Beyond the Screen: Exploring Experiences of First Year Computer Science Students in Higher Education

by

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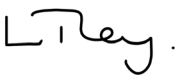
Signature of Candidate: 

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Abstract

With an increasingly diverse range of students entering higher education, the need to understand their needs is paramount, so that everyone has the opportunity to thrive and succeed in a socially just system. Research has been ongoing in this area for decades, but until recently has been mostly based on quantitative data collected centrally, without really considering the students, their lived experiences or their needs.

This research investigates the multifaceted experiences of first-year computing students through a comprehensive analysis using a mixed methods approach. Using quantitative data, the research examined the impact of student characteristics, feelings, and prior experiences on student outcomes for their first year of study on a computer science related degree in a university in the northwest of England. Qualitative data was collected in the form of interviews conducted with 17 participants over five timeframes during the first year of their degree, complemented by a reflective interview towards the end of their final year. Thematic analysis was applied to these data, which resulted in four primary themes: Social, Personal, Pressure, and Mental Health. Each theme encompasses several key aspects: Belonging, Friendship, and Family within Social; Comparison to Others, Self-Efficacy, Finances, and Future Aspirations within Personal; Workload, Expectations, and Fear of Failure within Pressure; and Wellbeing, Emotions, and Coping Strategies within Mental Health. The qualitative data was further examined by timeframe and longitudinally to understand the changing perceptions over time.

The findings reveal the intricate interplay between these themes, highlighting how social connections can alleviate stress, how personal confidence influences academic success, and how effective coping strategies are essential for managing mental health challenges. A conceptual model of the student experience is proposed to encapsulate these dynamics, offering a holistic view of the student journey. This model emphasises the importance of a structured student-focused approach, building confident independent learners and suggesting that interventions should be multifaceted and tailored to address the interconnected nature of student challenges. This framework provides a valuable tool for universities to enhance support services, inform policy, and ultimately promote student success and wellbeing.

This study was conducted with participants from computer science programmes in one university in the northwest of England, so whilst the recommendations and model are limited to this study, there is scope to extend beyond these boundaries.

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Chapter One

1. Introduction

1.1. Research Background and Context

The landscape of higher education has undergone profound transformations in recent decades, characterised by a marked increase in student enrolment and greater diversity among the student population. This diversity spans socio-economic backgrounds, academic preparedness, and life experiences, presenting both opportunities and challenges for universities striving to accommodate and support a diverse student body (Thomas & May, 2010). There has been a steady increase in the number of UK domiciled young applicants over the last ten years from all areas of the United Kingdom, with almost a quarter of all UK 18-year-olds from low participation areas being accepted to study on a fulltime undergraduate course in 2021, compared to 14% ten years previously (UCAS, 2022).

The evolution of post-1992 universities in the UK, a term referring to institutions granted university status following the Further and Higher Education Act of 1992 (Legislation.gov.uk, 1992), mirrors broader shifts towards market-oriented models of higher education, with universities being treated more like businesses that compete for students and funding. This led to the establishment of many new universities and colleges, and increased competition for students and resources as well as a growing focus on issues of access and quality. The 1992 Act had a significant impact on the higher education sector in the UK. It removed the binary system that had previously separated universities and polytechnics and created a single system of higher education (THE, 2022). The Act also gave institutions that met certain criteria the right to award their own degrees, rather than having to rely on the validation of degrees by existing universities.

One of the most significant changes during this period was the introduction of tuition fees in many countries. This shift in funding has had a profound impact on universities, with many institutions now relying heavily on tuition fees to support their operations. This shift has heightened concerns about equitable access to higher education, particularly for students from low-income backgrounds, who may be deterred by the cost (Donnelly & Evans, 2019; Salmi & D'Addio, 2021).

Technological advancements have played a significant role in reshaping higher education. The widespread adoption of online learning and digital technologies has led to new forms of teaching and learning, as well as changes in the way universities operate. This has also raised questions about the role of traditional universities in a rapidly changing educational landscape (Bonfield

et al., 2020).

In recent years, the focus on diversity, inclusion, and social justice has become increasingly prominent in higher education. This shift has led to important discussions on the representation of underrepresented groups, the decolonisation of curricula, and the role of universities in addressing broader societal issues. Despite progress, challenges remain in ensuring equitable access to education, promoting social justice within the academic environment and ensuring that students see the value of higher education (Rainford, 2023).

Widening Participation (WP) is a term used to describe the efforts of universities and other higher education institutions to increase the number of students from underrepresented and disadvantaged groups in higher education. The WP agenda stems from the Robbins Report, which proposed that higher education should be available to anyone with the ability and knowledge who wishes to do so (Robbins et al., 1963), with plans to increase the number of places for full time students over the next decade by expanding and modernising the higher education system. The Dearing Report further influenced higher education policy with recommendations that led to significant reforms, particularly regarding funding, access and the relationship with employment, with the aim of education and training enabling advancements in society (Dearing, 1997). The Browne review introduced changes in the funding model for universities, with a heavy emphasis on the income from tuition fees (Browne, 2010). This has led to a more market-driven landscape for student numbers, but also government commissioned incentives to increase social mobility and raise aspirations of specific groups. These groups may include students from low-income backgrounds, ethnic minority groups, first-generation students, students with disabilities, and mature students (Rizzica, 2020). Widening Participation is important in higher education as a key driver of social mobility, increasing the number of students from underrepresented groups to reduce social inequality. A diverse student body can enrich the learning experience for all students, by bringing different perspectives and experiences into the classroom (Byrne & Flood, 2008), but with it comes concerns for students who may struggle to adjust to their new environments (Byrne & Flood, 2005; Tinto, 1988). Widening Participation can also help to address skills shortages in the economy, by increasing the pool of graduates in STEM subjects such as science, technology, engineering, and mathematics (CBI, 2015).

The University of Central Lancashire (UCLan) markets itself as a public research university located in the city of Preston, Lancashire, England, which is the administrative centre of the county and has a population of around 150,000 people (ONS, 2021). UCLan's history dates to 1828 when the Institution for the Diffusion of Knowledge was established in Preston. In 1992,

Preston Polytechnic was granted university status and became the University of Central Lancashire. Since then, the university has undergone significant expansion and development and is now a large and diverse university with a student population of over 38,000, including students from more than 120 countries. It offers a wide range of undergraduate and postgraduate programs in wide and diverse subjects. The university has been recognised for its commitment to social mobility and widening participation, with a focus on providing opportunities for students from all backgrounds to access higher education (UCLan, 2021).

In recent years, UCLan has invested heavily in its campus and facilities, including the creation of a new £35 million Engineering Innovation Centre and a £60 million Student Centre. It has also developed strong partnerships with local and regional businesses, providing opportunities for students to gain practical experience and develop professional skills. The University of Central Lancashire (UCLan) is a modern post-1992 university that is firmly committed to the widening participation agenda. It attracts a diverse range of students and is particularly well-known for its strong links with industry and its focus on employability, making it an attractive choice for students who are looking to enhance their career prospects (UCLan, 2021).

University league tables are annual rankings of universities based on various criteria such as academic reputation, research output, student satisfaction, and graduate employability. According to the Complete University Guide 2023, UCLan ranks 99th out of 130 institutions in the United Kingdom, 10th out of the twelve universities in the northwest of England, and 7th out of the 21 universities listed in the post-1992 university group. For Computer Science, UCLan ranks 81st out of 114 other universities, 9th out of 11 universities in the North West of England, and 8th out of 18 of the post-92 university group (TheCompleteUniversityGuide.co.uk, 2023). In the Guardian League Tables, UCLan fairs slightly worse, ranking 104th out of 121 universities and 100th out of 110 for Computer Science (Guardian, 2023). Whilst league tables can be used to benchmark university performance across several factors and can influence student choices, the criteria used are often subjective and heavily influenced by funding and research and may not capture the quality of the overall student experience.

Computer Science and related courses have evolved significantly over the years, reflecting the rapid pace of technological advancements, and changing job market demands. Early curricula for computer science programmes focused on topics such as software engineering, networking, multimedia and web development, reflecting the widespread use of the internet and digital technologies. With the more recent growth of big data and artificial intelligence (AI), many computer science courses have now incorporated machine learning, data mining, and artificial intelligence. There has also been an increased emphasis on cyber security, as the threat of

cyber-attacks has become more pervasive (Akdemir, Sungur & Başaranel, 2020; Charlton, 2024; Kassa, James & Belay, 2024). Many computer science courses now offer subjects such as cryptography, network security, and secure software development. These changes have been aimed at providing students with relevant, practical skills and preparing them for the diverse and dynamic range of opportunities in the field of computer science. The subject continues to evolve rapidly, as new technologies emerge and the demand for skilled computer scientists continues to grow.

According to data gathered from Higher Education Student Statistics (HESA) (2024), relating to students enrolled on any first year of an undergraduate degree for the academic year 2021-22, there were 648,925 students enrolled across the United Kingdom, of which, 56% were male, 85% were classed as UK 'home' students, 69% were white, 16% had a known disability declared, 68% were aged 20 and under, and 44% were the first in their family to attend university. At UCLan in the academic year 2021-22, there were 36,375 students, with just over 5% of all students enrolled on a computing degree, but beyond the gender balance, widening participation data was not available. However, comparing the HESA national data for year 1 undergraduate enrolments with both UCLan and more specifically computing courses within UCLan gives an interesting profile of the university and how Computing sits within it as a discipline. The gender balance for UCLan is similar to the national picture, with UCLan computing attracting 23% female students (UCLan, 2022), which is slightly above the national computing picture (18%) and appears to be an upward trend for UCLan courses, which was 10% of the UCLan Computing cohort in the academic year 2020-21. This gender imbalance remains a challenge within computing, with lots of research being done in this area to try to understand why this happens and find ways to address it (Forbes, 2009; McGrath Cohoon, 1999; Peters & Pears, 2012).

