980), is paramount when designing effective professional development initiatives for Generation X staff in the context of digital and AI competency acquisition. Unlike pedagogy (the art and science of teaching children), andragogy focuses on the unique characteristics of adult learners.

1. SELF-CONCEPT

- *Application:* Gen X staff value autonomy (Hannay & Fretwell, 2011). Offering modular, self-paced courses or blended formats allows them to select relevant AI/digital skills that fit their schedules.
- *Limitation:* In practice, some may lack baseline technical skills to learn entirely independently, requiring structured support or guided learning alongside self-direction.

2. LEARNER EXPERIENCE

- *Application:* Gen X brings extensive professional and technological adaptability (Okros & Okros, 2020). Training that uses case studies, simulations, and AI tools linked to their HE roles leverages this experience.
- *Limitation:* Experience can also reinforce outdated practices, leading to resistance if new tools disrupt established workflows.

3. READINESS TO LEARN

- *Application:* This cohort engages most when skills address immediate challenges—e.g., AI-assisted student feedback or digital assessment tools—linking learning to employability and institutional relevance (Lissitsa & Ben-Porat, 2024).
- *Limitation:* Not all staff perceive AI as immediately necessary, especially if current practices still meet performance expectations.

4. ORIENTATION TO LEARNING

- *Application:* Problem-centred learning resonates strongly with Gen X pragmatism. Training should focus on solving real institutional problems, such as streamlining administrative tasks with AI or enhancing student engagement.
- *Limitation:* If the “problem” involves abstract AI concepts without clear operational benefits, engagement may wane.

5. MOTIVATION TO LEARN

- *Application:* Internal motivators—competence, autonomy, and contribution (Deci & Ryan, 2000)—drive sustained engagement. Recognising achievements in AI upskilling can reinforce these.
- *Limitation:* Over-reliance on intrinsic motivation risks excluding those whose engagement depends on external incentives such as promotion or compliance requirements.

2.6.10 CONTEXTUAL CHALLENGES IN UK PRIVATE HIGHER EDUCATION

UK private HEIs face unique pressures that shape Gen X staff's engagement with digital and AI upskilling:

- **Resource Constraints:** Limited budgets can affect the quality of infrastructure and training provision (Brown, 2011; Tight, 2012), influencing staff perceptions of feasibility and value.
- **Market Pressures:** Competitive responsiveness (Paradeise & Pasetto, 2015) drives the need for digital innovation but can create stress if adoption is rushed without adequate support.
- **Leadership Roles:** Gen X often hold senior positions, making them both learners and drivers of digital transformation. Their buy-in is crucial, but insufficient support can hinder their willingness to lead change.
- **Regulatory Requirements:** Oversight by bodies such as the Office for Students (OfS, 2018) can mandate digital standards, but compliance-driven approaches risk reducing professional development to a tick-box exercise rather than a meaningful skills-building process.

2.6.11 APPLICATION TO DIGITAL AND AI COMPETENCY DEVELOPMENT FOR GEN X

Applying these principles to Gen X in UK private HEIs suggests specific pedagogical approaches:

- **Personalised and Flexible Learning Pathways:** Offer modular, self-paced online courses or blended learning formats for digital and AI skills, allowing Gen X staff to choose what and when they learn, respecting their autonomy and busy schedules (Jisc, 2020).
- **Experiential and Problem-Based Learning:** Design workshops and training sessions that involve hands-on application of digital and AI tools to real-world scenarios relevant to their teaching, research, or administrative roles. This aligns with their pragmatic nature and problem-centred orientation (Bandura, 1986).
- **Peer Learning and Communities of Practice:** Leverage Gen X's preference for collaboration and their existing professional networks by establishing communities of practice where they can share experiences, troubleshoot challenges, and learn from peers who are also adopting new digital/AI tools (Purnama & Asdlori, 2023). This fosters relatedness and reinforces competence.
- **Clear Articulation of Value and Relevance:** Explicitly communicate how acquiring digital and AI competencies will enhance their professional effectiveness, improve efficiency, and contribute to their long-term career security and institutional goals (Morandini, et al.,2025) This addresses their readiness to learn and pragmatic attitudes.
- **Feedback and Recognition:** Provide timely, constructive feedback on their progress in acquiring new digital/AI skills, reinforcing their sense of competence. Recognising their efforts (Lissitsa & Ben,2024) and achievements can further boost motivation and positive attitudes towards continuous learning.

2.6.12 CHALLENGES IN APPLYING ADULT LEARNING PRINCIPLES

Despite the clear benefits, applying these principles can face challenges in private HEIs:

- **Time Constraints:** Heavy teaching and administrative loads may limit the time available for professional development, making flexible and self-directed options even more critical.
- **Resource Allocation:** Investing in high-quality, personalized adult learning programs for digital and AI competencies requires significant institutional resources, which might be a challenge for some private HEIs (Brown, 2011).
- **Resistance to Change:** While Gen X is adaptable, resistance can arise if training methods are perceived as didactic or irrelevant, or if the new technologies fundamentally clash with established professional identities (Henderson et al., 2020). Andragogical approaches aim to mitigate this by fostering ownership and relevance.

By intentionally designing professional development strategies grounded in adult learning principles, particularly those of andragogy, UK private HEIs can more effectively engage and empower their Generation X staff to acquire and leverage essential digital and AI competencies, ensuring their continued vital contribution to the evolving educational landscape.

2.6.13. GAPS IN LITERATURE AND FUTURE RESEARCH DIRECTIONS

Despite the insights gained, several critical gaps remain in the literature concerning Gen X's motivations and attitudes towards digital and AI competencies in the UK private HE sector:

- **Empirical Studies on Motivation and Attitude in UK Private HE:** There is a significant scarcity of empirical research specifically investigating the motivations and attitudes of Gen X staff towards digital and AI competencies within the unique operational and cultural contexts of UK private HEIs (Rahman, et al., 2017). Most existing studies are broader or focus on public institutions.
- **Longitudinal Perspective on Attitude Formation:** While theories like SPT suggest attitudes are formed through observed behaviour, longitudinal studies are needed to track how sustained engagement with digital/AI tools over time influences Gen X's evolving attitudes and motivations, particularly in response to ongoing technological advancements.
- **Influence of Organisational Culture:** Research is needed to explore how the specific organisational culture and leadership styles within UK private HEIs impact Gen X's motivations (e.g., fostering autonomy, competence, relatedness) and attitudes towards digital and AI adoption.
- **Tailored Professional Development Effectiveness:** While the need for professional development is acknowledged, there is a gap in evaluating the effectiveness of *tailored* training programs that specifically address Gen X's unique

motivations (e.g., pragmatism, autonomy) and attitudes (e.g., scepticism, learned adaptability) in the context of digital and AI upskilling.

- **Intergenerational Dynamics of Motivation:** How do the motivations and attitudes of Gen X influence, and are influenced by, their interactions with younger (Millennials, Gen Z) and older (Baby Boomer) colleagues in digitally transforming HE environments? Research on intergenerational mentorship and collaborative learning in this context would be valuable.
- **Impact of AI Ethics on Motivation/Attitude:** As AI becomes more pervasive, how do ethical concerns and attitudes towards AI's societal implications (e.g., data privacy, algorithmic bias) influence Gen X's motivation to engage with and integrate AI tools into their professional practice?
- **Adaptability and Identity in Practice:** More empirical research is needed on how Gen X academics and administrators in UK private HE *perceive* and *experience* the impact of digital and AI adoption on their professional identity. How do they actively reconstruct or reinforce their professional identity in response to these technological shifts?
- **Support Mechanisms for Identity Adaptation:** What specific institutional support mechanisms (e.g., mentorship, communities of practice, recognition programs) are most effective in facilitating Gen X's adaptability and positive professional identity development in the face of digital and AI transformation?
- **Evaluation of Andragogical Approaches in Digital/AI Training:** A significant gap exists in empirical studies evaluating the specific impact and effectiveness of professional development programs for Gen X in HE that explicitly apply adult

learning principles (e.g., self-direction, problem-centredness) to digital and AI competency acquisition.

By addressing these gaps, future doctoral research can provide nuanced, context-specific insights that inform more effective strategies for engaging, motivating, and supporting Generation X professionals, thereby maximizing their crucial contribution to the digital and AI transformation of the UK private higher education sector.

2.6.14 GEN X DIGITAL LITERACY RESKILLING STRATEGIES.

The rapid pace of digital transformation and the pervasive rise of artificial intelligence (AI) have made continuous reskilling a strategic imperative for organisations, particularly concerning their Generation X workforce. While this generation is highly adaptable, their digital literacy is a product of conscious effort rather than innate fluency, necessitating tailored reskilling strategies that account for their unique learning preferences and professional context (Zemke, Raines & Filipczak, 2000). A synthesis of the literature reveals that effective reskilling for Generation X must move beyond generic, top-down training to adopt a more pragmatic, problem-centred, and human-centric approach.

A core principle of reskilling for Generation X is the acknowledgment of their autonomy and experience. Unlike younger generations who may prefer structured, formal training, Generation X professionals are self-directed learners who value flexibility and control over their learning journey (Bova & Kroth, 2001). As such, effective strategies include providing access to diverse, self-paced learning resources, such as digital libraries and online platforms, that allow them to integrate upskilling into their busy schedules

(Litchfield, 2016). This approach respects their preference for independence and honors the practical knowledge they already possess.

Furthermore, reskilling must be grounded in tangible, real-world application. Generation X is motivated by a desire to solve problems and see immediate relevance in what they learn (Bova & Kroth, 2001). Generic training on new software or AI models is often ineffective; instead, a problem-based learning approach, where training is focused on a specific challenge a manager faces daily, is more likely to engage them. This hands-on, experiential learning paradigm leverages their practical orientation and reinforces the value of the new skills by demonstrating a clear return on investment.

The literature also emphasises the importance of social and cultural support in the reskilling process. Peer-to-peer learning and mentorship are highly effective for Generation X, who are often sceptical of top-down mandates and prefer learning from trusted colleagues. Establishing communities of practice or reverse mentoring programs, where experienced professionals can both share their domain knowledge and learn digital skills from younger colleagues, fosters a collaborative environment that mitigates resistance to change (Illeris, 2015). A supportive organisational culture that provides protected time and institutional investment for upskilling is crucial, as a lack of resources can be a significant barrier (Deacon, 2025).

Finally, reskilling for the AI era must go beyond technical proficiency to include foundational and critical skills. As a generation that is naturally sceptical of technological change, Generation X is well-suited to champion the ethical use of AI. Therefore, reskilling strategies should focus on developing critical AI literacy, data ethics, and an understanding

of algorithmic bias. This approach not only prepares them to use AI tools but also empowers them to make sound, responsible decisions, ensuring that technology serves human values. By adopting these tailored reskilling strategies, organisations can retain their invaluable Generation X workforce and transform their deep institutional knowledge and experience into a strategic asset for navigating the complexities of the digital future (Ndaba & Naidoo, 2024).

2.6.15. INSTITUTIONAL SUPPORT

The successful navigation of the digital and AI revolution in higher education is a strategic imperative that requires robust and tailored institutional support for its experienced workforce. Generation X professionals, who constitute a significant portion of academic and administrative leadership, are uniquely positioned to bridge the gap between traditional practices and future-oriented innovations. However, their capacity to do so is contingent not merely on individual adaptability, but on the effectiveness of the institutional support mechanisms in place. A synthesis of the academic literature highlights that such support must be holistic, moving beyond ad-hoc training to encompass strategic resource allocation, a human-centred learning culture, and inclusive governance.

A primary challenge identified in the literature is the pervasive institutional inertia and the "one-size-fits-all" approach to professional development that often fails to meet the needs of a diverse workforce (Litchfield, 2016; Ndaba & Naidoo, 2024). Generation X professionals, as pragmatic and self-directed learners, are often alienated by abstract, generic training that lacks immediate relevance to their roles. Effective institutional support, therefore, must prioritise contextualised and problem-based learning. This

approach, advocated by scholars of adult learning, provides hands-on, experiential training that directly connects new digital and AI skills to the real-world challenges faced by faculty, administrators, and technologists (Bova & Kroth, 2001). By focusing on how a specific tool can solve a specific problem, institutions can leverage the inherent pragmatism of this generation and drive genuine, meaningful skill adoption.

Beyond pedagogical approaches, institutional support is fundamentally about strategic resource allocation and cultural cultivation. Reskilling for AI is not a low-cost endeavour; it requires significant investment in protected time for professional development, state-of-the-art digital infrastructure, and dedicated technical support (Deacon, 2025). Moreover, a supportive learning culture is paramount. The literature highlights the efficacy of peer-to-peer learning and mentorship for Generation X, who prefer to learn from trusted colleagues and through collaboration (Zemke, Raines & Filipczak, 2000). Institutions that foster these communities of practice, where experienced professionals can share their deep domain knowledge while learning new digital skills, are better equipped to overcome resistance to change and build collective digital confidence.

Finally, and perhaps most critically, institutional support for Generation X must extend to inclusive governance and policy development. The perspectives of this generation, with their unique historical context and critical approach to technology, are invaluable for developing ethical and responsible digital strategies. The "relevance gap" that has long plagued management education (Starkey & Madan, 2001) is now manifest in how institutions develop AI policy. Without the active participation of Generation X professionals, who are keenly aware of the nuanced ethical, pedagogical, and operational

implications of AI, policies risk being technically ambitious but socially and ethically unsound (Illeris, 2015). Empowering this generation to contribute to ethical AI governance is not just a form of institutional support; it is a strategic imperative for ensuring that higher education remains a force for responsible, human-centred innovation.

2.6.16. DIGITAL CULTURE

The concept of digital culture extends beyond the mere presence of technology to encompass the shared values, beliefs, and practices that govern its use within an organisation (Garrison et al., 2011). In higher education, this culture is a dynamic ecosystem shaped by policy, pedagogy, and the lived experiences of its professional workforce. Generation X (born 1965-1980) has played a pivotal, yet often unacknowledged, role in the formation of this culture, acting as a crucial bridge between the pre-digital and digital eras. A critical review of the literature reveals that understanding this generation's unique perspective is essential for developing a digital culture that is not only efficient but also inclusive, ethical, and sustainable.

Generation X professionals were instrumental in establishing the foundational digital culture of modern higher education. Having entered the workforce as the first generation to widely use personal computers, they navigated the transition from analogue to digital systems, migrating records, and establishing core digital communication practices (Zemke, Raines & Filipczak, 2000). Their learning journey, characterized by self-reliance and pragmatism, shaped a digital culture that values efficiency and utility above all else (Asoba & Mefi, 2022). This pragmatic ethos, while driving significant advancements in

administrative and pedagogical efficiency, often manifests as a tension with other institutional values. The "relevance gap" critiqued by scholars like Starkey and Madan (2001) now includes a digital dimension, where a culture focused on technological quick fixes can sideline deeper pedagogical and human-centred concerns.