UCLan takes more students from outside the UK than the national average (UCLan 24%, UCLan Computing 25%), more students with known disabilities (UCLan 20%, UCLan Computing 21%), has a more ethnically diverse cohort (UCLan 50%, UCLan Computing 47% are white), and has a higher proportion of students who are first in their family at university (UCLan 53%, UCLan Computing 49%). As well as gender, the main differences between the cohorts of UCLan and UCLan Computing relate to age and the socio-economic differences explained by the POLAR4[1]

[1] POLAR4 quintile postcodes are a measure of socio-economic disadvantage in the UK, which are used in higher education to assess and monitor the participation rates of young people from different areas in the country (OfficeForStudents.org.uk, 2022). The quintiles range from Q1 (the most disadvantaged areas) to Q5 (the least disadvantaged areas) and are an important part of efforts to promote social mobility and widen access to higher education, by helping to identify areas where more support is needed to help young people from disadvantaged backgrounds to access and succeed in university.

quintile measure. UCLan Computing students tend to be younger than the national average and UCLan (National 68%, UCLan 52%, UCLan Computing 77% were aged 20 years and under). UCLan takes most of its student body from quintiles Q2 (24%), Q3 (20%) and Q4 (23%), whilst UCLan Computing has most from Q2 (30%), and the rest of the students more evenly spread across the other quintiles, but fewer from Q1 (Q1 14%, Q2 30%, Q3 18%, Q4 20% and Q5 18%), indicating that UCLan takes less students from the most deprived areas of quintile Q1.

1.2. Research Rationale

As a lecturer at the University of Central Lancashire from September 2003 to April 2023, I have had the privilege of witnessing countless students achieve success but unfortunately have also seen many struggle and fail. My personal background as a white, mature, female student contrasts with the experiences of many 18-year-olds entering university today, who face unique pressures and challenges. This disparity has sparked my interest in understanding the factors that contribute to student success and the obstacles that hinder it. Having pursued my own degree as a mature student, I find it challenging to fully understand the mindset of a typical 18-year-old student who may be grappling with the pressures and complexities of university life. Some students appear to give up easily in the face of what seem like minor setbacks, while others demonstrate remarkable persistence and resilience in overcoming significant obstacles. This perspective has shaped my approach to the research, encouraging me to explore the varied experiences of first-year computing students with an awareness of how background and prior experiences influence their academic journey.

During my undergraduate studies, I personally strove for excellence, always determined to attend all classes and push myself to achieve the highest possible grades, despite major upheaval in my personal life. I always made sure I found time to complete assessments and keep up with subject reading, even if that meant missing meals, family time or sleep. I have observed that some of today's students seem more content to settle for a passing grade, with little apparent motivation to push themselves academically. Additionally, some students appear to be pursuing higher education for reasons unrelated to academic achievement, which raises questions about their commitment to the process and its associated costs.

Given the significant financial burden of higher education, I find it difficult to fathom why anyone would embark upon a university course without first thoroughly researching their options and preparing themselves to work hard, so that they maximise the opportunities on offer, without wasting their time and money. As such, I am keen to explore the factors that influence student success and retention and identify ways in which we can better support our students in achieving their full potential. My research aims to investigate the success factors that influence UCLan

Computing students and explore drivers that help them to overcome obstacles, navigate personal crises, and continue to excel academically. I am interested in understanding why some students struggle more than others, as well as identifying any external factors that may influence success rates. Ultimately, my hope is to identify strategies that can help students to maximize their university experience and achieve their goals. Research into UCLan Computing first year students differs slightly to research into students generally, as computing students tend to share specific characteristics, being predominantly young, male, and from a more diverse background. This research aims to delve deeply into the experiences of first year computer science students, seeking to uncover the factors influencing student success to better understand their struggles and successes as they traverse their first year of study. As a professional doctorate, this work is a 'research in practice', with the aim of creating and interpreting knowledge through original research (Lester, 2004). The ultimate goal is to develop strategies that support students in maximising their university experience and achieving their academic and personal goals. By understanding the student perspective on what is important to them and the struggles they encounter, this research aims to inform the development of support mechanisms that can better serve the needs of first-year computing students. As a professional doctorate, the findings will contribute to the broader body of knowledge on student experiences in higher education and offer practical recommendations for enhancing student support and success.

1.3. Research Aims and Objectives

The overarching aim of this research is to provide a detailed understanding of the first-year experience of computing students at UCLan, contributing to the broader discourse on student success in higher education. To achieve this aim, the research has the following objectives:

1. To critically review existing research on the student experience in higher education and within computing disciplines, establishing a comprehensive understanding of the field.
2. To conduct primary research through questionnaires and interviews, capturing the nuanced experiences and perceptions of first-year computing students.
3. To analyse the collected data to identify key themes, challenges, and factors that influence student success and retention.
4. To develop recommendations and a framework aimed at enhancing the student experience, supporting academic success, and informing institutional practices and policies.

This leads to my research questions:

RQ1: How do demographic variables (e.g., gender, socio-economic status, ethnicity) affect the experiences and outcomes of first-year computing students at UCLan?

RQ2: How do students' prior experiences affect the experiences and outcomes of first-year computing students at UCLan?

RQ3: What challenges do first-year computing students at UCLan commonly encounter, and how do they address these challenges?

RQ4: What are the key factors that contribute to the academic success of first-year computing students at UCLan?

Along with institutional data related to attendance and results, I will use data gathered from questionnaires to explore how the demographic characteristics, feelings and prior experiences impact the student experience in response to RQ1 and RQ2.

For RQ3 and RQ4, I will use both the questionnaire and interview data to identify the typical difficulties students face and their strategies for coping with these issues.

1.4. Limitations

This research is limited to a subject discipline within a university, and by the number of participants who volunteered to be involved in the study. The method of recruitment may also impact on the generalisability of the study. For the qualitative data, all participants volunteered to be involved, which gives a self-selective group that may or may not represent the larger population of the cohort in question. The study also only recruited volunteers from the 2015-16 academic year, which may or may not be representative of the years before and after. The study was conducted prior to the Covid-19 pandemic, which altered the landscape of work and study with long-lasting effects.

The students who took part could potentially limit the study, as they can only speak from their own experiences, and some may be more engaged or open to suggestions (Maher & Macallister, 2013). There are various other limitations related to decisions made in both methodology and methods.

1.5. Overview of Thesis

Chapter 2: Literature Review. This chapter provides an in depth look at the literature surrounding academic success, retention and factors that influence both.

Chapter 3: Methodology. This chapter describes the research paradigm, design and methods used in the study, including the sampling strategy, data collection procedures, and data analysis

techniques. The chapter also discusses the ethical considerations of the study.

Chapter 4: Questionnaire Data: Analysis and Discussion. This chapter presents the findings of the questionnaire based on the analysis of the data collected from the cohort at the beginning of the academic year, their attendance and their end of year results.

Chapter 5: Interview Data: Analysis and Discussion. This chapter presents the findings based on the analysis of the interview data. The chapter provides a detailed description of the key themes and patterns that emerged from the data and compares the experiences of the students.

Chapter 6: Recommendations, Conclusion and Reflections. This chapter summarises the main findings of the study and discusses their significance for the field. The chapter also highlights the contributions of the study, and suggests practical implications for policymakers, educators, and students. Finally, the chapter concludes with some recommendations for future research.

1.6. Chapter Summary

This chapter outlines the broader context of higher education, highlighting the significance of widening participation and the historical evolution of post-1992 universities like the University of Central Lancashire (UCLan). It underscores UCLan's commitment to social mobility and inclusion, emphasising its diverse student body and strong industry connections.

Key themes to be explored include the students' academic journey, their personal and social challenges, and the support mechanisms available to them. The research aims to identify factors contributing to both positive and negative experiences, offering insights into how students balance academic and personal life, and their sense of belonging within the university community.

Through questionnaires, in-depth interviews conducted at multiple intervals throughout the year, attendance and results, this study seeks to provide a nuanced understanding of the computing student experience at UCLan, ultimately proposing strategies to enhance student support and success.

Chapter Two

2. Literature Review

2.1. Introduction

Understanding and enhancing student retention and success factors is a critical activity in a university that strives to support student achievement and foster a learning environment, where students can learn, flourish, and reach their potential (Bolderston, 2008). This chapter will consider previous published work in this area and set the scene for my own research.

Retention, in the context of higher education, refers to the ability of institutions to retain enrolled students until they complete their academic programs. It encompasses various dimensions, including academic progress, institutional persistence, and degree completion rates. Understanding the factors that influence student retention is essential for educators, administrators, and policymakers seeking to develop effective strategies to improve student outcomes and mitigate dropout rates (Morgan, 2012).

Concurrent with retention is the exploration of success factors that contribute to student achievement and satisfaction in higher education. Success extends beyond mere completion of assessments; it encompasses academic attainment, transformative learning, personal development, and overall well-being (Bowden, Tickle & Naumann, 2021). Identifying the factors that contribute to student success will provide areas for support mechanisms that would facilitate positive outcomes for students.

This chapter focuses on the existing research regarding the student experience in the UK or similar higher education systems, focusing on the determinants of success, the causes of dropout, and the elements that contribute to student motivation. The landscape of higher education in the UK has witnessed significant changes over the years, prompting a need to constantly strive for better ways to support and engage students. Exploring existing models of student experience offers frameworks for understanding the holistic journey of learners within higher education.

2.2. Retention

Retention of computing students in higher education is a crucial concern in today's academic landscape. As the demand for skilled professionals in technology continues to rise, ensuring that students persist and succeed in computing subjects is essential for their personal growth, as well as meeting industry needs. Retention has been an inherent, on-going problem for most Higher Education Institutions for decades (Danaher et al., 2008), and with 68% of Year 13 students (in

the second year of their Further Education studies) in the academic year 2020/21 saying they had applied or intended to apply for a university place (Yarde et al., 2023), this remains an unresolved issue. According to HESA (2024), failure and withdrawal within the first year of university for young entrants was 5.3% across the sector in 2019/20 (7.7% for the computing field) and even higher for mature students at 11.9% for the sector and 14.7% for computing related courses. This is an improvement of the gap reported by HESA from 2011/12 when the sector was 5.8% (computing was 9.8%) for young entrants, but computing continues to be one of the highest subjects for failure and withdrawal. With drop-out rates reported as high as 40% in some institutions (Kinnunen & Malmi, 2006), understanding students' motivations, issues and driving forces could help find the key to improving their success and unlocking their true potential.

There is a wide body of literature exploring the first-year experience and the reasons why students leave university, but it still remains problematic. Retention is a deep-rooted and multi-faceted problem that needs further and ongoing exploration (Danaher, Bowser & Somasundaram, 2008) in order to understand. Tinto (1987) observed seven major causes for student departure, most of which have echoed throughout the literature since then, but the problems still persist. In a study by Fresh Start (Loveday, Kilmartin & Wood, 2010) at the University of Central Lancashire, students withdrawing in the academic year 2007-8 gave as their top three reasons the wrong course choice (25%), financial reasons (18%) and personal reasons (32%). This view is supported by Buglear (2009), although students usually leave due to a combination of factors rather than a single thing (Loveday & Bott, 2011). The experiences of students are not well understood (Peters & Pears, 2012), as the emphasis historically has been to look at data systemically, rather than from the perspective of a student. Without this understanding, any actions taken may not improve outcomes and may actually further negatively impact their engagement and perceptions.

The challenge of recruiting and retaining students in computing-related courses is compounded by the fact that many students arrive at university without a clear understanding of their chosen degree or career path (Grebennikov & Shah, 2012; Howles, 2009). This mismatch between expectations and reality often results in students disengaging from their studies or switching courses at the end of their first year (Danino, May & Mitchell, 2013). Students must possess a clear comprehension and awareness of their course requirements and university expectations to effectively adapt their own expectations, as emphasised by Morgan (2011).

In addition, students in computing-related courses often struggle with self-efficacy, which can negatively impact their confidence, motivation, and persistence (Kinnunen & Simon, 2011). Self-

efficacy, refers to an individual's belief in their capability to accomplish tasks and achieve goals (Bandura, 1978). In the academic context, students with high self-efficacy tend to exhibit persistence, resilience, and a proactive approach to learning, which influences motivation, self-regulation, and future performance, even after controlling for past performance (Bandura, 2012). Increasing individuals' beliefs in their capabilities enhances that self-regulation; they perceive challenges as opportunities for growth rather than obstacles. Conversely, students with low self-efficacy may experience self-doubt and reduced motivation, which can contribute to avoidance of academic tasks and higher drop-out rates.

The concept of "institutional habitus" can be used to explain why some students persist in higher education despite the difficulties they encounter. Institutional habitus is a concept that refers to the collective values, norms and practices of particular social classes or groups, which are ingrained within an organisation, such as a university (Bourdieu, 1984). These dispositions are embedded in everyday actions which shape and are shaped by the cultural capital of the influential and dominant social group, which then influences further experiences such as learning and employment. Institutional habitus is a significant variable that interacts with class, gender and race to impact on secondary school pupils, further education college students' lives and higher education choices (Thomas, 2002). The widening participation agenda gives greater access to university for diverse populations, but with it comes concerns for students who may struggle to adjust to the institutional habitus (Byrne & Flood, 2005) due to their demographics, background or prior experiences. Gorard et al. (2006) identified several key social determinants that influence lifelong participation in learning, including time, place, gender, family, and initial schooling. These factors are fundamental in shaping individuals' educational trajectories and long-term engagement in learning activities. For non-traditional students such as those that are first in their family to go to university, they face greater challenges than their counterparts, such as dealing with admissions formalities and cultural fit (Lessky, Nairz-Wirth & Feldman, 2021). Understanding and addressing these determinants are crucial for promoting equitable access to education and fostering lifelong learning opportunities.

Student success goes beyond the dealings with academic staff; the support services have a huge influence on student success and can be extremely challenging to navigate. The consolidation of the support services is more likely to help address student retention than the different services per se (Cabrera, Nora & Castañeda, 1993), but the quality of those services plays a significant role in student satisfaction (Gruber et al., 2010). My own interactions with student services can attest to this.

2.3. Factors Influencing Student Success

Success in higher education is influenced by numerous factors that extend beyond academic achievement alone. Understanding these factors is imperative for fostering student success and enhancing retention rates within educational institutions.

Widening Participation across the university sector gives many students the opportunity to study that might not otherwise be available to them. Students come from a wide range of backgrounds and have a very diverse range of experiences and abilities (Thomas & May, 2010). This may cause issues for those who come from backgrounds that have not included academic life before (Tinto, 1988), with problems adjusting and coping in the transition to becoming an autonomous and active learner (Hussey & Smith, 2010; Kahu, 2013). With higher education being the foundations of a lifetime of learning (Boud & Falchikov, 2006), it is important to give all students the opportunity to thrive and flourish, so that they can enrich their lives, both at work and socially, which involves giving students the opportunity to truly participate, not just be present (Salisu, Douglas-Oloyede & Thomas, 2024). Hussey and Smith (2010) found that the education structure that supports the learning and teaching in higher education has not evolved at the same rate of change as the student diversity, and also found that students who are classified as non-traditional (from lower income backgrounds, ethnic minorities, studied Business and Technology Education Council (BTEC) qualifications rather than A levels, etc.) may find it harder to cope with or harder to adjust to traditional university teaching methods, such as the use of one-way delivery in large lectures, and reliance on student action and autonomy (Hussey & Smith, 2010). This is obviously concerning, as a large proportion of computing students at UCLan would be classed as non-traditional.

Arriving at university as a new student can be a very daunting experience, and it is important that students are given the time and opportunity to adjust to their new environment and make new friendship groups. Students who do not bond to their social or academic communities often feel isolated (Tinto, 1987). Thomas and May (2010) highlight the need for lots of opportunity to create relationships with peers and lecturers, both in and out of the classroom, as the more time they spend with each other and their lecturers, the more likely they are to stay (Tinto, 1982). Social integration plays a huge part in determining whether a student decides to leave or not (Mackie, 2001; Webb & Cotton, 2018), so chances to bond are of paramount importance, especially during the first critical weeks of the course. From experience, it appears to be the students without friendship groups that have poorer attendance, which leads on to other problems with assessment non-submissions, more missed classes and eventual withdrawal. Attendance is an important factor for successful completion of their course. Poor attendance is

linked to poor academic performance and higher withdrawal rates (McCluckie, 2014). University students are active agents in their educational experiences and the student experience at university is influenced by the interplay between the student, the university, and wider structures. Each student has unique personal capacities and properties that shape their studies, making it difficult to predict their level of engagement (Kahu, Picton & Nelson, 2020).

Students who do not feel that they fit in are commonplace in universities. According to Tinto (1987), this occurs when the quality of the interactions between individuals and their peers/lecturers is poor. Social integration and a sense of belonging have been identified as important factors in the transitional period which significantly impact retention, and that social networks and communities play a critical role in student success (Kinnunen & Malmi, 2005). Early withdrawal is likely if the student's habitus does not align with that of the institution (Thomas, 2002), as it is easy to become isolated, even though there are potentially hundreds of other people around. Making friends or friendship groups that share a familiar habitus to themselves can help to reduce the feelings of homesickness, and brings more of a sense of belonging (Wilcox, Winn & Fyvie-Gauld, 2005). It is also important to have built a one to one relationship with academic staff (Webb & Cotton, 2018) and to have positive learning experiences in order to foster a sense of belonging (Peters & Pears, 2012). The cyclical nature of positive experiences can enhance motivation and trigger positive emotions (Astin, 1984). If students' early experiences are positive, they can boost self-efficacy and a sense of belonging but also contribute to their overall wellbeing. As a result, students can experience increased satisfaction with their studies and are more likely to perform well academically (Kahu, Picton & Nelson, 2020).

The cost of education is a significant barrier for many students. High tuition fees and living expenses can put a significant strain on a student's budget, and some may find it difficult to finance their education (Yorke, 1998). A survey of 1,050 undergraduate students in January 2023 by The Sutton Group revealed that students were struggling financially, with over a quarter (27%) saying they had taken a job or were working more hours and 11% receiving a hardship fund or similar from their university to support them. Almost a quarter (24%) also said that they were less likely to complete their studies because of the cost of living crisis (Trust, 2023).

A study by Schofield and Dismore (2010) regarding higher education students in a further education setting, found a correlation between UCAS points and success, with the average UCAS points being 30 points higher for students who successfully completed the first year than those who withdrew or failed. It is not clear why this difference was discovered but is likely to be related to the issues already discussed, but also could indicate that students taking a place

through the clearing[2] process are at a higher risk than their counterparts. It could also be linked to a student's self-efficacy, as students who expect to do well based on previous performance have a greater outcome (House, 1998).

Choosing the right course is fraught with difficulty, and students could choose the wrong course for a variety of reasons, such as following their friends, strong parental influence or unclear aspirations. Many students arrive at university not really knowing what the implications of their choice might be, what is expected of them, or where their degree could lead them (Howles, 2009). This could lead to students not fully understanding what their course will entail, and having unrealistic expectations of the course and university life (Biggers, Brauer & Yilmaz, 2008; Morgan, 2011). If the uncertainty surrounding their expectations is not addressed, the student is likely to feel pressure mounting, which may lead to them leaving the course early (Tinto, 1987). Adjusting to cope with university means that some students may need to realign their expectations, both socially and academically. For example, if a student had expected their course to be very structured, with specific learning activities outlined every day, when the course only has a small amount of contact time, this can be very hard for some to adjust to. For some, the perceived missing structure can be misinterpreted as free time or could make the contact time seem less important, particularly if it is spread thinly over several days. If students struggle to understand the changes they need to make to their expectations, both academic and social, it can result in poor attendance and an early departure, before they even give themselves a chance to succeed (Tinto, 1987). Students often cite a lack of understanding about what their course entails as a reason for disengaging from their studies (Danino, May & Mitchell, 2013). This makes it very important to make sure that students are aware of expectations of the course and university early, so that they can better align their horizons (Morgan, 2011) during the transitional period, or be able to switch to a course that better suits their needs.

For some students, their goal was never to complete the course; they may have enrolled on a course at a university as a stepping-stone to the course or institution they really want to attend but did not get in for some reason (Tinto, 1987). Others may have enrolled in order to broaden their horizons, or to escape other life pressures (Forbes, 2009). For these students, there is little that can be done to retain them, as they never had any intention to complete their studies.