For Generation X professionals, the existing digital culture is both a product of their making and a source of ongoing challenge. Their experiences highlight a critical friction between a digital culture that is largely driven by institutional efficiency and their own values, which are rooted in a more holistic view of education. Many professionals report a disconnect between the institutional push for rapid digital adoption and their concerns about the ethical, social, and pedagogical implications of technology, particularly with the rise of AI. This is exacerbated by a culture that can be resistant to change or slow to adapt, creating a feeling of "institutional inertia" (Deacon, 2025). The literature suggests that such a culture, which often neglects to provide adequate, sustained training (Bova & Kroth, 2001), can lead to frustration and a sense of being perpetually "catching up," undermining the confidence of this experienced workforce (Illeris, 2015).

However, Generation X also offers a clear path toward a more mature digital culture. Their unique position, as individuals who remember a time before the digital age, provides them with a critical perspective on technology's purpose and limits. They advocate for a digital culture that is not just about tools, but about values—one that prioritizes ethical AI governance, data privacy, and the preservation of human-centred learning (Litchfield, 2016). They are strong proponents of collaborative, bottom-up digital strategy, preferring to learn from and contribute alongside peers and younger generations

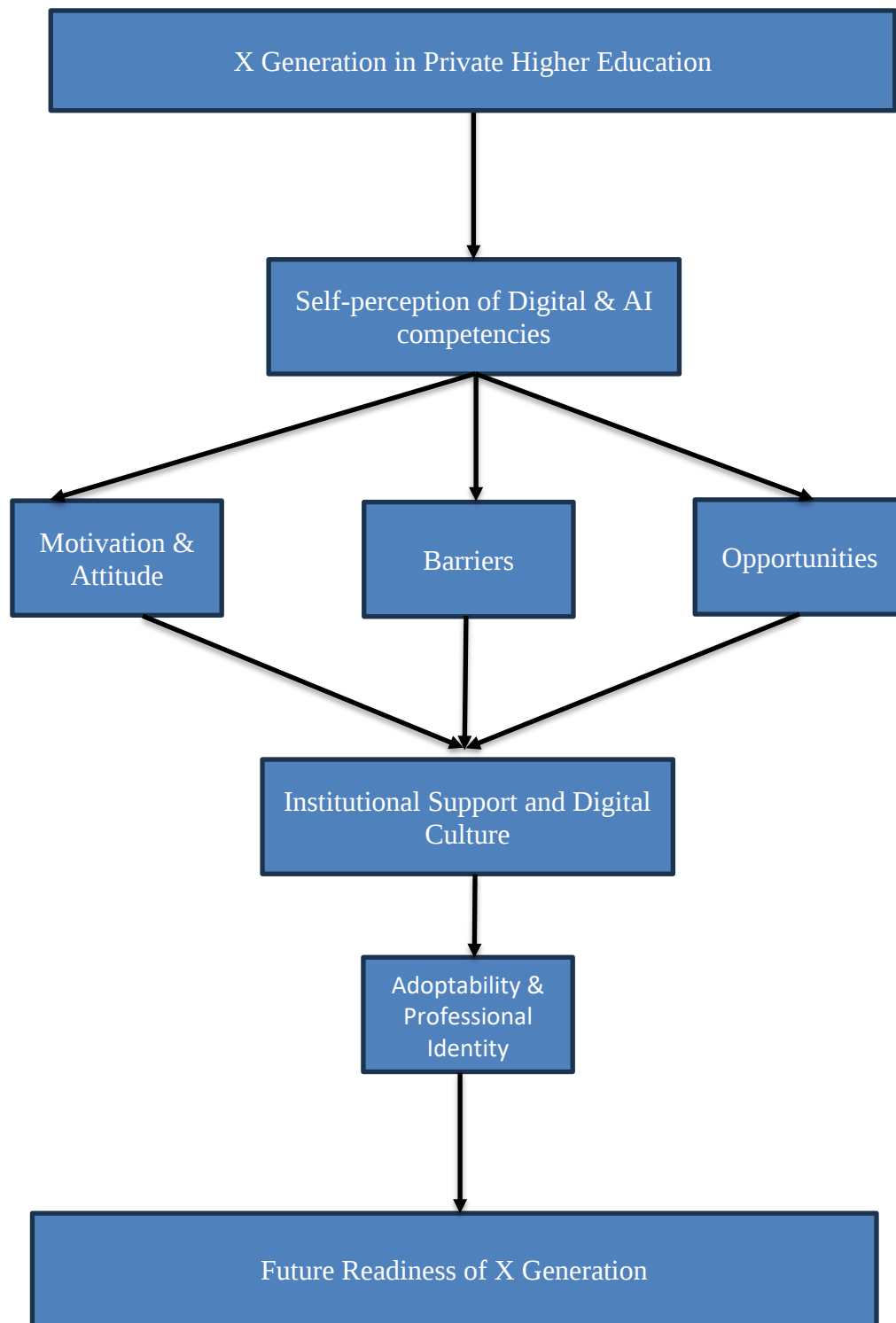
rather than being subjected to top-down mandates (Zemke et al., 2000). Their voice is a vital counterbalance to a purely tech-centric vision of the future, helping to ensure that the digital culture of higher education remains rooted in its core mission of fostering critical thought and human connection. Ultimately, for institutions to successfully navigate the ongoing digital revolution, they must cultivate a digital culture that is inclusive of Generation X's wisdom and experience, transforming a transactional relationship with technology into a truly symbiotic one.

2.7 CONCEPTUAL FRAMEWORK

The conceptual framework elucidates a multifaceted model for investigating the determinants of the "Future Readiness of X Generation" within the specific context of "X Generation in Private Higher Education." This framework sets that the overarching outcome of future readiness is a complex interplay of individual perceptions, motivations, and the broader institutional environment.

At its core, the framework identifies the "X Generation in Private Higher Education" as the primary demographic and contextual focus. This acknowledges the unique characteristics and professional trajectories of the X generation who are currently engaged in academic, administrative, or leadership roles within private higher education institutions in the UK. Their readiness for future challenges, particularly those driven by rapid advancements in digital technology and artificial intelligence (AI), is the central dependent variable.

Figure 01: Conceptual Framework



Source: Author

The framework proposes that this "Future Readiness" is directly influenced by four primary constructs:

1. **Self-perception of Digital & AI Competencies:** This construct refers to an individual's subjective assessment of their own skills, knowledge, and abilities concerning digital tools and artificial intelligence applications. It encompasses perceived proficiency in using various digital skills, software, platforms, and AI-driven technologies relevant to their professional roles (e.g., teaching, administration, research). This self-perception is crucial, as it often determines an individual's confidence and willingness to engage with new technologies, regardless of their actual skill level. A strong self-perception of competence is hypothesised to correlate positively with future readiness.
2. **Motivation & Attitude:** This dimension captures the intrinsic and extrinsic drivers, as well as the prevailing sentiments, that Generation X individuals hold towards digital and AI integration. It encompasses their enthusiasm for acquiring new digital skills, their conviction in the value and relevance of AI in their professional lives, and their overall receptiveness to technological advancements. Conversely, negative attitudes or a lack of motivation (e.g., digital anxiety, technophobia, resistance to change) would act as significant inhibitors to future readiness. This construct acknowledges that mere competency is insufficient without a positive disposition towards adoption and continuous learning.
3. **Barriers & Opportunities:** This dualistic construct addresses the perceived impediments and enablers encountered by Generation X in their journey towards digital and AI readiness.
 - **Barriers** might include a lack of interest, insufficient time for training, inadequate institutional resources (e.g., outdated technology, unreliable internet), irrelevant or inadequate professional development programmes, perceived complexity of new technologies, or even psychological resistance.
 - **Opportunities** could encompass access to high-quality training, peer support networks, clear institutional digital strategies, recognition for digital

innovation, and the perceived benefits of digital and AI integration for their work efficiency or career progression. The interplay between these perceived barriers and opportunities significantly shapes an individual's progression towards future readiness.

4. **Adaptability and Professional Identity:** This construct examines the capacity of Generation X individuals to adapt to evolving digital and AI landscapes, which is inextricably linked to their professional Identity.
 - **Adaptability** refers to their flexibility, resilience, and willingness to embrace new digital practices and AI tools within their professional roles. It implies a dynamic process of learning and integration rather than a static acquisition of skills.
 - **Professional Identity** pertains to how Generation X individuals perceive their roles and responsibilities in an increasingly digital and AI-infused academic environment. If their professional Identity is tied to traditional methods or if they perceive AI as a threat to their expertise or autonomy, their adaptability may be constrained. Conversely, a flexible, professional identity that embraces continuous learning and technological integration is hypothesised to foster greater adaptability and, consequently, enhanced future readiness.

Finally, the framework also explicitly includes "Institutional Support and Digital Culture" as a crucial contextual factor. While not directly linked to "Future Readiness" in the same way as the primary constructs, its positioning suggests a pervasive, moderating, or foundational influence on all other elements. A robust institutional support system (e.g., funding for training, IT infrastructure, leadership advocacy for digital transformation) and a positive digital culture (e.g., valuing innovation, promoting collaboration, fostering a growth mindset towards technology) would likely enhance individuals' self-perception of competencies, bolster their motivation, mitigate barriers, amplify opportunities, and facilitate greater adaptability. Conversely, a lack of such support or a resistant institutional

culture could severely hinder the development of digital and AI readiness among Generation X staff.

In summary, this conceptual framework offers a robust lens through which to explore the complex factors influencing the digital and AI readiness of Generation X within UK private higher education, emphasising both individual-level psychological and behavioural aspects, as well as the critical role of the institutional environment.

2.8 CHAPTER SUMMARY

This chapter synthesises the key bodies of literature relevant to understanding the digital and AI competencies of Generation X professionals, setting the conceptual foundation for this study. It begins by identifying a critical research gap: a lack of focused inquiry into the experiences of mid-to-late career staff, particularly within the UK private higher education sector, which often operates under unique market and resource constraints.

To address this, the review establishes a robust theoretical framework anchored by several key perspectives. Self-Perception Theory (SPT) (Bem, 1972) provides a lens through which to understand Generation X's core characteristics. The cohort's formative experiences of independence and self-reliance, born from their "latchkey" upbringing, led them to observe their own behaviours of problem-solving and self-sufficiency. According to SPT, they then inferred that they are inherently resourceful and adaptable, an attitude that significantly informs their approach to technology. This is further supported by motivation theories, which suggest their engagement is driven by a desire for competence, autonomy, and efficiency, where they need to see a clear and pragmatic benefit to their work (Deci & Ryan, 1985; Vroom, 1964).

The review characterises Generation X as "digital immigrants," a concept that, while critiqued for oversimplification, underscores the key difference between their learned adaptability and the innate fluency of younger generations (Prensky, 2001). This conscious journey of adaptation has equipped them with high proficiency in core digital tools but also a critical and cautious perspective towards new paradigms like AI. They view AI as a "double-edged sword," recognising its potential for administrative efficiency and pedagogical innovation, while simultaneously expressing deep concerns about academic integrity, algorithmic bias, and the erosion of human connection (Luckin et al., 2022; Lissitsa, 2025).

A significant finding from the literature is that effective professional development for this demographic must be grounded in adult learning principles (Knowles, 1980). Reskilling strategies should be self-directed, problem-centred, and respectful of their extensive professional experience, moving away from prescriptive, top-down mandates. Furthermore, the institutional environment, or digital culture, plays a critical role. A culture that is purely driven by efficiency can conflict with Gen X's pedagogical values, while a lack of institutional support in the form of time, resources, and inclusive governance can create significant barriers to their development (Starkey & Madan, 2001; Ndaba & Naidoo, 2024).

In conclusion, the literature confirms that Generation X is a pivotal, adaptable, and pragmatic generation with a critical perspective on technology. However, it reveals a significant gap in empirical research on their specific motivations, challenges, and digital strategies within the unique context of UK private higher education. This synthesis of

existing knowledge justifies the necessity of this study to provide a nuanced understanding that can inform more effective, human-centred, and ethically grounded institutional strategies for the digital and AI future.

CHAPTER 3: METHODOLOGY

3.1 INTRODUCTION

The primary research method for this study is qualitative, grounded in an interpretivist philosophical framework. Interpretivism emphasises the subjective meaning individuals attach to their experiences (Pervin & Mokhtar, 2022), making it particularly appropriate for exploring how Generation X employees in private higher education interpret, internalise, and respond to digital and AI transformations within their professional environments.

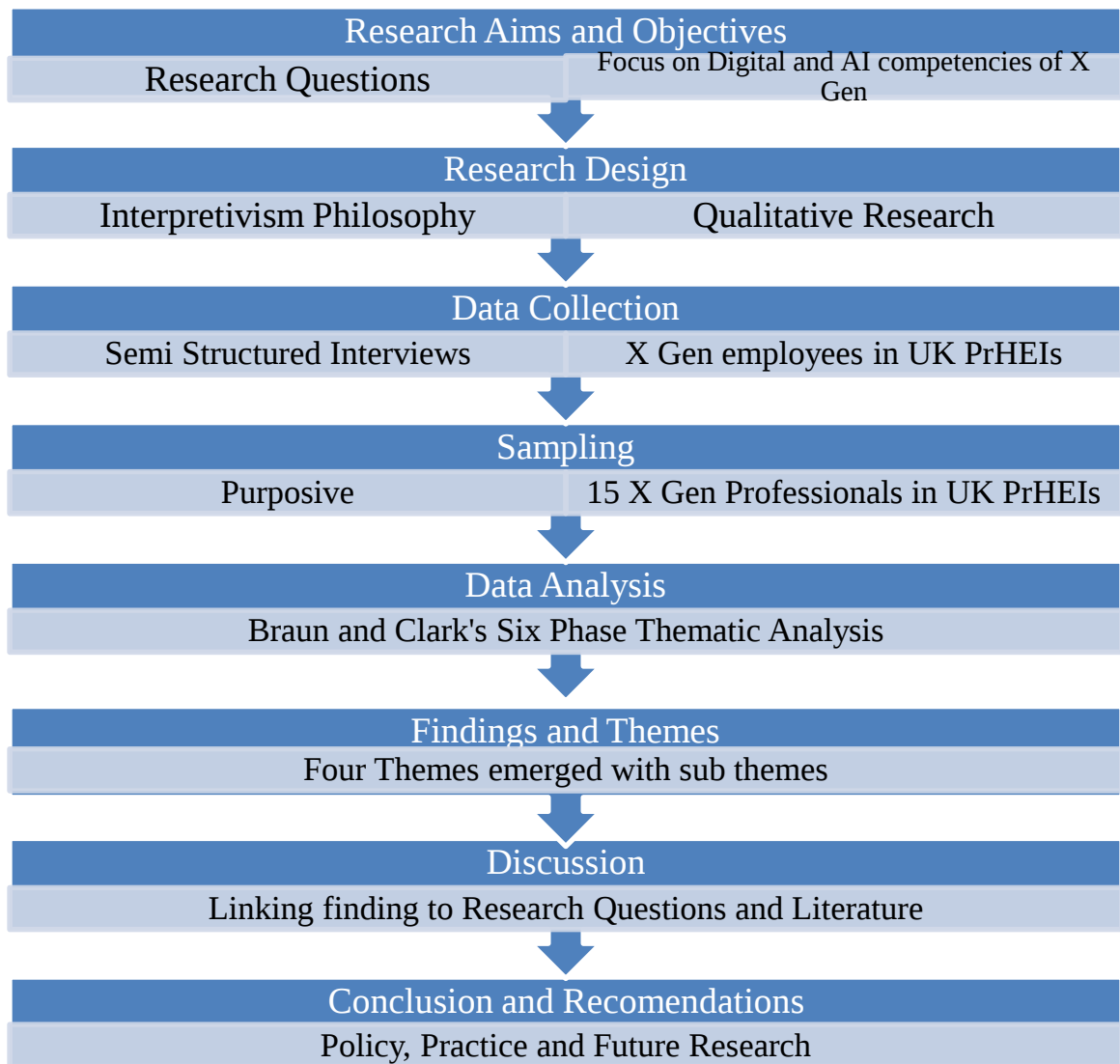
Interpretivism assumes that reality is socially constructed and context dependent (William, 2024). In this study, digital literacy and AI competency are not treated as fixed technical skills, but as evolving, situated practices shaped by institutional culture, generational identity, and personal motivation. This philosophical orientation allows the researcher to capture nuanced insights into participants' beliefs, challenges, and attitudes insights that might be missed through purely quantitative approaches.