Some students may struggle with the academic demands of university. The workload and expectations can be overwhelming, leading to stress and burnout. Whilst not confined to university students, the 2023 Deloitte survey (Deloitte, 2023) sheds light on important factors

[2] In the UK higher education (HE) sector, "clearing" is a crucial process that occurs annually to help universities and colleges fill any remaining places on their courses. This could be due to various reasons, such as not meeting the entry requirements for their preferred courses or changing their academic or career aspirations late in the application cycle.

that are affecting Millennials (born 1983 to 1994) and Generation Z (born 1995 to 2004) from 44 countries around the world, excluding Ukraine and Russia. The key findings from this research are that friends and family are the most important aspect of their identity. Stress is a major factor for many students; the Deloitte survey found that 46% of Generation Z and 39% of Millennials said that they felt anxious or stressed all or most of the time, with even higher percentages for women, LGBT+, ethnic minorities and people with disabilities (Deloitte, 2023). A typical student could be juggling many aspects of their life as well as their studies, such as a part-time job, family and partner responsibilities, which can be very stressful. When one part of that complex life-mix has problems, it can have an adverse effect on everything that student does. Research by May, Fincham and Bauer (2015) discussed how elements of life can lead students to suffer from anxiety, stress, depression and burnout, which can all affect their ability to cope with university and life generally. With an estimated one in six adults experiencing a common mental disorder such as depression or anxiety each week (Baker & Kirk-Wade, 2024) this is not a discussion to be taken lightly.

Given that higher education is the foundation for a lifetime of learning (Boud & Falchikov, 2006), it is crucial that all students are given the opportunity to thrive and flourish. However, the computer science domain has limited emphasis on the "self," which remains a critical component of a student's growth and sense of belonging (Barnett, Parry & Coate, 2001). This emphasises the importance of nurturing students' individual identities, aspirations, and sense of belonging within the academic community. Acknowledging the role of the self can create environments that foster not only cognitive development but also personal and emotional growth. This holistic approach recognises that students are active agents in their own learning journey, shaping their identities and futures through meaningful engagement with knowledge and experience.

The discipline itself can also be a factor in retention (Danaher, Bowser & Somasundaram, 2008). Learning a programming language is extremely problematic, and can quickly lead to problems of self-efficacy, which in turn can lead to further doubt about their abilities and quickly turn into a lack of motivation to continue (Connolly, Murphy & Moore, 2009). The way that programming is taught can help or hinder in improving the student’s self-doubt, but it might be the discipline itself, which may be outside the control of the institution (Danaher, Bowser & Somasundaram, 2008). Research has shown that a student's success in computing-related courses is related to their comfort level with programming, rather than their past experience (Kinnunen & Malmi, 2006). Biggers, Brauer and Yilmaz (2008) found that a high level of programming in the first year of study affected the retention and success of students, particularly if they had no prior experience of programming.

Students who commute can also feel that they do not fit in as they are not experiencing the wider aspects of university life, and lack the opportunities to connect with others and make those social bonds (Astin, 1984; Forbes, 2009).

2.4. Existing Models of Student Experience

Most universities have plans to improve and procedures to determine how effective their student experience is, but student experience means different things depending on the audience. It can be determined, as discussed by Khan et al. (2022) by the use of surveys and feedback from students, or measured from attendance data or engagement with assessments, amongst others. All of these measures have value, but can also be deceptive, as all students experience university differently and have different expectations, drivers and values which influence the answers they give to feedback questions, plus students may not perceive the usefulness of many aspects of their university experiences until much later, when they experience the 'real world'. The following section will look at various models that have been established.

2.4.1. Tinto's Conceptual Schema for Dropout

The student's integration into the academic and social system can predict and determine whether they persist or withdraw (Tinto, 1975). As depicted in Figure 1, the social system features the interactions with peers, academics, and administrative personnel. It also includes the informal peer group associations and participation in extracurricular activities. Successful social encounters lead to social communication, friendship support, and academic support, which influence a student's evaluation of the benefits of attendance and modify their educational and institutional commitments. Social integration through friendships and extracurricular activities can reduce the strain between academic and social demands, enhancing commitment to the institution and reducing the likelihood of dropping out.

Academic integration refers to the student's alignment with the academic system of the university. It involves grade performance and intellectual development during the course. High grades are associated with high levels of intellectual development. Successful academic integration is linked to meeting explicit academic standards and identifying with the norms of the academic environment.

Integration between the two systems needs to be balanced (Thomas, 2020); academic integration alone, without the social integration is likely to lead to a higher risk of drop-out, and a higher social integration could be at the detriment of the academic integration, although if friendship groups are formed within the course, both systems can be strengthened (Tinto, 1975).

Tinto also acknowledges that this is a human endeavour with all students being affected by their prior life and academic experiences, their background and their expectations. The model has been criticised for emphasising the student responsibility for this integration (Russell & Jarvis, 2019), where in reality it should be a joint responsibility with the organisation. A student should not be expected to completely detach themselves from their normal life, to assimilate with a higher education environment (Williams & Roberts, 2023)

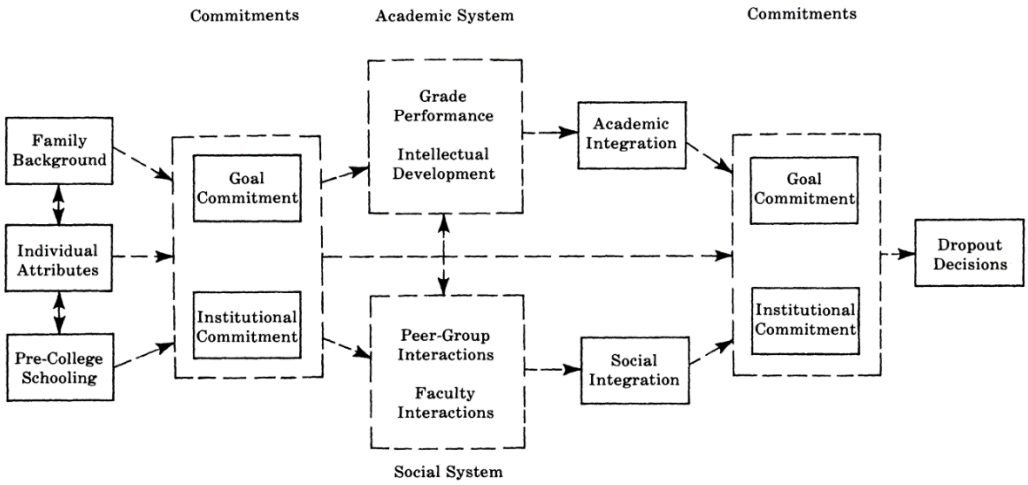


Figure 1: Conceptual schema for dropout from college (Tinto, 1975).

This work has largely stood the test of time, and is reported as being used extensively to develop induction activities (Samoila & Vrabie, 2024), but the general nature of the model makes it challenging to customise for specific real-world scenarios (Nicoletti, 2019). This theory emphasises the importance of faculty-student interactions for student retention, but for first-generation, working-class students this could be a barrier. Longwell-Grice and Longwell-Grice (2008) found that students from non-traditional backgrounds felt intimidated seeking support from faculty, leading to a lack of support. This highlights the significance of developing strategic and systematic faculty-student interactions to enhance retention efforts, aligning with Tinto's model.

Tinto's later works discuss the importance of social interactions, both within and outside the classroom which impact the student's success and persistence. He discusses this in terms of a network of affiliations with other students. Those located at or near the centre of a dense network are more likely to succeed when other students in the network are also succeeding. Conversely, if students in a dense network are not doing well, those at the centre are also more

likely to struggle. The density and location within the network play a crucial role in determining the impact on academic performance and persistence (Tinto, 2023). So, whilst social interaction is important for success, their connections could strongly influence their level of success.

2.4.2. Forbes' Model of Undergraduate Student Retention

Forbes (2009) developed a model (Figure 2) after studying first year undergraduate students on their tourism, leisure, sport and music management courses. The objective of the study was to establish factors that helped or hindered students to successfully complete their first year of study. The model attempted to explain undergraduate student retention, with retention being affected by many factors before they even come to university, including their previous experiences and their interactions with the university pre-enrolment. The inclusion of the pre-enrolment stage is the main difference between this model and that of Tinto, which highlights that students may have inclinations towards early withdrawal or non-completion based on their experiences with the pre-arrival processes, open days, etc. that are usually handled centrally and are beyond the control of the academic team. With non-traditional students having a higher non-completion rate, there is a need for more supportive welcome, induction and transition activities (Woods & Homer, 2021).

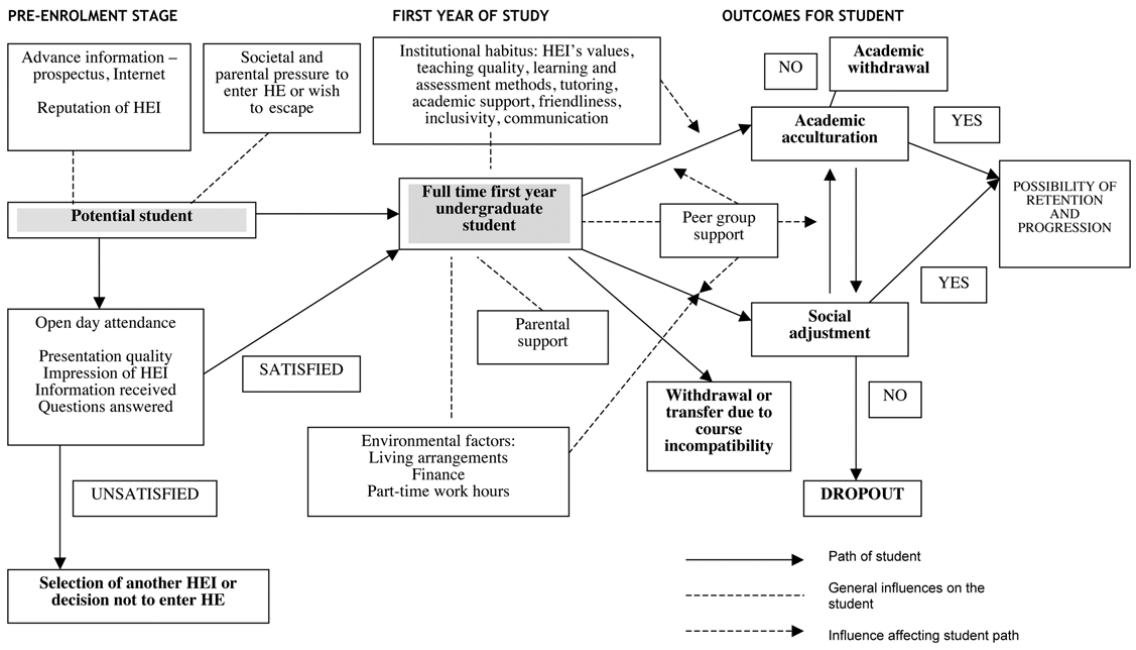


Figure 2: Model of undergraduate student retention in the context of mass higher education (Forbes, 2009).