3.2 RESEARCH PROCESS

The research process followed a structured qualitative design aimed at exploring the digital and AI competencies of Generation X professionals in UK Private Higher Education Institutions (PrHEIs). The study began by defining the research aim and questions, focusing on self-perceptions of competence, institutional influences, generational challenges, and future orientations towards AI. A qualitative design was adopted, using

semi-structured interviews as the primary method of data collection to capture in-depth insights.

Figure 02: Research Process



Source: Author

Purposive sampling was employed to recruit 15 Generation X professionals working in various academic and administrative roles within UK PrHEIs, ensuring relevance and

diversity of perspectives. Data collection involved interviews guided by structured questions, which were audio-recorded and transcribed for analysis.

Data were analysed using Braun and Clarke's (2006) six-phase thematic analysis framework, which facilitated systematic coding, theme development, and refinement. The analysis produced four overarching themes with subthemes, supported by illustrative participant quotations.

Findings were then synthesised and interpreted in relation to existing literature, theoretical frameworks, and the research questions, ensuring both contextual depth and scholarly rigour. Finally, the study concluded with implications for policy, practice, and future research, highlighting the importance of institutional support, ethical safeguards, and recognition of professional identity in shaping AI readiness among Generation X professionals.

3.3 RESEARCH PHILOSOPHY

This study is underpinned by an interpretivist research philosophy, which is widely recognised as suitable for exploring human experiences, perceptions, and meaning-making processes in organisational and educational contexts. Interpretivism rejects the positivist assumption of a single, objective reality and instead argues that reality is socially constructed, multiple, and contextually situated (Saunders, Lewis, & Thornhill, 2019). This orientation aligns closely with the study's focus on Generation X professionals in UK private higher education, whose experiences with digital and AI competencies are embedded in specific socio-cultural, institutional, and generational contexts.

Interpretivism places emphasis on understanding the world from the perspective of participants, acknowledging that their lived experiences and meanings cannot be reduced to quantifiable measures alone (Creswell & Poth, 2018). For this research, digital literacy and AI competencies are not treated as fixed, universal skills but rather as dynamic practices shaped by institutional norms, individual career trajectories, and generational identity. This allows the study to uncover the diverse ways in which Generation X employees perceive opportunities, challenges, and ethical implications of digital and AI adoption.

A key assumption of interpretivism is that knowledge is co-created between researcher and participants (Willis, 2007). In this study, the researcher adopts a **reflexive stance**, acknowledging their role in shaping the research process through interactions, interpretations, and contextual framing. This is particularly relevant in qualitative studies of professional practice, where meaning emerges through dialogue and interpretation rather than detached observation (Schwandt, 1994).

The interpretivist stance also justifies the use of qualitative methods such as semi-structured interviews and thematic analysis, which prioritise depth, context, and participant voice over statistical generalisation (Denzin & Lincoln, 2018). By applying Braun and Clarke's (2006) six-phase thematic analysis, the study seeks to uncover patterns of meaning that reflect both individual experiences and broader generational and institutional dynamics.

In summary, interpretivism provides the philosophical foundation for this research by:

1. Viewing digital and AI competencies as socially and institutionally constructed practices.
2. Valuing participants' subjective experiences as central to understanding the phenomenon.
3. Emphasising reflexivity and co-construction of meaning between researcher and participants.
4. Supporting the use of qualitative methods that generate rich, contextualised insights.

This interpretivist orientation ensures that the study moves beyond surface-level assessments of skills to uncover the deeper meanings, tensions, and transformations that Generation X professionals experience within the rapidly evolving landscape of UK private higher education.

3.4 QUALITATIVE RESEARCH

This study employed a qualitative research design, utilising a semi-structured interview approach to explore the digital and AI competency of Generation X staff within UK PrHEIs. A qualitative approach was deemed appropriate to gain in-depth insights into participants' experiences, perceptions, and challenges regarding digital and AI literacy in their professional environments.

Semi-structured interviews were conducted with 15 participants who identified as Generation X employees in UK private HEIs. This sample size was determined based on the principle of thematic saturation, a standard in qualitative research (Guest et al., 2006).

Thematic saturation was reached when no new themes or significant insights emerged from successive interviews, indicating that the data collected were sufficiently rich to address the research questions. This approach, while not aiming for statistical generalisability, provided a robust, in-depth understanding of participants' experiences. The interviews yielded rich, first-person narratives (Willis, 2019) about their digital journeys, perceived skills gaps, institutional barriers, and experiences with digital capacity-building initiatives.

This study gathered data from a diverse sample of 15 Generation X professionals working in UK private HEIs. Table 6 provides a detailed demographic overview of the participants, including their years of experience, gender, and current role. This purposeful sampling approach ensured the inclusion of a wide range of perspectives, encompassing academic, administrative, and leadership positions, which is crucial for a comprehensive understanding of the digital and AI competency landscape within the sector.

3.5 PARTICIPANTS' BACKGROUND AND CONTEXT

In qualitative research, it is essential to provide a clear account of the participants' backgrounds in order to contextualise their perspectives and experiences. The participants in this study were all members of Generation X (aged 45–65), currently working within the UK private higher education sector. This generational focus is critical, as their professional journeys have been shaped by the transition from analogue to digital work environments, offering a unique lens on the integration of digital and AI tools.

To ensure diversity and richness of data, participants were drawn from a range of academic and professional roles, including teaching faculty, programme leaders, learning technologists, administrators, and senior managers. They also represented varied

educational backgrounds and lengths of experience, enabling the study to capture different levels of exposure to digital and AI technologies. This diversity provided the opportunity to examine how generational identity intersects with role-specific demands and institutional contexts.

Table 07 presents an overview of the participants' demographics, including years of experience, gender, and professional role, which together offer a foundation for interpreting their responses in subsequent thematic analyses.

Table 07: Participants Demographics

Participant Code	Years of Experience	Gender	Role
P01	18	M	Senior Lecturer
P02	22	M	Head of Student Services
P03	15	F	Lecturer
P04	12	M	Digital Learning Technology
P05	14	F	Head of Department
P06	19	F	Finance Manager
P07	17	M	Senior Lecturer
P08	25	M	Dean of the Business School
P09	14	M	Programme Leader
P10	16	F	Admissions Manager
P11	20	M	Senior Lecturer
P12	21	F	Head of Learning Services
P13	18	F	Lecturer
P14	16	M	Student Support Officer
P15	24	M	Director of Studies

3.6 SAMPLING AND PARTICIPANT RECRUITMENT

The target population for this study **comprised** Generation X employees in academic, administrative, or leadership roles within UK private HEIs. A purposeful sampling **strategy** was employed to ensure a diverse range of experiences across different institutional types and roles. Institutions were initially approached through professional networks and publicly available contact information. Upon gaining institutional gatekeeper permission, participants within these institutions were then recruited via email communications. Informed consent was obtained from all participants, ensuring their voluntary participation, confidentiality, and right to withdraw at any time.

The study acknowledged that purposeful sampling limited statistical generalizability and potentially introduced selection bias from self-selected participants (Keiding & Louis, 2016). Access to private HEIs also proved challenging due to competitive and privacy concerns, which could affect participant diversity. The collected data was analysed using thematic analysis (Braun & Clarke, 2006), a method that involved systematically identifying, coding, and interpreting patterns of meaning to privilege participants' own voices and interpretations of their lived experiences.

Purposeful sampling limits statistical generalisability, potentially introducing selection bias from self-selected participants (Keiding & Louis, 2016). Access to private higher education institutions (HEIs) may be challenging due to competitive and privacy concerns, which can affect participant diversity.

The data was analysed using thematic analysis (Braun & Clarke, 2022), which involves systematically identifying, coding, and interpreting patterns of meaning across the dataset. This method is particularly well-aligned with interpretivism, as it allows for the researcher's reflexivity while privileging participants' own voices and interpretations of their lived experiences.

Ethical approval was obtained from the Swiss School of Business Management. Participants will be informed about the voluntary nature of their participation and will provide informed consent. Confidentiality will be maintained through the anonymisation of transcripts and data.

3.7 RESEARCH ETHICS

The ethical integrity and rigor of this study, conducted under the auspices of the Swiss School of Business Management (SSBM), were considered paramount throughout the research process. As a qualitative inquiry involving human participants, the research was designed to uphold the highest ethical standards, ensuring the dignity, well-being, and rights of all individuals involved. The following sections detail the ethical framework and procedures implemented for this study on Generation X professionals in the UK private higher education sector.

3.7.1 INSTITUTIONAL ETHICAL APPROVAL

Prior to the commencement of any data collection activities, a formal application for ethical approval was submitted to the Swiss School of Business Management's Research Ethics Committee. The application provided a comprehensive overview of the study's objectives,

methodology, and the specific ethical protocols to be followed for interviewing Generation X professionals. The study received full ethical clearance from the UREC, confirming that all procedures were aligned with the School's ethical guidelines and relevant national and international standards. This approval was a prerequisite for initiating contact with all potential participants.

3.7.2 INFORMED CONSENT AND VOLUNTARY PARTICIPATION

Informed consent was a non-negotiable prerequisite for all 15 participants. Each potential participant was provided with a detailed Participant Information Sheet (PIS) via email. The PIS outlined the study's purpose, the research questions, the nature of their involvement (e.g., a one-on-one, semi-structured interview lasting approximately 60 minutes), the anticipated risks and benefits, and the procedures for ensuring confidentiality.

Crucially, participants were informed that their involvement was entirely voluntary. They were explicitly told that they could decline to participate or withdraw from the study at any point, for any reason, and without needing to provide an explanation. The PIS and the verbal introduction to each interview reinforced that there would be no negative consequences or professional repercussions for non-participation or withdrawal. Formal consent was documented by participants signing a consent form. In cases where a signed form was not feasible, verbal consent was recorded at the beginning of the interview, with the participant explicitly stating their agreement to proceed under the conditions outlined.

3.7.3 ANONYMITY AND CONFIDENTIALITY

To protect the identities of the participants and their respective institutions, strict measures for anonymity and confidentiality were implemented in compliance with the Data Protection Act 2018 and the General Data Protection Regulation (GDPR).

- **Confidentiality:** All data collected from the 15 in-depth interviews was treated with the strictest confidence. Access to the raw interview transcripts, consent forms, and any personally identifiable information was restricted to the researcher and the SSBM supervisory team.
- **Anonymity:** The final research outputs, including the thesis and any subsequent publications, will not contain any information that could lead to the identification of an individual or their institution. This was achieved by:
 - Using numerical identifiers (e.g., Participant 1, Participant 2) in place of names.
 - De-identifying all potentially sensitive information, such as the names of institutions, specific job titles (where they were unique), or any other contextual details that could inadvertently reveal a participant's identity.

It was acknowledged that in a niche sector like UK private higher education, absolute anonymity can be challenging, particularly for a small sample of 15 senior professionals. The researcher, therefore, exercised a high degree of sensitivity during the de-identification process, ensuring that the integrity of the data was maintained without compromising participant anonymity.

3.7.4 DATA SECURITY AND MANAGEMENT

All research data was handled and stored securely to prevent unauthorised access, use, or disclosure.

- **Storage:** Digital data, including audio recordings and transcripts from the interviews, were stored on a password-protected computer and backed up on an encrypted external hard drive. Physical documents, such as signed consent forms and interview notes, were stored in a locked filing cabinet in a secure location.
- **Data Retention and Destruction:** The research data will be retained for a period of ten years following the completion of the study, in accordance with SSBM's policy on research data management. After this period, all data will be securely and permanently destroyed.

3.7.5 RESEARCHER REFLEXIVITY

Recognising the interpretive nature of qualitative research, the researcher maintained a reflexive stance throughout the study. The researcher's own professional background and previous experience in the higher education sector were acknowledged as potential influences on the research design, data collection, and analysis. To mitigate any unconscious bias, the researcher employed reflexive journaling, a conscious effort to not lead participants during interviews, and engaged in regular debriefing and critical reflection with the SSBM supervisory team. This reflexive approach ensured transparency and enhanced the rigor of the study's findings.

3.7.6 DISSEMINATION OF FINDINGS

The findings of this study will be disseminated through a doctoral thesis submitted to the Swiss School of Business Management, and potentially through peer-reviewed academic journals and conference presentations. In all forms of dissemination, the commitments to anonymity and confidentiality will be strictly adhered to, ensuring that the participants' contributions are ethically represented and their privacy is protected.

3.8 DATA COLLECTION

Data were collected through semi-structured online interviews, allowing participants to reflect on their digital and AI literacy, the factors influencing their competency levels, and their perceptions of AI integration in higher education. The interview guide included open-ended questions covering:

- Participants' experiences with digital and AI technologies in academic settings
- Challenges and barriers to AI competency development
- Institutional support, training, and professional development opportunities
- Ethical considerations and personal attitudes towards AI adoption in education

To ensure depth and flexibility, follow-up questions were used to probe further into responses. All interviews were conducted via a secure online platform, recorded with participant consent, and transcribed verbatim for analysis.

3.8.1 Data Analysis

A thematic analysis approach was employed to identify patterns, themes, and key insights within the data. The process followed Braun and Clarke's (2006) framework, involving:

1. **Familiarisation** – Reading and re-reading transcripts to identify preliminary ideas.
2. **Generating Initial Codes** – Systematically coding significant phrases and responses.
3. **Searching for Themes** – Grouping codes into broader themes related to digital and AI competency.
4. **Reviewing Themes** – Refining and consolidating themes to ensure coherence.
5. **Defining and Naming Themes** – Finalizing themes to best capture participants' perspectives.
6. **Reporting Findings** – Presenting themes with direct participant quotations to enhance validity.

The preliminary literature review reveals a significant gap in the specific digital and AI experiences, competencies, and challenges of UK private HE, particularly for Generation X, which remains underexplored. Existing research focuses on younger staff or students, overlooking the senior educators who are crucial for institutional transformation. The literature also reveals a persistent digital divide that affects Gen X's motivation and pedagogical adaptation.