This research highlights several factors that help a student settle into university life including how crucial social adjustments are, such as living arrangements and support from friends and family (Gallagher & Gilmore, 2013). Additionally, it also states that living at home and

commuting may cause students to miss out on social bonding and integration opportunities, which could affect their retention. With some universities reporting more than half of their students are commuters (Thomas, 2020), this highlights the need for universities to understand their student body, and build support mechanisms in line with the cohort's demographic. The findings also suggest that the institutional environment, including the effectiveness and quality of the academic team, had a significant influence on students. While this model offered valuable insights into factors affecting student retention, it is also limited in its generalisability by the methods used and the specific student population involved (Forbes, 2009).

2.4.3. Kahu's Conceptual Framework of Engagement

The conceptual framework proposed by Kahu (2013) depicted in Figure 3 aims to integrate the student's behavioural, psychological, socio-cultural, and holistic perspectives to explain student engagement. It attempts to illuminate how a student's background and previous experiences (the antecedents) and psycho-social state of being engaged can affect engagement, which then leads to positive outcomes such as academic achievement and well-being (the consequences). By placing the student at the centre, it acknowledges the multidimensional nature of engagement and the influence of both internal and external factors. The framework attempts to clarify the complex process of student engagement and emphasises the need for a comprehensive understanding to enhance student outcomes.

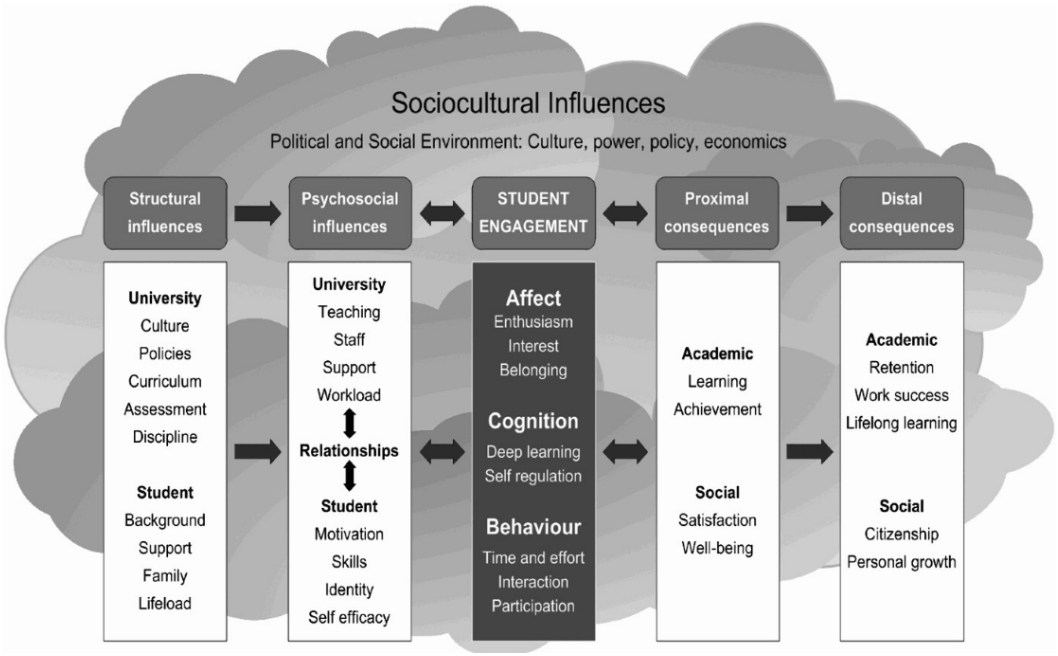


Figure 3: Conceptual framework of engagement, antecedents, and consequences (Kahu, 2013).

The antecedents of student engagement, such as involvement and expectations, play a crucial role in shaping the extent to which students experience engagement. These antecedents are

essential in facilitating engagement and preventing student disengagement (Bowden, Tickle & Naumann, 2021).

This framework was later revised to introduce the concept of the educational interface (Figure 4), highlighting the dynamic interactions between students and institutions that influence engagement and success (Kahu & Nelson, 2018). It focuses on specific psychosocial constructs like self-efficacy, emotions, belonging, and well-being as critical mechanisms for mediating student engagement, although there are arguments on what is the most appropriate measurement of belonging (Ahn & Davis, 2023). Unlike the previous framework, this revised model provides a more comprehensive understanding of how institutional and student factors intersect within the educational interface to impact student outcomes.

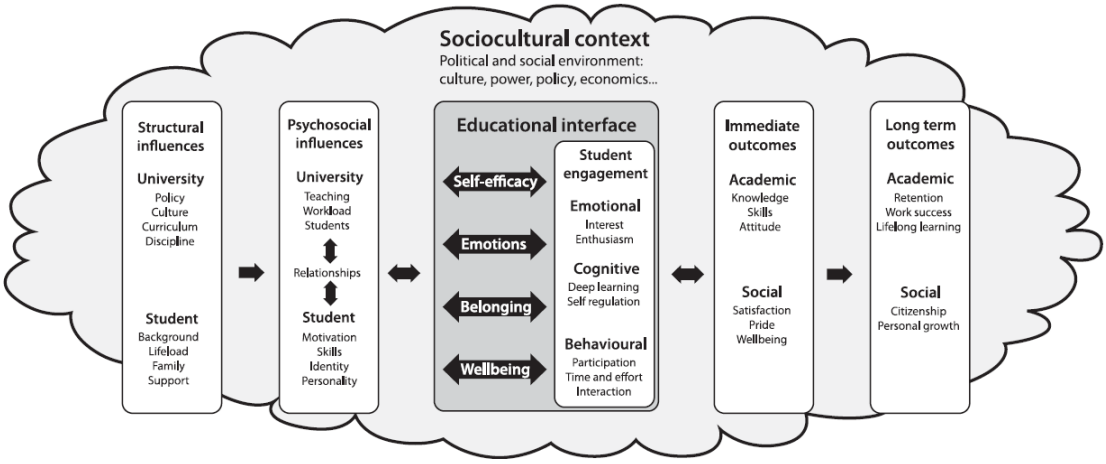


Figure 4: Refined conceptual framework of student engagement incorporating the educational interface (Kahu and Nelson, 2018).

The framework's emphasis on the educational interface as a key concept is a strength, providing a more tangible representation of student-institution interactions (Ferrer et al., 2022). By highlighting the dynamic nature of these interactions within the interface, the framework provides a more concrete understanding of how students experience and navigate their educational journey in higher education.

2.5. Chapter Summary

In this chapter, the literature on student retention and success factors in higher education in the UK was reviewed, highlighting the multifaceted and complex nature of these issues. The key themes identified include financial barriers, academic challenges, personal and social factors, institutional influences, and diversity and inclusion concerns. High tuition fees and living costs, coupled with limited financial support, particularly impact students from lower-income backgrounds, contributing to higher dropout rates. Academic preparedness and feeling a sense of belonging were noted as significant factors affecting student success. Personal and social

factors, such as mental health issues and social integration, further complicate the retention landscape, especially for international and non-traditional students. Institutional support services and teaching quality variability were also identified as crucial determinants of student satisfaction and success.

Diversity and inclusion emerged as critical themes, with students from underrepresented groups facing additional challenges due to a lack of cultural inclusivity. The literature underscores the importance of holistic support systems that address financial, academic, and personal needs, along with early intervention strategies for at-risk students. Enhancing student engagement through active learning techniques and promoting extracurricular activities is also seen as essential for improving academic outcomes and social integration. Inclusive policies and practices that foster a sense of belonging for underrepresented groups are vital for improving retention and student success in higher education.

The insights from the literature review underpin and validate the primary research that I have undertaken. Existing literature on student retention and success in higher education extensively explores theoretical models and frameworks, identifying various overlapping factors that influence student outcomes. The models provide valuable perspectives on academic and social integration whilst concepts of cultural and social capital explain disparities in student experiences. A significant gap remains in the literature, as much of this research does not directly engage with students to understand their personal experiences and perspectives. A large proportion of studies rely on quantitative data, institutional reports, and secondary analyses, often overlooking the nuanced, lived experiences of the students themselves. This lack of direct student input can result in an incomplete understanding of the challenges and factors that truly impact retention and success, potentially leading to interventions that miss the target. Incorporating the student voice, through qualitative methods would have offered a more holistic view of the factors that shape their university experiences.

My longitudinal study aims to address this gap by actively involving students through questionnaires and interviews conducted at multiple points during their first year. This approach allows for a dynamic and in-depth exploration of students' evolving experiences, capturing the complexities and subtleties that quantitative data alone cannot reveal. By focusing on the voices of students, this research will provide a richer, more comprehensive understanding of the factors influencing their retention and success.

Chapter Three

3. Methodology

3.1. Introduction

This chapter outlines the research methodology employed in this study. Given the identified gap in existing literature, which often neglects direct engagement with students, this study adopts a mixed methods approach. By collecting data from questionnaires and also conducting interviews at various points throughout the academic year, this methodology seeks to understand the dynamic and evolving factors that influence student retention and success. The chapter details the research design, explaining the participant selection process, data collection methods, and analytical procedures. Ethical considerations and the limitations of the study are also discussed, ensuring transparency and rigour in the research process. This methodological framework aims to provide a comprehensive and in-depth understanding of the student experience, offering valuable insights that can inform policy and practice in higher education.

This chapter aims to clarify and defend the philosophical basis, the methodology and methods that were used during this study. The emphasis of this research is fixed firmly on better understanding student behaviour, their reactions to events and fluctuations throughout their first year of study and their feelings about themselves, their relationships and their lived experiences. The study of human behaviour is complex and unpredictable (Cohen et al., 2011), which has ramifications on the way that any research studying humans can be carried out.

Within this chapter I will offer a rationale for the decisions I have made regarding the design of my research. I will discuss my chosen approach to researching the experiences of students throughout their first year of study on a computing related course.