In response, this qualitative study, rooted in an interpretive paradigm, will use semi-structured interviews and thematic analysis. This approach aims to generate deep, context-sensitive insights into the lived digital journeys and institutional experiences of Generation X educators.

3.9 CHAPTER SUMMARY

This chapter meticulously outlined the methodological framework guiding this doctoral study, which aimed to explore the digital and AI competencies of Generation X professionals within the UK private higher education sector. The research adopted

a qualitative approach, specifically employing thematic analysis, to gain in-depth understanding of participants' lived experiences and perceptions. This qualitative design was chosen for its ability to capture rich, nuanced data from a relatively small sample, allowing for exploration of complex human phenomena.

Data was collected through 15 in-depth, semi-structured interviews with Generation X professionals working in various academic and administrative roles across UK private higher education institutions. This interview approach facilitated open-ended discussions, enabling participants to share their perspectives in detail and allowing the researcher to probe for deeper insights.

The ethical conduct of the study was paramount. Rigorous procedures were followed, including obtaining institutional ethical approval from the Swiss School of Business Management, ensuring informed consent and voluntary participation from all interviewees, and maintaining strict anonymity and confidentiality throughout the data collection, analysis, and dissemination processes. Measures for data security and management were meticulously implemented to protect participant privacy. Finally, the chapter emphasised researcher reflexivity, acknowledging the researcher's potential influence and outlining steps taken to ensure objectivity and rigor in interpretation. This comprehensive methodology ensures the trustworthiness and credibility of the study's findings.

CHAPTER 4: FINDINGS OF THE RESEARCH

4.1 INTRODUCTION

This chapter presents the systematic analysis of the qualitative data collected through 15 in-depth, semi-structured interviews with Generation X professionals in the UK private higher education sector. Following the methodological framework detailed in Chapter 3, this chapter outlines the process of thematic analysis, guided by Braun and Clarke's (2006) six-phase framework. The aim is to move from raw interview transcripts to a structured understanding of participants' experiences, perceptions, and attitudes regarding digital and AI competencies. This chapter will detail the emergent themes and sub-themes, supported by illustrative verbatim quotes from the participants, thereby providing the empirical foundation for the subsequent discussion and conclusions of this study. The findings presented here will directly address the research questions, offering a nuanced insight into how Generation X navigates the evolving digital and AI landscape within their professional roles.

In this chapter, I examined Gen X employees' lived experiences in digital literacy and AI competencies in Private higher education institutions in the UK in their own words. To answer the research questions, I conducted semi-structured interviews with 15 Gen X employees from private higher education institutions.

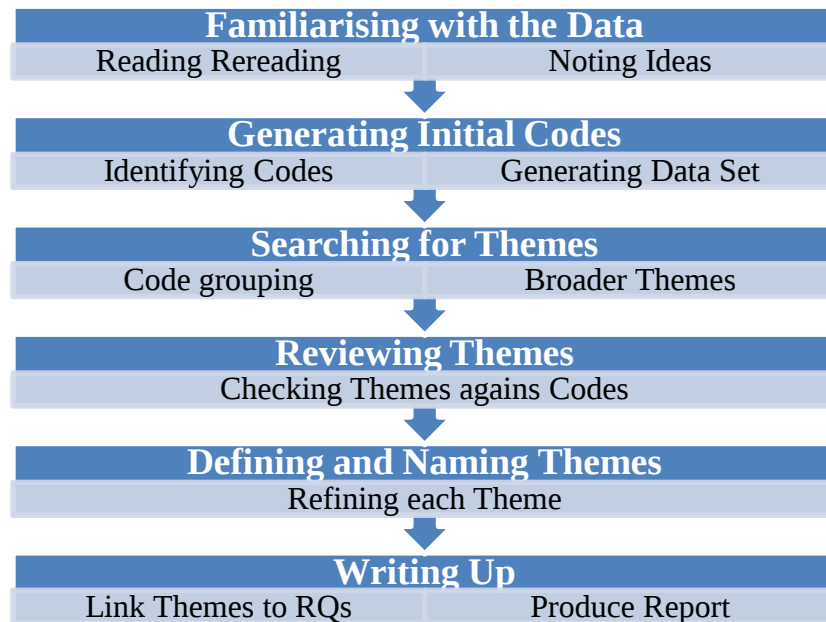
4.2 DATA ANALYSIS PROCESS

Based on the interview data from the 15 participants, I have conducted a thematic analysis using Braun & Clarke's (2006) six-phase framework. This analysis reveals several key themes and subthemes regarding the digital and AI competencies of Generation X professionals in the UK private higher education sector.

4.2.1 THEMATIC ANALYSIS USING BRAUN & CLARKE'S SIX-PHASE FRAMEWORK

Thematic Analysis (TA) is a widely applied qualitative method for identifying, analysing, and reporting patterns (themes) within data. It offers flexibility across epistemological positions, making it particularly valuable in higher education and organisational research where experiences, perceptions, and practices need to be understood in depth (Braun & Clarke, 2006, 2019). Unlike more rigid approaches such as grounded theory, TA does not seek to build theory per se but rather to provide a rich, detailed, and nuanced account of patterns emerging from participants' narratives.

Figure 03: Thematic Analysis Process



Source: Author

Braun and Clarke (2006, 2019) propose a six-phase framework that guides researchers through a systematic yet reflexive process:

Phase 1: Familiarising with the data.

The process began with a deep reading and re-reading of all 15 interview transcripts. Initial impressions were noted, including recurring phrases like "playing catch-up," "double-edged sword," and "cautious approach." It became clear that while participants shared a common generational identity, their experiences were highly nuanced, shaped by their specific roles (academic vs. administrative), disciplines (tech vs. humanities), and levels of institutional support.

Phase 2: Generating initial codes. I systematically went through each transcript, identifying and coding fragments of data that were relevant to the research questions. This resulted in a large number of initial codes. For example:

- "lack of time" (P1) and "institutional inertia" (P4) were coded for a theme on challenges.
- "personal curiosity" (P1) and "necessity of the pandemic" (P3) were coded for factors enabling development.
- "automating routine tasks" (P6) and "dehumanization of support" (P14) were coded for perceptions of AI.
- "valuing experience" (P8) and "push for younger staff" (P10) were coded for themes on recruitment.
- "not a digital native" (P3) and "adapting as technology evolved" (P6) were coded for the Gen X experience.

Phase 3: Searching for themes. I began grouping the initial codes into broader, potential themes. The codes related to learning, adaptation, and their unique generational perspective coalesced into a theme about the Gen X adaptive journey. Codes about time, resources, and bureaucracy formed a theme on institutional and systemic barriers. Codes surrounding the pros and cons of AI were grouped into a theme I called the double-edged sword of AI, with subthemes for opportunities and concerns. Finally, all codes related to job roles, confidence, and institutional perception were grouped under a theme on professional identity and institutional voice.

Phase 4: Reviewing themes. This phase involved a critical review of the themes against the coded data and the entire dataset. I checked if the themes were internally consistent and externally distinct. For example, the theme of "Institutional Support" was initially separate but was later integrated as a sub-theme within a larger theme on "Challenges and Enablers," as the presence or absence of support was a key enabling or hindering factor. The codes for "deskilling of students" (P3) and "job displacement" (P6) were initially separate but were merged under a broader subtheme of "Threats and Concerns about AI" to highlight a more holistic view of AI's perceived risks.

Phase 5: Defining and naming themes. The themes were refined and given more descriptive and evocative names to capture their essence:

- **Theme 1: The Gen X Adaptive Journey: From Necessity to Fluency.** This theme captures how participants, though not "digital natives," have successfully navigated the digital transformation through continuous learning, often driven by necessity.
- **Theme 2: Navigating Institutional and Systemic Barriers.** This theme encapsulates the major challenges participants face, primarily a lack of time, slow institutional processes, and a disconnect between leadership vision and practical implementation.
- **Theme 3: The Double-Edged Sword of AI.** This theme reflects the participants' dual perception of AI as both a significant opportunity for efficiency and innovation, and a source of profound concern regarding ethics, integrity, and human connection.

- **Theme 4: The Evolving Professional Identity and Institutional Voice.** This theme explores how digital, and AI competencies have reshaped participants' self-perception, confidence, and their sense of whether their generational voice is valued in institutional digital strategies.

Phase 6: Writing up the analysis. The final themes are presented in the thematic table below, supported by example codes from the interviews. The analysis provides a narrative that moves from the individual's experience of adaptation to the institutional context, the specific challenges and opportunities of AI, and the impact on their professional and personal roles.

4.3 OVERVIEW OF THEMES AND ALIGNMENT WITH RESEARCH QUESTIONS

Table 08 provides a thematic overview, mapping the themes and sub-themes that emerged from the data to the specific research questions they address. This structure ensures that the presentation of findings is directly aligned with the study's aims.

Table 08: Themes, Sub themes and Research Questions

Theme	Sub-theme	Research Questions
1. The Gen X Adaptive Journey: From Necessity to Fluency	1.1. Conscious vs. Intuitive Adaptation	RQ1
		RQ2
	1.2. The Role of Necessity & Personal Drive	RQ1
		RQ2
	1.3. Competence & Confidence in Core Tools	RQ1
2. Navigating Institutional and Systemic Barriers	2.1. Time & Resource Constraints	RQ2
		RQ3
	2.2. Bureaucracy & Institutional Inertia	RQ2
		RQ3
	2.3. Mismatch in Training & Support	RQ2
		RQ3
	3.1. Opportunities for Efficiency & Innovation	RQ1

3. The Double-Edged Sword of AI		RQ4
	3.2. Threats to Integrity & Human Connection	RQ1
		RQ4
	3.3. Ethical & Legal Concerns	RQ1
		RQ4
4. The Evolving Professional Identity and Institutional Voice	4.1. Confidence & Relevance vs. Anxiety	RQ1
		RQ3
	4.2. Perceived Voice in Institutional Strategy	RQ3
	4.3. Balancing Experience with New Skills	RQ3

Source: Author

4.4 THEMATIC PRESENTATION OF FINDINGS

The findings are presented thematically in two parts, following Braun and Clarke’s (2006) six-phase framework for thematic analysis. This structure ensures both breadth and depth of analysis by integrating the collective experiences of all 15 participants while also retaining the richness of their individual voices.

Part One draws on the first set of questions (Q1–Q4), which explored participants’ roles, educational backgrounds, years of experience in the UK private higher education sector, and their self-assessed digital and AI competencies. As each participant holds a unique professional role, possesses a different educational trajectory, and brings varying lengths of sectoral experience, their perspectives collectively establish a foundation for understanding the diversity within Generation X staff in private higher education. Including all participants’ responses in this section was essential for capturing this variability and contextual grounding, which directly informs how digital and AI competencies are shaped and perceived across the sector.

Part Two presents a more interpretive analysis of the subsequent sets of questions (Q5–Q21), focusing on deeper thematic patterns that emerged in relation to self-perceptions of competence, institutional enablers and barriers, the impact of digitalisation on practice, and future orientations towards AI. In this section, illustrative direct quotations are used strategically to amplify participants’ voices and demonstrate the lived experiences underlying the thematic categories. These quotations serve as powerful evidence of how Generation X staff articulate their challenges, strategies, and aspirations in navigating digital transformation.

This dual structure allows the analysis to combine comprehensive coverage of participants’ backgrounds and competencies (Part One) with rich, narrative-driven insights into the meaning-making processes behind their experiences (Part Two). Together, the findings not only highlight common trends but also emphasise individual differences that would be overlooked in a purely aggregated account.

4.4.1 PART ONE: BACKGROUND AND CONTEXT

The decision to include the responses of all 15 participants for Questions 1–4 was guided by the need to establish a comprehensive and contextualised understanding of the sample in this study. These four questions—covering role and responsibilities, educational background, years of experience, and comfort with digital/AI tools—are foundational to interpreting the subsequent thematic analysis.

1. Unique Roles and Institutional Diversity

Each participant occupies a distinct professional role within the UK private higher education sector, ranging from academic staff (lecturers, senior lecturers, programme leaders) to administrative and managerial positions. Capturing all responses allows the study to reflect the breadth of institutional functions where digital and AI competencies are being enacted, ensuring that findings are not skewed towards a single perspective.

2. Varied Educational Backgrounds and Training

Participants have different academic and professional training histories, with some possessing formal qualifications in technology-related areas while others developed digital literacy informally or through self-learning during the COVID-19 pandemic. By including all accounts, the research highlights how educational trajectories shape digital readiness in ways that may intersect with generational factors.

3. Range of Experience in the Sector

The participants represent diverse lengths of service, from those relatively new to private higher education to those with decades of experience. This variation provides critical insights into how exposure to sectoral changes—such as the mass digitalisation of learning environments—has influenced competencies differently across career stages.

4. Differential Levels of Digital and AI Competence

Comfort and skill levels with digital and AI tools vary significantly among participants, from those with advanced proficiency in programming and machine learning to others whose engagement remains limited to everyday productivity software. Including the full set of responses captures this spectrum of competency, ensuring that the analysis reflects the heterogeneity of Generation X staff rather than privileging either the digitally advanced or digitally hesitant voices.

5. Strengthening the Trustworthiness of the Study

Presenting the responses of all 15 participants provides a transparent account of the sample and enhances the credibility, dependability, and transferability of the research (Lincoln & Guba, 1985). It avoids selective representation and demonstrates that the thematic findings are grounded in the full diversity of the dataset.

In short: Including all 15 responses to Q1–Q4 was essential to establish a holistic baseline for the thematic analysis, foregrounding the participants’ diverse roles, educational backgrounds, sectoral experience, and digital/AI competence levels. This comprehensive context ensures that later themes can be interpreted with nuance and situated within the realities of Generation X professionals in UK private higher education.

PARTICIPANT P01

1. **Role and Responsibilities:** I'm a Senior Lecturer in Business and Management. My responsibilities include teaching undergraduate and postgraduate modules, module leadership, supervising dissertations, and conducting research.
2. **Educational Background/Digital Tech in Education:** My first degree was in Economics, followed by an MBA and a PhD. Digital tools weren't central to my initial degrees; we used basic word processing. My MBA introduced more statistical software, but nothing compared to today.
3. **Time in UK Private HE:** I've been in the UK private HE sector for 18 years, having transitioned from a public university.
4. **Comfort/Skill with Digital/AI Tools:** reported being very comfortable with digital tools, making extensive use of Microsoft 365, virtual learning environments (VLEs) such as Canvas, and research software such as NVivo. Regarding AI, this participant had experimented with ChatGPT for generating initial lecture ideas and summarising complex papers, but did not use it for assessment creation.

PARTICIPANT P02

1. **Role and Responsibilities:** I'm the Head of Student Services. My team manages student welfare, accommodation, disability support, and compliance. I oversee the strategic direction and operational delivery of these services.
2. **Educational Background/Digital Tech in Education:** My background is in Social Sciences. My university education predates widespread internet use, so digital tools were minimal – mostly library databases and basic word processing.
3. **Time in UK Private HE:** 22 years. I've seen massive changes.

4. **Comfort/Skill with Digital/AI Tools:** I'm highly comfortable with digital tools for administration – CRM systems, student information systems, Microsoft Teams, and various online forms. For AI, my comfort is low; I've used some automated chatbots on websites but nothing hands-on in my work.