3.2. Ontology and Epistemology

Ontology refers to a branch of philosophy that deals with the nature of existence and reality and can be described as the study of the nature of reality or of being (Braun & Clarke, 2022; Cohen et al., 2011), bringing into question whether reality is socially constructed or exists independently of social actors (Bryman, 2012). When dealing with people and their experiences, I believe that everyone is an individual and that their reality is constructed from their own experiences, values and beliefs, so my overall ontological position will be that of constructivism. My assumptions are that we all make or have our own reality, based on our experiences of life, relationships, education, etc. This standpoint therefore assumes that there are multiple realities, since we do not all share the same history, and that the act of engaging with

participants during the research will influence that interaction and their respective reality. As Miller and Brewer (2003) suggest, reflexivity is a key component of constructivism, as the researcher is part of the world under investigation and acts as an interpreter or mediator in this world.

My ontological position led into my epistemological stance as it informed my understanding of knowledge creation. Epistemology is the branch of philosophy that deals with the study of knowledge and belief. It seeks to understand how knowledge is acquired, what the nature of knowledge is, and what it means to have justified beliefs. Since this project is examining individual's experiences, a qualitative element is required to understand participants' social construction of events. The qualitative data gathered has the advantage of multiple viewpoints of the social world reflecting the views of each participant without bias (Kvale, 1996). A positivist approach, linked to quantitative methodologies (Denscombe, 2008) is fitting for data that is mainly numerical, such as attendance data and some questionnaire data, but a more interpretivist approach is required in order to understand and make sense of participants' words relating to their behaviour and feelings, hence this research is both qualitative and quantitative (Fraenkel, Wallen & Hyun, 2012). This study takes a critical realist approach which acknowledges that the world is real but our understanding of it is socially constructed and limited. It views the student experience as complex and diverse, yet still able to be studied and understood (Kahu, Picton & Nelson, 2020).

From an axiological standpoint, the research undertaken has both objective and subjective perspectives, but mostly subjective and value bound, as the voice and experiences of each participant give a unique perspective. The decision to use both qualitative and quantitative methods is driven by the nature of the research questions being investigated, rather than a strict epistemological position about how knowledge is obtained (Teddlie & Tashakkori, 2012). Objectivity is important as a means to control and to avoid bias throughout, whilst appreciating that everyone has different experiences that will need to be interpreted individually (Pratt & Loizos, 1992). As I am involved in the research as both a practitioner and researcher, it is impossible to guarantee objectivity due to my own experiences and therefore potential biases, which highlights the need for reflexivity throughout.

3.3. Reflexivity

As I am a practitioner-researcher, undertaking research within my own area with students that I teach, I am also part of the research, which will influence the research and cannot be separated from it. Insider research offers advantages such as access to the participants and the beginnings of rapport already in place, but also poses challenges like bias and familiarity, which could

jeopardise the research (Mercer, 2007). Reflexivity played a crucial role in my research, as it underpins everything that I do. Reflexivity is the practice of consciously reflecting on actions and decisions made (Fenge, 2009). Through reflexivity, I have engaged in continuous self-awareness and critical reflection on my own positionality, biases, and assumptions. For example, being a white working class woman has shaped the way I perceive issues of class, privilege and opportunity, but I acknowledge that my experiences do not represent all working class struggles. As the participants of my research are known to me, there is a risk of over-rapport (Atkins & Wallace, 2012), so an iterative approach to reflection is crucial to ensure that I report authentically. By acknowledging my assumptions, expectations, subjectivity and its potential impact on the research findings, I attempted to maintain transparency and rigour in data collection, interpretation, and dissemination by reviewing the data from different perspectives and points in time. Engaging in reflexivity prompted me to critically question and challenge my preconceptions, allowing me to recognise potential biases and blind. Locating myself within the research and being aware of my personal standpoints and positionings allowed me to realise how my own values and experiences could and have shaped the whole process (Braun & Clarke, 2022). This deeper self-awareness led to a more nuanced understanding and ultimately enhanced the validity and reliability of the research by ensuring a more balanced and self-aware approach, increasing my understanding of the individuality of each student journey and reinforcing the importance of acknowledging individual perspectives and experiences.

3.4. Mixed Methods

Mixed methods enable the researcher to select and creatively combine the most appropriate techniques (Teddlie & Tashakkori, 2012), creating freedom for the practitioner to choose the most suitable instruments and methods for the research under investigation. Identifying the problem and the best methods to investigate further are paramount to a successful outcome, as without understanding the nuances of the problem, the correct tools could be missed (Pratt & Loizos, 1992). Mixed methods involves the use of both qualitative and quantitative data collection in a single study (Fraenkel, Wallen & Hyun, 2012), which enables rich data to be collected and affords triangulation of a real world situation (Cohen et al., 2011). A mixed methods approach seemed congruent with my previous experiences of my discipline, where quantitative research was more familiar to me, whilst recognising the advantages and value of qualitative research from my previous experiences in education and educational research.

A mixed methods approach was taken to the research, in that quantitative data was gathered about the whole cohort from their end of year results, attendance data and both qualitative and quantitative data was gathered from questionnaires administered during the first year of study.

Qualitative data was also gathered from a subset of the cohort about their experiences and feelings through a series of interviews during the year. The quantitative data was used to aid development of the concepts and instrumentation, for example, the initial questionnaire asked students about their background experiences and fears about starting university. The coding of the data revealed several common themes that were then able to be explored in depth during the interviews. This allowed the triangulation of findings by validating, interpreting, clarifying and strengthening the qualitative data (Denscombe, 2008; Miles, Huberman & Saldaña, 2014), as that was for the whole cohort, not just the individual participants. This qualitative data could then be used to validate the responses and shed light on whether the sample were representative of the larger cohort. A summary of how the tools feed into the mixed methods approach can be seen in Figure 5.

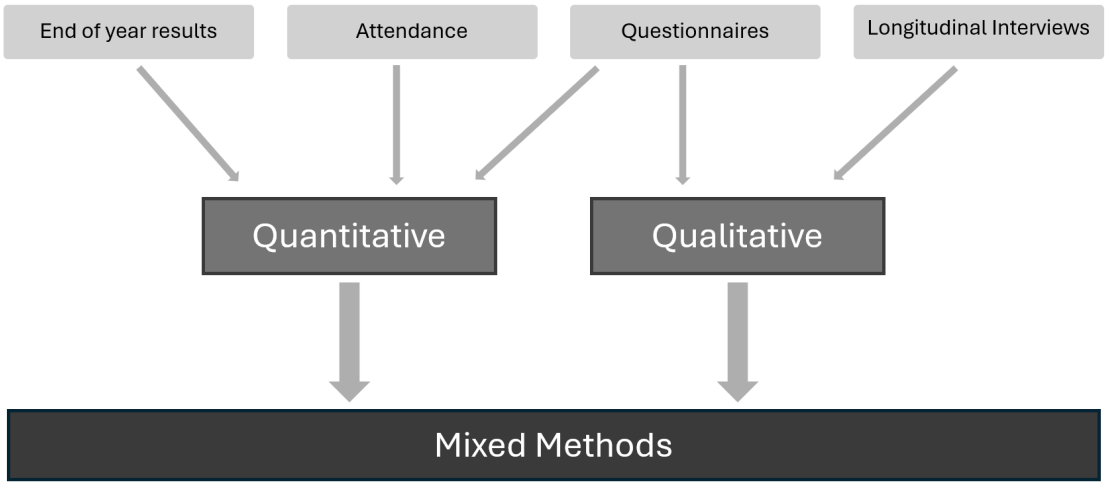


Figure 5: Summary of the tools used within the mixed methods approach.

With the interviews as the focus, and with a backdrop of their demographic data and thoughts on arrival to university, this research sits firmly in the mixed methods arena, with the emphasis on understanding individual experiences, rather than an explanation of the phenomena.

3.5. Ethical Considerations

Throughout my research, I have embraced both deontological and utilitarian ethical approaches, recognising the value each brings to the complex ethical landscape inherent in educational inquiry. Deontology, with its emphasis on moral duties and principles, guided my research ethics by prioritising certain ethical norms and obligations that are fundamental regardless of consequences. This approach ensured that research participants were treated with respect, autonomy, and integrity, aligning with ethical imperatives such as informed consent, confidentiality, and protection from harm. Conversely, utilitarianism provides a complementary

perspective by directing attention to the outcomes and consequences of research actions, aiming to maximise overall well-being and utility for all stakeholders involved. By integrating both ethical frameworks, I have given a balanced consideration to moral principles and consequences, fostering ethical decision-making that upholds the dignity and welfare of all involved parties. For me, the research was undertaken to serve as a way to better understand the experiences of students so that improvements could be made for the greater good, which is the foundation of a utilitarian or consequentialist approach.

The original plan was to correlate the demographic data from the previous year's cohort against their end of year results and choose a purposive sample of around 20 students based on the findings from that data. The sample would not be random, as each student participant would not have an equal chance of being picked (Cohen et al., 2011). I was hopeful that the data would reveal correlations between a student's background (entry qualifications, family information, etc.) and their results, and that I could then purposefully choose students who I thought may need extra support or were likely to fail, based on the previous cohort. Reflecting on this plan made me question my ethical beliefs, and it soon became obvious that I would not be comfortable telling a student why they had been picked to participate; I did not want to label them as 'likely to fail' based on one year's data that would possibly predict incorrectly, if at all. Also, labelling them as likely to fail could create a Pygmalion effect, which in essence, is a self-fulfilling prophecy (Dishkova, 2021), where our beliefs about someone else's abilities or potential influence their behaviour and ultimately confirm our expectations. It highlights the importance of positive expectations and the impact they can have on the performance and development of others. I was also conscious of the need for honesty and transparency with the participants, which meant that I could not use this method of choosing a sample and then claim a different selection method had been used. The need to respect and be fair to the participants outweighed any gain that could be perceived from deceiving them.