PARTICIPANT P03

1. **Role and Responsibilities:** I am a Lecturer in Business and Management. My primary roles are teaching, marking and curriculum development.
2. **Educational Background/Digital Tech in Education:** My degrees are all in Business Management (BSc) and Masters in Marketing (MSc). Digital technology was barely a blip on the radar during my undergraduate and postgraduate studies – it was all libraries, physical books, and computers.
3. **Time in UK Private HE:** 15 years.
4. **Comfort/Skill with Digital/AI Tools:** I'd rate my comfort as moderate. I use the VLE (Moodle), email, and Word documents daily. For AI, I've used ChatGPT a few times out of curiosity, but I'm quite wary of it in my professional context, especially with student work.

PARTICIPANT P04

5. **Role and Responsibilities:** I'm a Digital Learning Technologist. My role involves supporting faculty in using the VLE, integrating new learning technologies, and providing training and technical assistance.

6. **Educational Background/Digital Tech in Education:** My first degree was in Computer Science, followed by a Masters in Educational Technology. Digital tools were integral to all my education, from programming to multimedia development.
7. **Time in UK Private HE:** 12 years.
8. **Comfort/Skill with Digital/AI Tools: Extremely comfortable.** I use a wide range of digital tools daily, from VLE administration to video editing software and data analytics tools. For AI, I actively experiment with generative AI for content creation, coding assistance, and exploring AI-powered learning platforms.

PARTICIPANT P05

1. **Role and Responsibilities:** I am a Head of Computer Sciences. My responsibilities involve leading the department, teaching modules, supervising undergraduate and graduate students' research projects, and engaging in industry collaborations.
2. **Educational Background/Digital Tech in Education:** My background is in Computer Science and Applied Mathematics. Digital and computational tools were fundamental to all my education, evolving from early programming languages to advanced statistical software and machine learning platforms.
3. **Time in UK Private HE:** 14 years.
4. **Comfort/Skill with Digital/AI Tools:** Extremely comfortable. I use various programming languages (Python, R), cloud computing platforms, and specialised AI/ML frameworks daily.

PARTICIPANT P06

1. **Role and Responsibilities:** I am the Finance Manager. My responsibilities include managing the university's budget, financial reporting, payroll, and procurement.
2. **Educational Background/Digital Tech in Education:** My background is in Accounting and Finance. Digital tools were limited to early spreadsheet software and accounting systems during my education.
3. **Time in UK Private HE:** 19 years.
4. **Comfort/Skill with Digital/AI Tools:** Very comfortable with standard digital tools like advanced Excel, accounting software, and financial management systems. For AI, my comfort level is low; I haven't used any AI tools directly in my work.

PARTICIPANT P07

1. **Role and Responsibilities:** I am a Senior Lecturer in Accounting and Finance, specialising in curriculum design and pedagogy. I teach future accountant and finance managers, supervise dissertations, and contribute to faculty development.
2. **Educational Background/Digital Tech in Education:** My degrees are in Accounting and Finance. Digital tools were not a core part of my initial education, beyond basic internet research. My postgraduate studies introduced me to some educational software, but it was still emerging.
3. **Time in UK Private HE:** 17 years.
4. **Comfort/Skill with Digital/AI Tools:** Moderately comfortable. I use the VLE (Canvas) extensively, online collaboration tools, and presentation software. For AI,

I've experimented with generative AI for brainstorming lesson ideas, but I'm very focused on its ethical integration into student learning.

PARTICIPANT P08

1. **Role and Responsibilities:** I am the Dean of the Business School. My responsibilities include strategic planning, faculty management, curriculum oversight, and external engagement with industry and accreditation bodies.
2. **Educational Background/Digital Tech in Education:** My background is in Economics and Finance. My early education was largely pre-digital. My MBA introduced me to basic computing for data analysis, but nothing advanced.
3. **Time in UK Private HE:** 25 years. I've been in senior leadership for the last 10.
4. **Comfort/Skill with Digital/AI Tools:** Comfortable with high-level digital tools for strategic management (e.g., dashboards, CRM overviews, Teams). For AI, my comfort is conceptual; I understand its strategic potential but don't use it hands-on.

PARTICIPANT P09

1. **Role and Responsibilities:** I am a Programme Leader. My responsibilities include teaching and research and contributing to departmental administration.
2. **Educational Background/Digital Tech in Education:** My degrees are in Human Resource Management. My early education was largely analogue; digital tools were mainly for word processing. My PhD introduced me to statistical software (SPSS) for data analysis.
3. **Time in UK Private HE:** 14 years.

4. **Comfort/Skill with Digital/AI Tools:** Moderately comfortable. I use VLEs, online collaboration tools, and statistical software. For AI, I've used generative AI for brainstorming research questions or summarising literature, but I'm very cautious about its ethical and societal implications.

PARTICIPANT P10

1. **Role and Responsibilities:** I am the Marketing and Admissions Manager. My role involves developing and implementing marketing strategies, managing admissions processes, and recruiting students.
2. **Educational Background/Digital Tech in Education:** My degree is in Marketing. My education introduced me to early digital marketing concepts and website design, but it was very nascent compared to today.
3. **Time in UK Private HE:** 16 years.
4. **Comfort/Skill with Digital/AI Tools:** Very comfortable with digital marketing platforms (CRM, social media management, analytics tools). For AI, I've used AI-powered tools for content generation (e.g., social media captions) and data analysis for targeting campaigns.

PARTICIPANT P11

1. **Role and Responsibilities:** I am a Senior Lecturer of Business of Law. My responsibilities include teaching and research and advising on institutional policies.
2. **Educational Background/Digital Tech in Education:** My degrees are in Law. My early education was very traditional, paper based. Digital tools became relevant during my postgraduate studies for legal research (e.g., Westlaw, LexisNexis).

3. **Time in UK Private HE:** 20 years.
4. **Comfort/Skill with Digital/AI Tools:** Highly comfortable with digital legal research databases, online teaching platforms, and standard productivity software. For AI, I use AI-powered legal research tools (e.g., for case summarization) and generative AI for brainstorming legal arguments, but with extreme caution due to accuracy concerns.

PARTICIPANT P12

1. **Role and Responsibilities:** I am the Head of Learning Services. My responsibilities include managing library resources (physical and digital), overseeing learning support, and developing information literacy programs.
2. **Educational Background/Digital Tech in Education:** My background is in Information Science. My education involved early digital cataloguing systems and online databases. I've continuously upskilled as library services have digitized.
3. **Time in UK Private HE:** 21 years.
4. **Comfort/Skill with Digital/AI Tools:** Very comfortable. I use various library management systems, digital resource platforms, and research databases daily. For AI, I'm exploring AI-powered search engines and tools for content summarization, but cautiously.

PARTICIPANT P13

1. **Role and Responsibilities:** I am a Lecturer in Business Studies. My role involves teaching studio practice, art history, critical theory, and supervising student projects.

2. **Educational Background/Digital Tech in Education:** My degrees are in Fine Art. My education was very traditional, hands-on, and studio based. Digital tools were not part of the curriculum.
3. **Time in UK Private HE:** 18 years.
4. **Comfort/Skill with Digital/AI Tools:** Moderate. I use VLEs, email, and digital image editing software (Photoshop) for my own practice. For AI, I've experimented with generative AI for image creation (Midjourney, DALL-E) out of curiosity, but I'm deeply conflicted about its use in art.

PARTICIPANT P14

1. **Role and Responsibilities:** I am a Student Support Officer. My responsibilities involve providing pastoral care, academic advice, and signposting students to various university services.
2. **Educational Background/Digital Tech in Education:** My background is in Psychology. My university education used very few digital tools; it was primarily face-to-face interaction and paper-based notes.
3. **Time in UK Private HE:** 16 years.
4. **Comfort/Skill with Digital/AI Tools:** Moderately comfortable. I use our student information system, email, and Microsoft Teams extensively for communication. For AI, I've used some online translation tools or grammar checkers, but nothing directly related to student support.

PARTICIPANT P15

1. **Role and Responsibilities:** I am a Director of Studies, specialising in public health. My responsibilities include teaching, leading research grants, supervising doctoral students, and engaging in community health initiatives.
2. **Educational Background/Digital Tech in Education:** My degrees are in Public Health and Epidemiology. My early education involved statistical software (SAS) and some early GIS tools for mapping disease. I've continuously adapted to new data analysis and visualisation technologies.
3. **Time in UK Private HE:** 24 years.
4. **Comfort/Skill with Digital/AI Tools:** Very comfortable. I use advanced statistical software, data visualization tools, and various research platforms daily. For AI, I'm actively using machine learning models for predictive analytics in public health research and exploring generative AI for literature reviews.

4.4.1.1 THEMATIC CLUSTERS: DIGITAL COMFORT AND AI ENGAGEMENT

Analysis of participant responses to the background revealed distinct patterns in how academic and professional staff within UK PrHEIs engage with digital tools and artificial intelligence. Using a two-dimensional framework (1) **digital tool comfort** (low, moderate, high) and (2) **AI engagement** (low, moderate, high), participants were grouped into thematic clusters. These clusters illustrate not only varying levels of technological proficiency but also different orientations toward AI adoption, ranging from cautious exploration to advanced integration. Such categorisation provides a structured lens for understanding the diversity of skills, attitudes, and practices, and highlights where targeted professional development or strategic support may be most impactful

Cluster 1 – Digitally Confident AI Innovators (High Digital Comfort + High AI Engagement)

Characteristics: Confident with a wide range of digital tools, actively exploring or integrating AI in professional tasks, often beyond basic functions.

Participants: P01, P04, P05, P10, P15

- **Digital Skills:** Extensive use of advanced tools such as programming languages, cloud platforms, research software, data analytics, video editing, and CRM/marketing analytics.
- **AI Use:** Generative AI for brainstorming, coding assistance, content creation, predictive analytics, and advanced research tasks.
- **Notable Pattern:** Willingness to experiment and adapt AI for discipline-specific applications; generally optimistic about AI's potential.

These individuals demonstrate advanced digital proficiency and actively integrate AI into their professional practice. Their usage spans content creation, predictive analytics, legal research, coding, and marketing automation. They tend to experiment with AI tools strategically, balancing innovation with caution around ethical and accuracy concerns.

Development Implication: Can act as institutional champions for AI literacy and innovation.

Cluster 2 – Digitally Proficient but AI Cautious (High Digital Comfort + Low AI Engagement)

Characteristics: Skilled with digital tools but little to no practical AI usage; AI understanding often remains conceptual.

Participants: P02, P06, P08, P12

- **Digital Skills:** Strong proficiency in tools like CRM, Microsoft Teams, accounting/finance software, library management systems, and strategic dashboards.
- **AI Use:** Limited to conceptual awareness, chatbots, or basic AI-powered search tools.
- **Notable Pattern:** Hesitancy to adopt AI despite high technical literacy; possible barriers include lack of training, ethical concerns, or role-specific relevance.

Members of this group are highly skilled with a wide range of digital platforms—CRM systems, VLEs, data management tools—but show limited or cautious AI use. Their engagement tends to be exploratory or conceptual rather than operational. *Development Implication:* Targeted AI skills workshops could unlock greater adoption potential without overwhelming this group.

Cluster 3 – Balanced Adopters (Moderate Digital Comfort + Cautious AI Engagement)

Characteristics: Comfortable with everyday digital tools but not advanced systems; tend to approach AI experimentally and with caution.

Participants: P03, P07, P09, P11, P13, P14

- **Digital Skills:** Use of VLEs, Microsoft Office, collaboration tools, and discipline-specific platforms (legal databases, image editing, etc.).
- **AI Use:** Exploratory applications for lesson ideas, research brainstorming, legal summarisation, or creative image generation.
- **Notable Pattern:** AI use is tentative and primarily supplementary; emphasis on ethical implications and accuracy concerns.

These participants are comfortable with standard institutional digital systems and demonstrate moderate AI experimentation—such as brainstorming ideas or summarising literature—while maintaining strong ethical awareness

Development Implication: This group could benefit from structured mentoring from Cluster 1, moving toward higher confidence and applied AI use.

Cluster 4 – Digitally Moderate and AI Minimalists (Moderate Digital Comfort + Minimal AI Engagement)

Characteristics: Limited range of digital tool usage; AI exposure is basic or incidental.

Participants: P14 (*note: overlaps with group 3 but placed here for minimal AI use*)

- **Digital Skills:** Focus on communication and administrative tools.
- **AI Use:** Restricted to basic translation or grammar tools.

- **Notable Pattern:** AI perceived as peripheral to role; no active interest in deeper engagement.

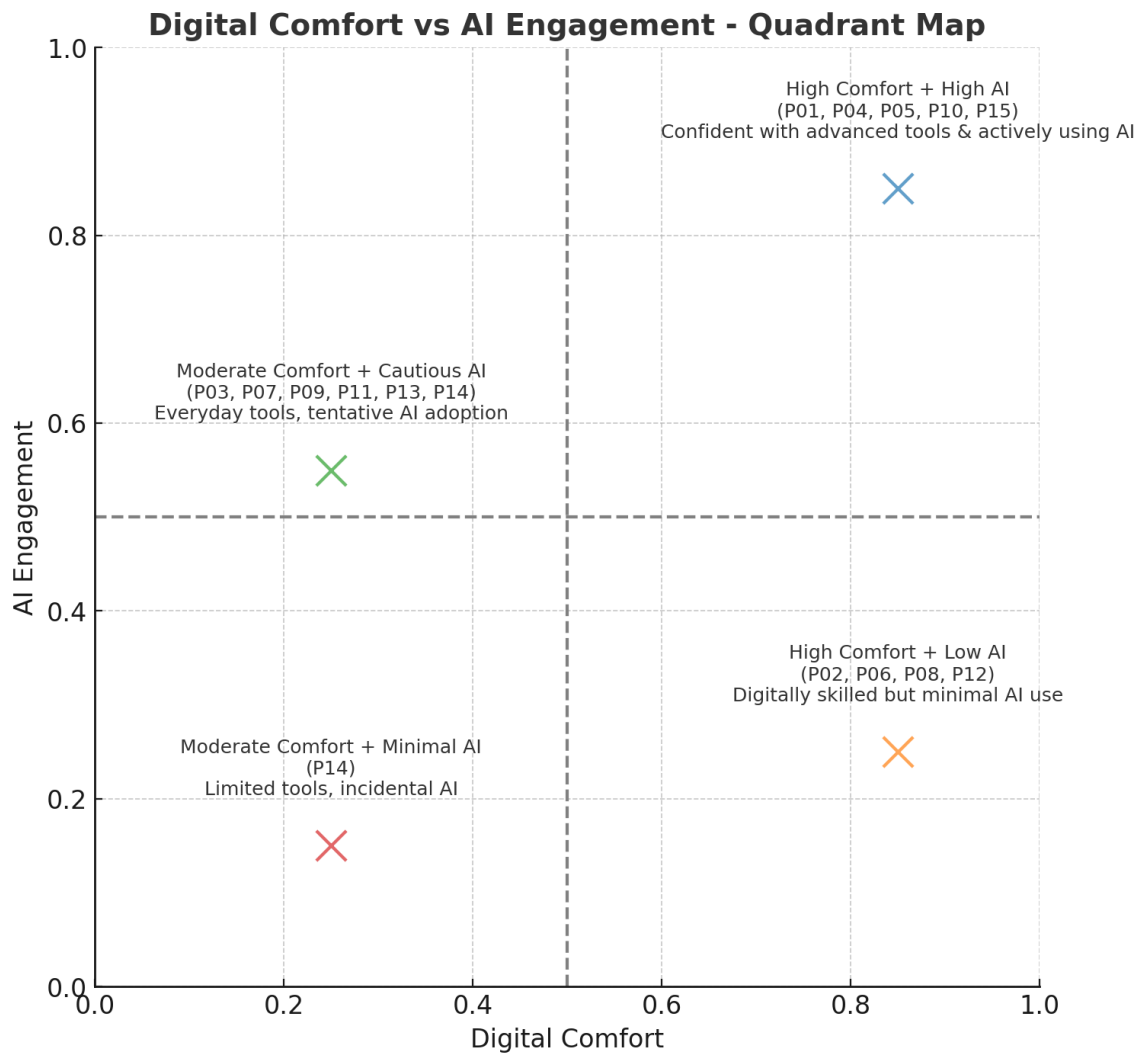
Members use essential tools like VLEs, email, and office software but have minimal AI integration—often restricted to grammar checkers, translation tools, or creative experiments. Ethical concerns or uncertainty about AI’s relevance often limit uptake.

Development Implication: Introductory AI applications tailored to their specific subject areas could encourage safe, relevant adoption.

4.4.1.2 KEY CROSS-GROUP OBSERVATIONS

- **Role Influence:** High AI engagement was most common among participants whose roles involved research, data analysis, marketing, or technical development.
- **Ethical Caution:** Even in high AI engagement groups, concerns about accuracy, ethics, and academic integrity were recurrent.
- **Potential Digital Divide:** A split is visible between technically confident participants avoiding AI and those using AI extensively suggesting adoption is not solely tied to digital competence.

Figure 04 Digital Comfort vs Engagement – Quadrant Map



4.4.2 PART TWO: INTERPRETIVE THEMATIC ANALYSIS OF DIGITAL AND AI COMPETENCIES

Part Two of the findings moves beyond descriptive accounts of participants’ roles, backgrounds, and baseline competencies to focus on the **deeper meanings, patterns, and implications** that emerged across the interviews. Drawing on Braun and Clarke’s (2006) thematic analysis framework, this section presents an **interpretive synthesis** of how

Generation X staff in UK private higher education experience, perceive, and respond to digitalisation and AI integration in their professional practice.

The analysis is structured around major themes that arose from the data, including:

- **Self-perceptions of competence and readiness** in using digital and AI tools,
- **Institutional influences** such as training, support, and organisational culture,
- **Challenges and enablers** shaped by generational factors, and
- **Future orientations** towards AI-driven changes in higher education.

To preserve the authentic voices of participants, direct quotations are incorporated throughout. These excerpts provide vivid illustrations of the lived experiences behind each theme, highlighting both shared concerns and divergent perspectives. This approach strengthens the credibility of the analysis by grounding thematic claims in participants' own words while allowing the researcher to interpret the broader significance of these accounts.

In doing so, Part Two not only captures the complex realities of how Generation X staff engage with digital transformation but also addresses the central research aim of exploring the relationship between their competencies, institutional environments, and evolving expectations in the sector.

Theme 1: The Gen X Adaptive Journey – From Necessity to Fluency

Brief Introduction

This theme explores how Generation X professionals in UK private higher education have developed their digital and AI competencies over time. Adaptation has often been conscious, shaped by necessity and personal drive, and is reflected in varying levels of competence and confidence with core tools.

1.1 Conscious vs. Intuitive Adaptation

Participants reflected on the contrast between deliberate skill-building and instinctive adoption. For many, adaptation required conscious effort:

Illustrative Quotes from Participants

“My generation grew up with computers but not the internet or AI. We’re adaptable, but we didn’t have the ‘digital native’ immersion.” (P01)

Others noted that while they could match younger colleagues in capability, the path was different:

Illustrative Quotes from Participants

“We often bring a more critical, pedagogical lens to new tools, whereas younger generations might adopt them without fully considering the implications.” (P07)

1.2 The Role of Necessity & Personal Drive

Necessity emerged as a major driver of digital upskilling, especially during rapid shifts such as the pandemic:

Illustrative Quotes from Participants

“The pandemic forced us all to adapt quickly. Necessity was my biggest motivator to explore new tools.” (P03)

Personal curiosity also fuelled learning:

Illustrative Quotes from Participants

“I actively experiment with generative AI for content creation and coding assistance simply because I enjoy pushing boundaries.” (P04)

1.3 Competence & Confidence in Core Tools

Confidence was linked to mastery of core systems within professional roles:

Illustrative Quotes from Participants

“Implementing our new student support portal streamlined countless processes, and I felt fully in my element.” (P02)

“My digital competencies have transformed my teaching—I use flipped classrooms, online quizzes, and collaboration tools extensively.” (P01)

Thematic Narrative

Many participants described a conscious learning process, contrasting with the intuitive adoption patterns of younger colleagues. This adaptation was frequently triggered by external necessity, such as the rapid digital transformation during the COVID-19 pandemic, or by a personal commitment to remain professionally relevant. Confidence in using core digital systems—whether virtual learning environments, CRM systems, or advanced research software—was a strong source of professional satisfaction. However, the route to fluency often required structured effort and ongoing self-directed learning, with participants highlighting that familiarity with technology did not equate to instinctive use.

Concluding Link to Research Question(s)

This theme directly addresses **RQ1** (*How do Generation X employees perceive their current digital and AI competencies?*) by showing that their skills are the result of deliberate, need-driven adaptation. It also connects to **RQ2** by illustrating how necessity and personal drive can create opportunities for skill growth, even without early-life immersion in digital technologies.

Theme 2: Navigating Institutional and Systemic Barriers

Brief Introduction

This theme examines the organisational challenges that shape how Gen X professionals engage with digital and AI tools, focusing on time constraints, institutional inertia, and mismatches between training and professional needs.

2.1 Time & Resource Constraints

Lack of time to explore or train on new technologies was a recurrent frustration:

Illustrative Quotes from Participants

“There’s so much pressure on teaching and research that dedicating time to master new AI tools is a constant struggle.” (P01)

“Keeping up with the pace of change is difficult when we also have our regular workloads.” (P08)

2.2 Bureaucracy & Institutional Inertia

Even highly skilled participants encountered resistance from slow or cautious institutional systems:

Illustrative Quotes from Participants

Trying to advocate for investment in AI tools when leadership is hesitant about ROI or ethical risks is challenging.” (P04)

“Institutional policies that are overly cautious can be a brake on innovation.” (P05)

2.3 MISMATCH IN TRAINING & SUPPORT

While training existed, many described it as piecemeal or overly generic:

Illustrative Quotes from Participants

“The AI webinars felt more like awareness sessions than practical training.” (P03)

“For emerging tech like AI, it’s still very nascent—there’s awareness, but not yet practical, hands-on training.” (P02)

Thematic Narrative

Time and workload pressures were the most cited barriers, with participants struggling to allocate time for exploration and mastery of emerging tools. Even when motivation was high, institutional inertia—manifesting as cautious leadership, slow policy changes, and budget limitations—often hindered progress. Training initiatives were generally described as piecemeal or overly generic, failing to meet the specific, context-driven needs of different roles. While some departments offered targeted, effective training, this was inconsistent across institutions, leading to uneven skill development.

Concluding Link to Research Question(s)

This theme links to **RQ2** (*What are the primary challenges and opportunities...*) by identifying structural barriers that limit skill application, and to **RQ3** (*How have institutional strategies... influenced engagement?*) by showing that the quality and relevance of institutional support directly affect AI and digital tool adoption.

Theme 3: The Double-Edged Sword of AI

Brief Introduction

This theme explores the perceived benefits and risks of AI adoption in higher education, highlighting the tension between innovation opportunities and concerns about integrity, ethics, and human connection.

3.1 Opportunities for Efficiency & Innovation

AI was seen as a tool for personalisation, automation, and research enhancement:

Illustrative Quotes from Participants

“AI will automate more routine administrative tasks and personalize student feedback at scale.” (P01)

“In marketing, AI lets us personalize content and analyse campaigns in real-time.” (P10)

3.2 THREATS TO INTEGRITY & HUMAN CONNECTION

Concerns centred on plagiarism, loss of authenticity, and reduced human interaction:

Illustrative Quotes from Participants

“The humanities need to champion human creativity—AI should be a tool, not a master.” (P03)

“My biggest concern is losing the human touch that’s so vital in student services.” (P02)

3.3 ETHICAL & LEGAL CONCERNS

Participants in legal and policy roles emphasised governance and fairness:

Illustrative Quotes from Participants

“We must ensure robust legal and ethical frameworks before deploying AI in higher education.” (P11)

“Algorithmic bias and data privacy are my main concerns—especially with student-facing AI tools.” (P09)

Thematic Narrative

Participants acknowledged AI’s potential for efficiency, personalisation, and innovation, particularly in automating repetitive tasks and enhancing research capabilities. However,

this optimism was tempered by strong concerns over academic integrity, the risk of eroding human interaction, and the ethical implications of AI-driven decisions. Legal and policy-focused participants stressed the urgency of implementing robust governance frameworks to address algorithmic bias, data privacy, and transparency. This balance between opportunity and caution reflects a mature, context-sensitive approach to AI adoption.

Concluding Link to Research Question(s)

This theme connects to **RQ2** by identifying both opportunities and risks in AI adoption, to **RQ4** (*What impact do digital, and AI competencies have on professional practices and identity?*) through the ethical and relational implications, and to **RQ5** (*How do Generation X employees envision the future role of AI?*) in participants' forecasts of both its benefits and dangers.

Theme 4: The Evolving Professional Identity and Institutional Voice

Brief Introduction

This theme examines how digital, and AI integration is reshaping Gen X professional identities and their influence in institutional strategy discussions.

4.2 PERCEIVED VOICE IN INSTITUTIONAL STRATEGY

Leadership figures generally felt heard, but others sensed a generational gap:

Illustrative Quotes from Participants

“I feel my voice is considered because of my role, but strategies are often driven by younger, more tech-optimistic individuals.” (P01)

“Sometimes the institutional drive for rapid digital adoption overshadows the need for careful, evidence-based integration.” (P07)

4.3 BALANCING EXPERIENCE WITH NEW SKILLS

Gen X professionals emphasised the value of combining deep institutional knowledge with emerging digital capabilities:

Illustrative Quotes from Participants

“Strategic thinking and market understanding remain crucial, even as AI reshapes our work.” (P10)

“The experience of navigating complex systems is irreplaceable—it’s about blending that with new tools.” (P06)

Thematic Narrative

For many, digital fluency has become a core element of professional identity, contributing to confidence, relevance, and credibility within their institutions. Senior leaders often reported a stronger voice in shaping digital strategies, while others felt their perspectives were overshadowed by younger, more tech-enthusiastic colleagues. There was a strong emphasis on blending experience with new skills, recognising that institutional memory, strategic thinking, and domain expertise are critical for guiding technology adoption effectively.

Concluding Link to Research Question(s)

This theme links to RQ4 by showing how digital and AI competencies redefine professional identity, and to RQ3 by revealing how institutional decision-making structures determine the degree to which Gen X perspectives influence strategy. It also touches RQ5, as these professionals consider how their roles will evolve in an AI-integrated future.

4.4. SUMMARY OF FINDINGS

This chapter examined the digital and AI competencies of Generation X employees in UK private higher education institutions (PrHEIs) using a thematic analysis approach. The analysis was organised into four overarching themes, each with subthemes, supported by participant quotations. This structure provided a clear link between empirical data and the research questions, while avoiding repetition inherent in a participant-by-participant format.

Key Themes and Patterns:

1. The Gen X Adaptive Journey – From Necessity to Fluency

- Many Generation X professionals have developed digital and AI skills through conscious, need-driven adaptation rather than intuitive adoption.
- Necessity, such as the COVID-19 pandemic, was a key catalyst, alongside personal curiosity and a desire to remain relevant.
- Competence and confidence were highest in core role-related tools, with mastery contributing to professional pride.

2. Navigating Institutional and Systemic Barriers

- Time pressures and heavy workloads limited opportunities for skill development.
- Institutional inertia, including cautious leadership and slow policy adaptation, hindered innovation.
- Training often lacked relevance or depth, highlighting the need for role-specific and hands-on learning.

3. The Double-Edged Sword of AI

- Participants recognised AI's potential for efficiency, personalisation, and innovation.
- Concerns about academic integrity, human connection, and ethics were strong, especially in student-facing contexts.
- Calls for robust governance frameworks emphasised the importance of ethical and legal safeguards.

4. The Evolving Professional Identity and Institutional Voice

- Digital fluency is increasingly part of professional identity, enhancing confidence and credibility.
- Influence in institutional strategy was uneven; senior leaders felt heard, while others perceived generational bias in decision-making.
- Participants valued blending experience and institutional memory with emerging digital skills.

4.4 Alignment with research questions:

- **RQ1** was addressed through insights into how Gen X professionals perceive their competencies as learned, adaptive, and role specific.
- **RQ2** was explored through identification of both enablers (necessity, curiosity) and barriers (time, policy inertia, training gaps).
- **RQ3** was illuminated by examining how institutional strategies and support influenced adoption and engagement.
- **RQ4** was addressed in findings on how digital and AI skills shape professional identity and workplace confidence.
- **RQ5** emerged in discussions of AI's future potential, ethical challenges, and role in reshaping higher education.

Table 09 presents the thematic findings derived from the analysis, structured around four interrelated themes. The first theme highlights Generation X employees' *self-perceptions of competence and readiness* in using digital and AI tools, revealing varied levels of confidence shaped by necessity, personal drive, and role-specific demands. The second theme emphasises *institutional influences*, including the quality of training, availability of support, and broader organisational culture, which either facilitate or constrain engagement with technology. The third theme explores *challenges and enablers shaped by generational factors*, where workload pressures, time constraints, and prior exposure interact with curiosity, resilience, and adaptability. Finally, the fourth theme addresses *future orientations towards AI-driven changes in higher education*, showing both optimism for efficiency and innovation as well as concerns about ethics, integrity, and the preservation

of human connection. Together, these themes provide a holistic picture of how Generation X in UK PrHEIs experiences, negotiates, and anticipates digital and AI transformation.