After wrestling with this ethical dilemma for some time, I concluded that the most important criteria for selection was actually that the participant was willing to participate for the duration of the research, as personal investment and motivation are necessary to sustain involvement (Danley & Ellison, 1999). The sampling strategy then became opportunistic, as participants were recruited from volunteers from the whole cohort of first year computing students. During a lecture, the students were given an outline of the research study and asked to email me if they wanted to take part or to get more information (see Appendix A). An opportunistic sampling strategy, although not my first choice, is good for inductive theory building analysis (Miles, Huberman & Saldaña, 2014, p. 32), and therefore was seen as suitable for this study. Additionally, it allowed for greater flexibility in participant selection, reducing potential pressure

or coercion, and was therefore more aligned to my ethical philosophy of doing no harm.

Ethical consent for the research was requested and approved as part of The University of Central Lancashire's ethics procedure for research students (see Appendix B).

Whenever user research is undertaken, the participants must give their informed consent. This means getting a record from them to show they understand your research and agree to take part, and that they know their rights to confidentiality, privacy and have the freedom to withdraw without consequences or penalties. Informed consent ensures that participants understand what they are signing up to do, what they are expected to do during sessions, and therefore ensures that the sessions are more effective. Informed consent is a complex freedom of choice that operates within a clear understanding of what that choice entails (Florea & Florea, 2020). The Participant Information Sheet was distributed electronically to all students who were interested in participating and discussed in the first interview. The Consent Form was signed and collected at the beginning of the first interview with each participant. The Participant Information Sheet and Consent Form can be found in Appendix C.

The questionnaire data was used from the same year as the interview participants, so that comparisons could be made between the interview participants and the larger cohort. The questionnaire data maintains anonymity by only using summarised data, which avoids the issues associated with identifying individuals.

The dual role of teacher and researcher inherently raises ethical concerns, as the existing power dynamic may inadvertently pressure students into participation or influence their responses. This potential imbalance extends beyond the initial decision to take part, as students may feel compelled to provide answers they believe align with my expectations rather than their genuine perspectives. Furthermore, as the researcher, I retain control not only over the questioning but also over the final interpretation of the data (Adriansen & Madsen, 2014) reinforcing the need for rigorous ethical safeguards. Recognising these risks, I implemented multiple strategies to mitigate undue influence, ensuring that participation remained entirely voluntary and that students felt free to express themselves without fear of academic repercussions. In addition to the measures already discussed, I adopted the approaches suggested by Mercer (2007), taking a more neutral stance during interviews, avoiding overt displays of enthusiasm, withholding personal opinions, and minimising verbal affirmations, with the aim of reducing unintentional steering of responses. These deliberate efforts aimed to protect both the participants, myself and the integrity of the research, maintaining a professional and ethical boundary between my roles as educator and investigator.

This mixed methods research upheld rigour by integrating both qualitative and quantitative approaches to strengthen the validity of findings. Quantitative data was collected through established questionnaires ensuring reliability, while qualitative data underwent thematic analysis. Member checking was not employed due to the interview process, as revisiting participants with preliminary findings during the next interview phase could have introduced inconsistencies (Thomas, 2017) or clouded their responses during that interview. Transparency was maintained by clearly documenting the research design, data collection procedures, and analytical processes, ensuring that the study could be reviewed and understood by others. Potential biases were mitigated through reflexivity, ensuring that researcher perspectives did not unduly influence findings. By actively reflecting on my own assumptions and positionality, I was able to keep in mind how my background and experiences may have shaped data interpretation. For example, recognising my own educational experiences helped me remain open to differing student perspectives, preventing me from projecting my own views onto their narratives, strengthening the objectivity and credibility of the research.

3.6. Choosing Participants

The sample size for qualitative interviewing is not as formulaic as for quantitative studies, although a representative yet diverse sample is important in both cases. Qualitative interview sampling should be centred on only one or two key aspects that define the group (King, Horrocks & Brooks, 2019), in order to keep the sample manageable in terms of expense, time and accessibility (Cohen et al., 2011). The aim was to recruit slightly more than 10% of the cohort, in the region of twenty participants, to keep a reasonable sample size if some of them dropped out or withdrew from the study. Seventeen students volunteered to take part, and as the target was around 10% of the cohort, all were accepted as participants.

Choosing a suitable sample from the wider population is crucial in order to give a representative viewpoint of that population (Cohen et al., 2011), capturing the diversity of the cohort. There were several options for choosing participants, which included students identified by the university as needing extra support, selection based on profiling to predict their outcomes or even a random selection of students. I could not determine whether any of these options would be more suitable than another, as all could be biased or not representative of the larger cohort.

As described in the previous section, I decided to allow participants to be self-selected using an opportunistic sampling strategy. This strategy may also not represent the larger cohort as it could possibly just be the more outgoing students who would put themselves forward, leaving the more introverted students, who may have had different experiences, issues and pressures under-represented. This could introduce a bias in the findings, limiting the diversity of

perspectives captured. To mitigate this, I actively encouraged participation from a broad range of students with assurances of confidentiality, to help capture a balanced representation of experiences.

3.7. The Data Collection Methods

3.7.1. The Questionnaires

Questionnaires served as a vital tool for collecting data from first-year students, offering a structured and systematic approach to gather valuable insights into their experiences, perceptions, and needs. Questionnaires aid the capture of a broad range of quantitative and qualitative data efficiently and comprehensively, allowing for a nuanced understanding of various aspects of the students' academic and social integration, learning preferences, and satisfaction with the educational experience, although there are concerns regarding the validity of responses for self-reported data (Kahu, 2013). The use of questionnaires provides a standardised means of data collection, enabling comparisons across different sub-groups and facilitating the identification of trends and patterns over time. Through the design and administration of questionnaires, diverse perspectives from first-year students were captured, informing evidence-based interventions and recommendations aimed at enhancing their academic success and overall well-being. Questionnaires have been used by the course team within computing since 2011, to collect data about students at the start of teaching, a few weeks into teaching and at the end of the academic year. The questionnaires use a mixture of open and closed questions relating to each student's experiences and feelings that might impact on their engagement, attitudes to learning and their retention. The questionnaires were designed by myself and a colleague and have been refined over several years to deal better with the information that we were trying to gather. Ethical approval was given to use the data as part of this research, collected in 2015-16, in order to understand more about the cohort as a whole and compare the interview sample within their own cohort. As this questionnaire was originally designed for a different purpose, not all of the questions were relevant to this research. Students are asked to complete lots of questionnaires by various groups within the university, so to avoid duplication and reduce the burden for the student, I decided to use the pertinent questions from each of the questionnaires that I already had access to. The questionnaires were delivered online through the university's virtual learning environment (Blackboard), and students were given time within a timetabled session to complete them. The first questionnaire was administered on arrival and during the first week of teaching. The second questionnaire was administered in week six of teaching, with some repetition to questionnaire one, that asked about attendance at open and applicant days, but with additional questions related to their

experiences to date and about their friendship groups (see appendix D for the specific questions used). Using existing questionnaire data reduced the burden on students, but may have limited the depth of analysis, as there was no opportunity to ask additional questions. For example, the data did not include specific information on whether students were first generation, limiting insights into how this factor may have influenced their experiences. This data was gathered separately for the students who were interviewed.

According to Bryman (2012), using a questionnaire as a method is very similar to interviewing, except it needs to be simple and unambiguous as there would be no interviewer present to explain or reword the questions. The obvious downsides of questionnaires are that participants may not answer honestly, may deliberately miss some of the questions out, and when using open questions the answers have to be taken at face value, as the participants cannot clarify their answers. During analysis, open questions tend to be summarised using themes so that the volume of data can be more easily managed. This can be another disadvantage of questionnaires, as it raises issues of misinterpreting what the participant was trying to say, and therefore mis-coding their response.

3.7.2. The Interviews

Interviews are a valuable choice for gathering data in research focused on students' experiences in higher education for several reasons. Interviews allow for rich, in-depth exploration of participants' perspectives, providing nuanced insights into their thoughts, feelings, and experiences. Unlike quantitative methods that may only capture surface-level information, conducting interviews has enabled me to delve into the complexities and nuances of individuals' experiences, and develop rapport and trust with each participant, creating a conducive environment for open and honest dialogue. Finding a suitable balance between structure and flexibility is paramount to the success of interviews; if the interview is too structured it can hinder the participant's responses and serve as a barrier, leading to misinterpretation or missing important phenomena (Miles, Huberman & Saldaña, 2014). The rigidity can also lead participants into responding in a particular way, which would negate the use of interviewing. Interviewing can also be prone to misconceptions, as there may be multiple meanings of situations which could be misinterpreted (Silverman, 2017), but through individual interactions it is possible to probe deeper into participants' responses, ensuring misconceptions are kept to a minimum, and uncovering underlying motivations, beliefs, and emotions that may not be apparent through other data collection methods, such as questionnaires that only give a single snapshot of the data (Kahu, 2013). Furthermore, interviews offer flexibility in data collection, allowing me to adapt questions and probe further based on the participants' responses. This

dynamic nature of interviews enables researchers to explore emergent themes and follow up on interesting insights, leading to a more thorough and nuanced exploration of the research topic. Additionally, the interviews were conducted at various points throughout the academic year, capturing the evolving nature of students' experiences over time and providing valuable longitudinal data.

The ideal number of participants to interview is open to discussion; too many participants make it too time-consuming and potentially a repetitive process, with little scope to make meaningful interpretations from the interviews (Kvale, 1996). Too few participants is equally flawed, as meaningful generalisations regarding a population cannot be drawn. Kvale (1996) states that as many subjects should be interviewed as necessary to answer the questions posed by the research.

A longitudinal study is when data is collected at several points over a period of time, which has the capacity to capture the dynamic nature of individuals' journeys over time and may help to determine causality between factors (Arthur et al., 2012). The qualitative data was collected via a series of one to one 30-minute, semi-structured interviews that aimed to discover more about each student's experiences, their feelings about the experiences, and what significance or meaning it might have to them (Arthur et al., 2012). Conducting interviews at multiple points throughout the academic year allowed me to track students' evolving perspectives, challenges, and achievements, providing valuable insights into the trajectories of their academic and personal development. The longitudinal approach enabled me to uncover patterns, trends, and changes in students' experiences, allowing for a deeper understanding of the dynamic nature of individuals' journeys over time. An additional interview was scheduled towards the end of their final year of study, to reflect on their experiences during the whole of their studies.