Table 09: Thematic Findings

Theme	Sub-theme	Example Codes & Participant (P) #
1. The Gen X Adaptive Journey: From Necessity to Fluency	1.1. Conscious vs. Intuitive Adaptation	"My generation grew up with computers but not the internet or AI... we're often learning new paradigms." (P1)
		"My generation learned to write essays with pen and paper. The digital world was an add-on." (P3)
		"Younger staff are native to these tools... We often need more structured training." (P2)
	1.2. The Role of Necessity & Personal Drive	"The pandemic forced us all to adapt quickly." (P3)
		"Personal curiosity has been key." (P1)
		"My own drive to find efficient solutions has pushed me to learn." (P2)
	1.3. Competence & Confidence in Core Tools	"Very comfortable with standard digital tools like advanced Excel, accounting software." (P6)
		"I felt very confident when I first moved to online teaching during the pandemic." (P1)
		"I'm highly digitally literate, especially within the marketing and admissions functions." (P10)
2. Navigating Institutional and Systemic Barriers	2.1. Time & Resource Constraints	"Time. There's so much pressure on teaching and research that dedicating time... is a constant struggle." (P1)
		"Lack of sufficient budget for cutting-edge tools." (P4)
		"The complexity of integrating various financial systems." (P6)
	2.2. Bureaucracy & Institutional Inertia	"A lack of strategic, sustained training that goes beyond basic functionality." (P1)
		"AI webinars felt more like awareness sessions than practical training." (P3)
		"The training we provide is generally effective for those who attend. However, uptake can be an issue." (P4)
	2.3. Mismatch in Training & Support	"A lack of strategic, sustained training that goes beyond basic functionality." (P1)
		"AI webinars felt more like awareness sessions than practical training." (P3)
		"The training we provide is generally effective for those who attend. However, uptake can be an issue." (P4)
3. The Double-Edged Sword of AI	3.1. Opportunities for Efficiency & Innovation	"I see AI automating more routine administrative tasks." (P1)
		"AI-powered tools for content generation... and data analysis." (P10)
		"Predictive modelling for disease outbreaks, personalized health interventions." (P15)
		"My primary concern is the potential for bias in algorithms." (P9)

	3.2. Threats to Integrity & Human Connection	“Academic integrity, deskilling of students, erosion of critical thinking.” (P3)
		“Worry about the loss of empathy... in student support.” (P14)
	3.3. Ethical & Legal Concerns	“Data privacy and security... and the ethical implications of AI.” (P15)
		“Copyright infringement, deskilling of artists, devaluation of human creativity.” (P13)
		“The legal and ethical dimensions of AI are paramount.” (P11)
	4. The Evolving Professional Identity and Institutional Voice	4.1. Confidence & Relevance vs. Anxiety
		“Being digitally competent enhances my confidence as an educator in a modern context.” (P1)
		“The rise of AI makes me question the future of traditional humanities skills.” (P3)
		“I feel a constant tension between digital efficiency and the deeply human nature of pastoral care.” (P14)
		4.2. Perceived Voice in Institutional Strategy
		“I feel my voice is sometimes considered, especially from those of us in leadership roles.” (P1)
		“My voice, as a Dean, is integral to digital strategy.” (P8)
		“I sometimes feel our concerns... are sidelined in favour of efficiency-driven digital strategies.” (P3)
		4.3. Balancing Experience with New Skills
		“For academic and leadership roles, experience combined with adaptability is still highly valued.” (P1)
		“The strategic thinking, market understanding, and relationship-building skills of Gen X/Y are crucial.” (P10)
		“There's a push for younger, digitally fluent staff... but for core academic roles, experience still matters.” (P3)

Source: Author

4.5 CHAPTER 4 SUMMARY

Chapter 4 presented the findings of this study, derived from in-depth interviews with Generation X employees in UK PrHEIs. Using a thematic analysis approach, the chapter moved beyond a participant-by-participant narrative to organise the data **theme by theme**, enhancing academic rigour and readability. Four major themes were identified: (1) The Gen X Adaptive Journey – From Necessity to Fluency; (2) Navigating Institutional and Systemic Barriers; (3) The Double-Edged Sword of AI; and (4) The Evolving Professional Identity and Institutional Voice.

The findings reveal that Generation X professionals possess a complex mix of digital and AI competencies, often developed through necessity and personal initiative rather than intuitive immersion. While many embrace AI's potential, adoption is moderated by ethical concerns, workload pressures, and institutional culture. Professional identity is increasingly intertwined with digital capability, yet influence over strategic decisions remains inconsistent.

These insights respond directly to the research questions, highlighting the interplay between individual agency, institutional structures, and emerging technologies in shaping Gen X engagement with AI.

Transition to Chapter 5:

The following chapter discusses these findings in relation to existing literature and theoretical frameworks, situating the results within the broader context of digital transformation, generational theory, and technology adoption in higher education.

CHAPTER 5: DISCUSSION

5.1 INTRODUCTION

This chapter synthesises the findings from the thematic analysis of interviews with 15 Generation X professionals in the UK private higher education sector, connecting the emergent themes to existing literature. The discussion interprets the data to explore the broader implications for institutional practice, policy, and future research. The analysis identified four core themes: The Gen X Adaptive Journey: From Necessity to Fluency; Navigating Institutional and Systemic Barriers; The Double-Edged Sword of AI; and The Evolving Professional Identity and Institutional Voice. This synthesis paints a nuanced picture of this generation's experiences with digital and AI competencies, particularly how their unique position as digital immigrants in an increasingly digital-native world shapes their professional lives and institutional contributions.

5.2 KEY FINDINGS IN CONTEXT OF ACADEMIC LITERATURE

Building on the thematic analysis from the previous chapter, this section provides an academic interpretation of the key findings. It connects the emergent themes from the interviews with Generation X professionals to established theories and research in fields such as adult learning, digital transformation, and professional identity. By contextualising the study's findings within the broader academic discourse, we can better understand their significance and contributions to the existing body of knowledge.

5.2.1 THE GEN X ADAPTIVE JOURNEY AND DIGITAL COMPETENCE

This theme, which addresses Research Question 1 (RQ1), reveals that Generation X professionals are not passive recipients of digital change but active and strategic **adapters**. This conscious journey from a largely pre-digital educational background to a position of proficiency with core digital tools is a defining characteristic of their experience. Participants noted they often "learn new paradigms, not just new tools" (P1), a process that is more deliberate and effortful than for their younger counterparts. This finding supports Prensky's (2001) distinction between digital natives and digital immigrants, but also challenges its determinism by demonstrating that Gen X staff can and do acquire fluency through deliberate engagement.

The findings align with established theories of adult learning, which emphasise experiential, self-directed learning (Knowles, 1984; Zemke et al., 2000). The necessity of their roles and personal drive, as well as the imperative of the COVID-19 pandemic, acted as key catalysts for digital upskilling, echoing Rogers' (2003) diffusion of innovations model. However, a crucial finding is the competence-readiness gap: proficiency with established digital tools does not automatically extend to readiness for emerging technologies like AI. This highlights a need for targeted support to help Gen X professionals transition from digital fluency to AI readiness.

- **Contribution:** This theme advances debates on generational digital literacy by positioning Gen X as **strategic adapters** rather than passive digital immigrants, highlighting how necessity and personal agency shape readiness differently from younger cohorts.

5.2.2 INSTITUTIONAL BARRIERS AND THE PACE OF DIGITAL CHANGE

This theme engages with RQ2 and RQ3, showing how institutional structures profoundly shape Gen X's engagement with technology. While participants demonstrate high individual adaptability, their progress is stifled by systemic barriers. These include time and resource constraints, legacy systems and institutional inertia, and a mismatch in training and support. The interviews consistently highlighted a reactive, rather than proactive, institutional approach. While basic training on core systems is often effective, there is a clear "lack of strategic, sustained training" (P1) and a shortage of practical guidance on how to integrate new technologies meaningfully. The critique that AI webinars felt more like "awareness sessions than practical training" (P3) is particularly telling.

These findings reflect earlier work on the limitations of institutional digital transformation (Selwyn, 2016) and fragmented support structures (Ndaba & Naidoo, 2024). The inadequacy of training—often generic or superficial—contrasts with calls for discipline-specific, contextualised professional development (Laurillard, 2012; Salmon, 2019). The data indicate that poorly designed institutional interventions exacerbate the very gaps they aim to address, reinforcing Illeris' (2015) view that ineffective learning environments create resistance rather than engagement.

- **Contribution:** This theme reframes digital transformation challenges as not merely technical but organisational, showing that institutional readiness—not just individual adaptability—is decisive in enabling effective AI adoption.

5.2.3 THE "DOUBLE-EDGED SWORD" OF AI

This theme addresses RQ3, RQ4, and RQ5, demonstrating how digital and AI competencies reshape professional identity and institutional participation. While proficiency with digital tools has largely enhanced their confidence and sense of relevance, the rise of AI has also introduced a new layer of anxiety, particularly for those whose roles are deeply tied to human creativity and interaction. This creates a tension between efficiency and the core values of their professions.

Furthermore, the study highlights a critical power dynamic in the institutional digital strategy. While some senior leaders felt their voice was integral, a significant number of participants expressed a feeling of being sidelined or that their concerns were overshadowed by an "efficiency-driven digital strategy" (P3, P9). This supports the argument that technology adoption is not just a technical issue but a political one, where a university's digital culture can either encourage or discourage the integration of experienced voices (Starkey & Madan, 2001). Generational expertise and institutional memory, far from being obsolete, were presented by participants as vital resources for guiding effective and ethical AI adoption, providing a crucial counterbalance to the digital fluency of younger generations (P10, P15). This resonates with Wenger's (1998) concept of communities of practice, where experience and situated knowledge play a crucial role in shaping institutional learning.

- **Contribution:** This theme contributes by showing that professional identity is co-constructed through both digital competence and institutional recognition. For Gen

X, AI adoption is not simply about skills but about inclusion in shaping strategy, with implications for organisational culture and equity.

5.2.4 THE EVOLVING PROFESSIONAL IDENTITY AND INSTITUTIONAL VOICE

This theme addresses RQ3, RQ4, and RQ5, demonstrating how digital and AI competencies reshape professional identity and institutional participation. While proficiency with digital tools has largely enhanced their confidence and sense of relevance, the rise of AI has also introduced a new layer of anxiety, particularly for those whose roles are deeply tied to human creativity and interaction. This creates a tension between efficiency and the core values of their professions.

Furthermore, the study highlights a critical power dynamic in the institutional digital strategy. While some senior leaders felt their voice was integral, a significant number of participants expressed a feeling of being sidelined or that their concerns were overshadowed by an "efficiency-driven digital strategy" (P3, P9). This supports the argument that technology adoption is not just a technical issue but a political one, where a university's digital culture can either encourage or discourage the integration of experienced voices (Starkey & Madan, 2001). Generational expertise and institutional memory, far from being obsolete, were presented by participants as vital resources for guiding effective and ethical AI adoption, providing a crucial counterbalance to the digital fluency of younger generations (P10, P15). This resonates with Wenger's (1998) concept of communities of practice, where experience and situated knowledge play a crucial role in shaping institutional learning.

- **Contribution:** This theme contributes by showing that professional identity is co-constructed through both digital competence and institutional recognition. For Gen X, AI adoption is not simply about skills but about inclusion in shaping strategy, with implications for organisational culture and equity.

5.3 FOR FUTURE RESEARCH

- **Longitudinal Studies:** Future research should follow a cohort of Generation X professionals to track their evolving digital competencies and professional identities over time as AI becomes more integrated.
- **Comparative Analysis:** Conduct a mixed-methods study comparing the experiences of Gen X, Gen Y, and Gen Z staff to empirically quantify the differences in digital literacy, challenges, and training needs.
- **Case Studies of Best Practice:** Investigate institutions that have successfully developed and implemented human-centred AI strategies, providing a roadmap for others.
- **Focus on Disciplinary Nuances:** Conduct in-depth qualitative studies on how AI is impacting specific disciplines, such as the creative arts and social sciences, to uncover nuanced challenges and opportunities.

5.4 CONCLUSION

This study provides a vital lens into the digital and AI competencies of Generation X in the UK private higher education sector. It reveals a generation that is highly adaptable and pragmatic, yet simultaneously cautious and critical of the profound changes AI brings. The

findings highlight a chasm between individual adaptability and institutional readiness, emphasising that the successful integration of AI will depend not on technology alone, but on a strategic, human-centred, and ethically grounded approach that values the experience and critical voice of all generations. The path forward for private higher education institutions is to bridge this gap, ensuring that digital transformation serves to enhance, rather than diminish, the core mission of education.

5.5 CHAPTER SUMMARY

This chapter provided a comprehensive interpretation of the findings presented in Chapter 4, contextualizing them within existing academic literature and addressing the study's research questions. The discussion illuminated the multifaceted experiences of Generation X professionals regarding their digital and AI competencies in the UK private higher education sector. It highlighted that their **adaptive journey** is characterized by a conscious and pragmatic approach to digital fluency, often driven by necessity, which significantly influences their perceived professional effectiveness.

The discussion further explored the tensions Generation X faces, particularly in reconciling the ideals of digital transformation and AI integration with the practical realities of institutional and systemic barriers, such as time constraints, legacy systems, and insufficient, often generic, institutional support. The concept of AI as a "double-edged sword" was thoroughly examined, revealing participants' simultaneous recognition of its opportunities for efficiency and innovation alongside profound concerns regarding academic integrity, ethical implications (e.g., bias, privacy), and the potential for dehumanization in education.

Finally, the chapter discussed how these competencies and challenges shape Generation X's evolving professional identity and confidence, noting a complex interplay between enhanced relevance and underlying anxieties about job disruption. It critically examined their perceived voice in institutional digital strategies, often finding a disconnect between their valuable experience and the top-down, efficiency-driven approaches. The discussion concluded by outlining the study's theoretical and practical contributions, acknowledging its limitations, and proposing avenues for future research, emphasising the critical need for human-centred and ethically informed digital strategies in higher education.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

This concluding chapter synthesizes the core insights from the study on the digital and AI competencies of Generation X professionals in the UK private higher education sector. Drawing upon the thematic analysis and subsequent discussion, it provides a concise summary of the key findings, outlines the study's theoretical and practical contributions, and offers actionable recommendations for various stakeholders. It also acknowledges the limitations of the current research and proposes avenues for future inquiry, aiming to contribute meaningfully to the evolving discourse on digital transformation and human capital in higher education.

6.2 SUMMARY OF KEY FINDINGS

This study revealed a nuanced and multifaceted picture of Generation X professionals' engagement with digital and AI technologies, encapsulated by four main themes:

1. **The Gen X Adaptive Journey: From Necessity to Fluency:** Participants demonstrated a remarkable capacity for conscious and strategic adaptation to digital tools, driven by personal curiosity and professional necessity. Despite not being "digital natives," they achieved high proficiency in core digital competencies, often through self-directed learning and peer support, highlighting their pragmatic and results-oriented approach (P1, P2, P10; Bova & Kroth, 2001).
2. **Navigating Institutional and Systemic Barriers:** A significant tension emerged between individual adaptability and institutional readiness. Participants

consistently faced challenges such as limited time and resources for upskilling, the burden of legacy systems, and pervasive institutional inertia. Furthermore, existing training initiatives were often perceived as insufficient, lacking strategic depth and practical relevance for advanced digital and AI integration (P1, P2, P4; Ndaba & Naidoo, 2024).

3. **The Double-Edged Sword of AI:** AI was perceived with a complex duality, presenting both immense opportunities for efficiency, personalization, and innovation across academic and administrative functions (P5, P10, P15), alongside profound concerns. These concerns centred on threats to academic integrity, critical thinking, and human connection, as well as significant ethical and legal implications such as algorithmic bias, data privacy, and intellectual property (P3, P9, P11, P14; HEPI, 2024; Oxford University, 2024).
4. **The Evolving Professional Identity and Institutional Voice:** Digital and AI competencies significantly impacted participants' professional identity, generally boosting confidence and a sense of relevance. However, the rapid pace of AI development also introduced anxiety, particularly concerning its potential to disrupt traditional roles and devalue human-centric skills. Crucially, many Generation X professionals felt their experienced voices and nuanced concerns were not fully integrated into institutional digital strategies, which were often perceived as being driven by efficiency rather than holistic human and pedagogical considerations (P3, P14, P28).

6.3 CONTRIBUTIONS OF THE STUDY

6.3.1 Theoretical Contributions

This study contributes to the existing body of knowledge by:

- **Enriching Generational Theory in Technology Adoption:** It provides empirical insights into the unique adaptive journey of Generation X in a rapidly evolving technological landscape, distinguishing their conscious learning from the intuitive fluency of younger generations (Asoba & Mefi, 2022; Zemke et al., 2000). It highlights their role as a "bridge generation" capable of leveraging both traditional and emerging paradigms.
- **Extending Digital Transformation Frameworks in HE:** The research moves beyond generic discussions of digital adoption to illuminate the specific institutional and systemic barriers encountered by experienced staff, offering a more granular understanding of the challenges in private higher education contexts (Ndaba & Naidoo, 2024; Deacon, 2025).
- **Nuancing AI Perceptions in Academia:** It empirically captures the "double-edged sword" perception of AI, demonstrating that professionals simultaneously recognise its potential and its profound ethical and practical threats. This adds to the theoretical understanding of how AI is psychologically and professionally mediated within the HE workforce.

6.3.2 PRACTICAL CONTRIBUTIONS

The findings offer valuable practical contributions for various stakeholders:

- **For UK Private Higher Education Institutions:** Provides clear evidence for the need for targeted, human-centred digital strategies that address specific generational needs and ethical concerns. It highlights the importance of investing in appropriate infrastructure, sustained training, and inclusive policy-making.
- **For Generation X Professionals:** Offers a framework for understanding their own adaptive journey and identifies key skills (e.g., ethical AI literacy, critical evaluation, human-AI collaboration) crucial for future relevance. It validates their experiences and concerns, fostering a sense of shared understanding.
- **For Policymakers and Sector Bodies:** Informs the development of more effective national and sectoral guidelines for AI integration in HE, emphasising ethical governance, data privacy, and the need for comprehensive workforce development initiatives.

6.4 RECOMMENDATIONS

Based on the study's findings, the following recommendations are proposed:

6.4.1 FOR UK PRIVATE HIGHER EDUCATION INSTITUTIONS

6.4.1.1 Develop Human-Centred AI Strategies:

Institutions should move beyond ad hoc adoption of digital tools by establishing formal AI strategies that prioritise both technological innovation and pedagogical integrity.

These strategies must:

- Be co-created through consultation with academics, administrators, students, and IT specialists, ensuring diverse perspectives shape decision-making.
- Include impact assessments to evaluate how AI affects teaching quality, workload, and student learning outcomes.
- Embed ethical guidelines that place student wellbeing and human oversight at the centre of all AI integration.

6.4.1.2 Invest in Targeted and Sustained Professional Development

Professional development should extend beyond one-off awareness sessions. Institutions should:

- Provide discipline-specific workshops showing how AI can be applied in business, health, engineering, and social sciences.
- Allocate protected time in staff workloads for upskilling, experimentation, and peer collaboration.
- Establish tiered training pathways (beginner, intermediate, advanced) to reflect varied levels of digital literacy and confidence.

6.4.1.3 Establish Robust Ethical AI Governance

To ensure responsible AI adoption, institutions should implement governance frameworks that:

- Develop **transparent policies** on AI use across teaching, assessment, research, and administration.

- Establish **ethics committees** or advisory boards with representation from faculty, students, and external experts.
- Regularly review policies to address emerging issues such as algorithmic bias, data privacy, and intellectual property concerns.

6.4.1.4 Foster a Culture of Critical Engagement and Experimentation

Institutions must create environments where staff feel empowered to critically evaluate AI. Practical measures include:

- Setting up “sandbox” environments where staff can safely trial AI applications without fear of failure.
- Establishing communities of practice where academics share successes, challenges, and ethical concerns.
- Recognising and rewarding staff who engage with AI in ways that demonstrably enhance pedagogy or student support.

6.4.1.5 Bridge the Digital Divide Within Institutions

Digital transformation risks marginalising staff who lack confidence or access to advanced technologies. To avoid exacerbating inequalities, institutions should:

- Conduct baseline digital skills audits to identify gaps across departments and staff demographics.
- Provide personalised support (e.g., mentoring schemes pairing digitally fluent staff with those less confident).

- Ensure equitable access to updated hardware, software, and high-speed internet across all staff groups.

6.4.2 FOR GENERATION X PROFESSIONALS

1. Embrace Continuous Learning Through Structured Pathways

Generation X professionals should move beyond ad hoc self-directed learning by creating structured, sustained approaches to digital and AI competency development. Practical steps include:

- Enrolling in short courses, micro-credentials, or MOOCs focused on digital transformation and AI in education.
- Actively engaging with institutional professional development programmes, using protected time where available.
- Establishing personal learning networks (via LinkedIn groups, online forums, or professional associations) to stay updated on evolving AI tools and practices.

2. Champion Ethical and Human-Centred AI Use

With their professional maturity and critical perspective, Generation X staff are well-placed to advocate for responsible AI adoption. They should:

- Actively participate in institutional ethics committees or working groups on digital governance.
- Develop guidelines for responsible classroom use of AI, emphasising academic integrity and student wellbeing.

- Share case studies of both positive and problematic AI applications to inform colleagues and students.

3. Engage in Intergenerational Mentorship and Knowledge Exchange

Gen X professionals hold invaluable institutional knowledge and critical thinking skills, while younger generations (Millennials, Gen Z) often bring digital fluency and intuitive AI adoption. To leverage these complementarities:

- Establish reverse mentoring schemes where Gen X staff exchange institutional wisdom for digital insights from younger colleagues.
- Participate in peer-support networks for digital experimentation, where cross-generational teams trial AI applications together.
- Contribute to curriculum co-design initiatives, ensuring that new digital approaches are enriched by both experience and innovation.

6.4.3 For Policymakers and Sector Bodies

1. Develop Sector-Wide Ethical AI Frameworks

Policymakers should provide overarching direction to ensure consistent, ethical, and high-quality AI adoption across UK higher education. Key actions include:

- Establishing national standards and accreditation criteria for ethical AI use in teaching, assessment, and research.
- Publishing best practice toolkits with case studies from pioneering institutions.

- Requiring institutions to report regularly on AI integration, ethical safeguards, and workforce impacts.

2. Fund Digital Transformation and AI Readiness Initiatives

Sustained investment is essential for sector-wide readiness. Policymakers should:

- Create dedicated funding streams for staff upskilling, infrastructure development, and cross-institutional collaborations.
- Prioritise support for private higher education institutions, which often lack the scale or resources of larger public universities.
- Encourage public-private partnerships with EdTech firms to provide access to advanced AI tools, while safeguarding academic independence.

3. Promote Research and Dialogue

To future-proof the sector, policymakers must foster continuous inquiry and debate about AI's role in higher education. This can be achieved by:

- Funding longitudinal studies on the impact of AI on learning outcomes, workforce dynamics, and the student experience.
- Supporting interdisciplinary research centres that bring together educators, computer scientists, ethicists, and social scientists.
- Convening national forums and policy dialogues where stakeholders across the sector debate challenges, share lessons, and co-create ethical standards.

6.5 LIMITATIONS OF THE STUDY

This study, while providing rich qualitative insights, is subject to several limitations. The sample size of 15 participants, though appropriate for thematic analysis, limits the statistical generalizability of the findings to the entire UK private higher education sector or to Generation X professionals in other national contexts. The reliance on self-reported perceptions may introduce social desirability bias. Furthermore, the qualitative nature of the study provides in-depth understanding but not quantitative measures of digital competence or AI readiness. Finally, the rapidly evolving nature of AI means that the findings represent a snapshot in time, and perceptions may continue to shift.

6.6 AVENUES FOR FUTURE RESEARCH

Building on the findings and limitations of this study, the following avenues for future research are recommended:

- **Longitudinal Studies:** Conduct longitudinal research to track the evolving digital and AI competencies, challenges, and professional identities of Generation X professionals over time, as AI integration deepens.
- **Comparative Generational Studies:** Employ mixed methods approaches to quantitatively and qualitatively compare the digital and AI competencies, learning needs, and perceptions of Generation X with Generation Y and Generation Z professionals in HE.

- **Impact of AI on Specific Disciplines:** Conduct in-depth qualitative case studies exploring the unique challenges and opportunities of AI in specific disciplines (e.g., Fine Art, Humanities, Health Sciences) to understand context-specific implications.
- **Effectiveness of AI Training Models:** Evaluate the effectiveness of different professional development models (e.g., hands-on workshops, peer-to-peer learning, online modules) in enhancing AI competencies for Generation X staff.
- **Student Perceptions of AI-Enabled Education:** Investigate student perceptions of AI integration in their learning experiences, particularly concerning academic integrity, personalization, and the human element of teaching and support.
- **Leadership Role in AI Strategy:** Explore the role of senior leadership in shaping institutional digital and AI cultures, focusing on how they can effectively champion ethical integration and foster inclusive participation from all staff.

6.7 CONCLUDING REMARKS

The digital and AI transformation presents both unprecedented opportunities and profound challenges for higher education. This study underscores that Generation X professionals in the UK private HE sector are not merely adapting to this change; they are actively shaping it, albeit often while navigating significant institutional barriers and ethical complexities. Their experiences highlight the critical need for a strategic, human-centred, and ethically informed approach to AI integration. By understanding and addressing the unique needs and perspectives of this experienced generation, private higher education institutions can ensure a more inclusive, effective, and responsible future for learning, teaching, and administration. The future of higher education in an AI-driven world hinges on our

collective ability to harness technology wisely, valuing human experience and critical thought above all else.

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APPENDICES

APPENDIX 01: INTERVIEW QUESTIONS

Background and Context

1. Could you please briefly describe your role and responsibilities within your current institution?
2. Could you please share educational background and any digital or technology in your education?
3. How long have you been working in the UK private higher education sector?
4. How would you describe your comfort/skill level with using digital and AI tools in your daily work? Could you give some specific examples?

Self-Perception of Competence

5. When you hear the term "Artificial Intelligence," what comes to mind in the context of your work in higher education?
6. How do you perceive your digital literacy compared to others in your institution?
7. What does "AI readiness" mean to you, and how prepared do you feel to use AI in your role?
8. Can you share an example of a time when you felt confident (or unprepared) using a digital or AI tool?
9. Compared to when you first started working in higher education, how do you perceive the changes in the digital skills required for your role?

Challenges and Enablers

10. What have been the most significant challenges in learning or using digital and AI tools in your role?
11. What factors (personal, institutional, or external) have helped or supported your development in this area?
12. Have generational factors (such as age or prior training) influenced your experience with digital transformation?

13. Can you share any specific experiences where you felt either particularly enabled or hindered in trying to use digital tools or AI in your teaching, learning, or administrative tasks?

Institutional Influence

14. What type of institutional support or training has been made available to you?
15. How effective do you find these initiatives in helping you build digital or AI competencies?
16. To what extent do institutional policies/digital culture encourage or discourage the integration of AI in academic or administrative functions?

Impact on Practice

13. How have your digital competencies influenced the way you approach your teaching, learning support, or administrative responsibilities? Can you provide some examples?
14. Do you feel these competencies have affected your professional identity or confidence in the workplace? If so, how?
15. Have you observed any shifts in the expectations placed on your role due to digitalisation?

Future Orientation

16. How do you see AI influencing your role in the next 5–10 years?
17. What opportunities or concerns do you foresee?
18. What support or preparation would you need to feel ready for AI-driven changes in higher education?
19. If given the opportunity, what changes would you suggest to help Generation X staff better adapt to digital and AI advancements?
20. What skills or knowledge do you think will be most important for Generation X professionals in UK higher education to develop in light of increasing AI integration?

21. What are your hopes or concerns about the broader impact of AI on the future of higher education in general and particular to Private higher education?

Final Reflections

19. Are your organisation prefer to recruit new blood Z generation as compared to experienced Y and X generation?
20. Is there anything else you'd like to share about your experiences or perceptions regarding digital transformation and AI in higher education?
21. Do you feel that your voice as a Generation X academic/non-academic is being considered in institutional digital strategies?

Prompts for Deeper Exploration:

Throughout the interview, be prepared to use follow-up prompts such as:

- "Could you tell me more about that?"
- "What do you mean by...?"
- "Can you give me a specific example?"
- "How did that make you feel?"

APPENDIX 02: INTERVIEW INFORMED CONSENT FORM

Title of Study:

Uncovering Digital and AI Competency Gaps: A Qualitative Study of Generation X Employees in UK Private Higher Education Sector

Doctor of Business Administration (DBA)

Swiss School of Business and Management, Geneva

Purpose of the Study

You are invited to participate in a research study that aims to explore how Generation X employees in UK private higher education institutions perceive, experience, and engage with digital and artificial intelligence (AI) tools. The study seeks to identify competency gaps, challenges, and opportunities for enhancing digital and AI readiness within this sector.

What Participation Involves

- You will be asked to take part in a semi-structured interview, either online or in person.
- The interview will last approximately 45–60 minutes.
- With your consent, the interview will be audio-recorded to ensure accurate transcription and analysis.
- You may choose not to answer any question and may withdraw from the interview at any time without giving a reason.

Confidentiality and Data Protection

- All information provided will remain strictly confidential.
- Your identity will be anonymised; a code (e.g., P01, P02) will be used instead of your name.
- Data will be stored securely on password-protected devices and will only be accessible to the researcher and supervisory team.
- Data will be retained for the duration required by the Swiss School of Business and Management's research guidelines and securely destroyed thereafter.

Voluntary Participation

Participation is entirely voluntary. You are free to withdraw at any point before or during the interview without any consequences. If you choose to withdraw after the interview, your data will be removed from the study.

Potential Risks and Benefits

- There are no anticipated risks associated with participation.
- While you may not directly benefit, your contribution will help advance understanding of digital and AI competencies in UK private higher education, with potential benefits for institutional development and staff training.

Ethical Approval

This study has been reviewed and approved in accordance with the ethical standards of the Swiss School of Business and Management, Geneva.

Consent Statement

By signing below, you confirm that you:

- Have read and understood the information provided above.
- Have had the opportunity to ask questions and received satisfactory answers.
- Understand that participation is voluntary and that you may withdraw at any time.
- Consent to take part in this research study.

Participant's Name (Print): _____

Participant's Signature: _____

Date: _____

Researcher's Name (Print): _____

Researcher's Signature: _____

Date: _____