The interviews explored individual feelings and the experiences of the participants at five points during their first year of studies. The interview questions were planned ahead of the first interview, in order to ensure that all participants were asked the same questions and had roughly the same interview experience, without forcing a formulaic approach that would stifle their conversations. The same room was also used for all interviews, so that the venue became familiar, not adding anxiety or extra pressure to the meeting. The venue was a meeting room in the Computing and Technology Building; a private room which provided the ability to have an informal seating arrangement and privacy to be able to talk candidly. All interviews were recorded with permission of the participant and subsequently transcribed for analysis.

As the interviews were planned to span the first year of study, it gave the scope to explore several topics and revisit some topics at various points during the year, to see how their feelings

or perceptions had changed over time. The initial interview dealt with the administration for the research, as well as setting the tone and benchmarking the current viewpoint and experiences of each participant. Subsequent interviews began with a reinforcement of the purpose of the session, that I was there as a researcher rather than as their tutor, that our discussion would be treated confidentially and without consequences to their studies. I then asked each student what they thought had changed since the previous meeting. This was an open question so that each student could interpret it to fit their own experiences, feelings, workload, commitments, or other ways that things could have changed. Students were also asked to choose a word or words from a list (Achieving, Bored, Comfortable, Coping, Drowning, Stressed, Surfing, Surviving, Thriving, Worrying) that best summed up how they were feeling at that time and then expand on the reason for their choice. The list of words was developed from reflecting on the first interviews with the purpose of trying to capture a one-word summary of how they were currently feeling for each subsequent interview.

Each interview then had a different strand to explore a different aspect of their previous or current experiences. These looked at topics explored in the literature and that had been identified from the questionnaires. The topics were relating to any fears at the beginning of the year, friendship and group identity, college experiences and preparedness for university, expectations for the course and whether they were met, and finally, good habits they had formed, regrets or things they wished they could change that had helped or hindered them throughout the year. The final interview was an opportunistic addition towards the end of their final year of study, as a chance for them to reflect on their studies overall, and look back in particular at their first year, the high and low points of their degree, what helped and hindered them throughout their studies and any advice they could offer to both new students and their lecturers. The semi-structured interview questions for each interview can be found in Appendix E.

The first interview took place in early November, delayed slightly longer than intended due to the recruiting of participants and organising the interviews. The first interviews were slightly longer than planned as I gave each student a summary of the study and they each completed a consent form. The second interview took place in early December, which was in the weeks preceding the Christmas break. The third interview took place in early February, timed for after their first exams and when they would have had some feedback from assessments in semester 1. The fourth interviews took place in mid-March and the final one in late April, when most coursework assessments were complete, and the students would be preparing for the end of year exams. Of the seventeen students initially interviewed, eleven attended all five events, three attended 4 of the 5 sessions, one student only did the first interview, one student attended

only the first two interviews and one student attended the first one and the last two. The students were free to leave the study at any time without explanation, therefore the reasons for not completing are unknown, thus could be due to scheduling issues rather than withdrawing from the study.

The interviews with participants were recorded on a small data-recording device, and then transcribed into MS Word by listening to the recordings one by one, rewinding and replaying until the necessary detail had been captured. This was a time-consuming activity. I decided not to transcribe the recordings verbatim, with all of the ums, pauses and incomplete sentences (Miles et al., 2014), as I felt that it would be more difficult to read and would detract from the aims of the research, which are to have a better understanding of the experiences of the first year for the computing student. I am more interested in the ideas expressed by the participants than each word, or the difficulties of the participants in communicating effectively. I believe that the approach that I took, which incorporated my own reflections on the interview and the demeanour of the participants captured the intended meaning, doing justice to their expressions (Kvale, 1996).

Thematic analysis was chosen for the analysis of the interview data, as it provides a flexible yet systematic approach to analysing qualitative data, highlighting similarities and differences, reporting patterns and has the ability to provide rich, detailed insights (Braun & Clarke, 2006). It can be applied across various theoretical frameworks and research questions, which allowed me to adapt the analysis as new themes emerged. This versatility was essential for exploring the broad range of factors influencing student retention and success and seemed particularly suited for capturing the complexities and nuances of student experiences over time.

The straightforward and transparent nature of the approach ensured that the research findings could be easily communicated to and understood by a wide audience. The systematic nature of thematic analysis helped organise data in a way that highlighted the most relevant and significant themes, and allowed for a deep, nuanced understanding of the data, as can be seen in Chapter 5. By identifying, analysing, and reporting patterns, it provided rich descriptions of students' experiences. This depth is valuable in a longitudinal study, enabling me to track changes and developments in students' challenges and successes throughout the academic year.

3.8. Chapter Summary

In this chapter, the research stance and methodology for the study on student retention and success in higher education was thoroughly detailed. A mixed methods approach was chosen to fill the gap in existing literature, which often overlooks the direct experiences and perspectives

of students. The study involved a questionnaire to the whole cohort followed by a series of interviews conducted with a selection of first-year students at multiple points throughout the academic year, providing a dynamic and in-depth exploration of their evolving challenges and successes.

The chapter outlined the research design, including the rationale for selecting a questionnaire and longitudinal qualitative approach. The participant selection process was explained, emphasising the importance of capturing a diverse range of student experiences. Data collection methods focused on questionnaires and semi-structured interviews, allowing for flexibility and depth in responses. Ethical considerations, including informed consent and confidentiality, were addressed to ensure the integrity and ethical standards of the study.

This methodological framework was designed to provide a comprehensive understanding of the factors influencing student retention and success. By directly engaging with students and capturing their lived experiences, the study contributes valuable insights to inform policy and practice in higher education, addressing the complexities and nuances of the student experience.

The next two chapters will present the analysis and discussion from the questionnaires and interviews. Presenting the findings in separate chapters rather than combined offers several benefits, primarily in terms of clarity, depth, and methodological rigour. The chapter focussing on the questionnaires provides data analysis that reveals trends and patterns across a larger population using charts and graphs to visualise the data. The chapter focussing on the interview findings permits an in-depth exploration of themes and supports quotes and insights from the participants. Presenting the questionnaire and interview findings in separate chapters enhances clarity, allows for thorough analysis, and improves the overall structure. Both chapters will be drawn together for conclusions and recommendations.

Chapter Four

4. Questionnaire Data: Analysis and Discussion

4.1. Introduction

This chapter is dedicated to the analysis of the data and the presentation of the findings derived from the questionnaire administered to Computer Science students during the academic year 2015-16. It aims to provide a detailed exploration of the quantitative data, shedding light on various facets of the student experience within the Computer Science discipline. The chapter is structured to present the raw data collected from the questionnaire, followed by a thorough analysis that interprets the data in the context of existing literature and theoretical frameworks.

Understanding students and their motivations is critical to being able to support them better. The ability to ask students how they are feeling at various points of the year enables teams to better understand their students and ultimately to make adjustments to better align to their needs.

4.2. Demographics

The population for this study was all students enrolled on the first year of all computing courses at the University of Central Lancashire for the academic year 2015-16. There were 189 students enrolled in total for that academic year. A breakdown of the cohort by course, gender and whether the student originated from the UK or overseas is shown below:

Course Title	No. of Overseas Students	No. of Female Students	No. of Male Students	Total Number of Students
BSc (Hons) Computing	1	3	31	34
BSc (Hons) Computer Games Development	2	5	52	57
BSc (Hons) Computer Network Technology	3	3	36	39
BSc (Hons) Forensic Computing	3	8	20	28
BSc (Hons) Software Engineering	5	0	31	31
TOTAL	14	19	170	189

Table 1: Breakdown of student enrolment 2015-16

As can be seen from Table 1, around 90% of the population originated from the United Kingdom and roughly the same were male. Although the first year of study is relatively common across all computing courses, in that 100 credits are shared across all programmes, the students are registered to a particular path; almost a third of the cohort was made up of Computer Games

Development students (30.1%), with Computer Network Technology (20.6%) being the second largest cohort followed by Computing (17.9%), Software Engineering (16.4%) and Forensic Computing (14.8%) respectively. There was one student registered to Information Systems, which was a programme being withdrawn due to low intake of students. This student was counted in with the Computing students rather than having a group of one student who would be more easily identifiable. The Computing course is the closest match to the module profile for Information Systems and shares the same first year.

Out of the 189 students enrolled in 2015/16, only 152 completed the questionnaire (80.4%), so data beyond course, gender, nationality and end of year results is unknown for the 37 non-responders. As the initial questionnaire was administered during welcome week and offered again during the first week of teaching for those arriving a little late, the only explanation for the remaining non-responders must be that they arrived at the university during the second week of teaching or later, which is a more regular occurrence than anticipated. Late arrivals will be used as a grouping for some of the analysis in this chapter.

Out of the 152 respondents, 76.3% were aged under 21, 15.1% aged 21-24 years, and the remaining 8.6% were aged 25 and over, with the oldest respondent aged 34 years. When asked where they were living during their current year of study, 48.1% reported they were living in student halls or other student accommodation and 19.1% were living at home within Preston. The remaining 32.8% reported they were living outside Preston. 14.4% of respondents claimed that they had a disability or learning impairment. Of the respondents, 73.2% reported that their further education (FE) level subject area was computing or IT related, with another 13% reporting that they had studied science at that level. The type of FE studied was predominantly BTEC National qualifications (55%) or A Levels (31%), with the rest a mix of foundation or access courses and overseas equivalents.

4.3. Comparison of Characteristics with End of Year Results

The main motivation throughout this research was to better understand what motivates students to succeed and/or continue and establish if there were links between success and particular characteristics or feelings that the students express, with a view to being able to identify students who were more likely to struggle and make early interventions to support them.

Figure 6 shows the status of all students after the first sit attempts at all assessments at the end of the academic year, with 42% completing the year with an average grade of 60+ (categories of First and Upper 2nd, classed as 'good honours') and 29% having failed more than 3 modules (and

would therefore have been classed as failed without a resit opportunity, which was the university guideline at the time) or having been withdrawn before the end of the year. There were 19% of students with at least one failed module who would be offered a resit over the summer months; these students would then increase the count of other categories after the resit period, with most likely to fall into the categories of Lower 2nd, Third or Fail. The actual data for this is unavailable, as I was really interested in results after first sit. It was surprising to see that the number of students who reached 70+ (first class) was identical to the number of students who were withdrawn before the end of the year. The withdrawals were a combination of students who requested to be withdrawn themselves and the ones who were removed due to poor or non-attendance and engagement.

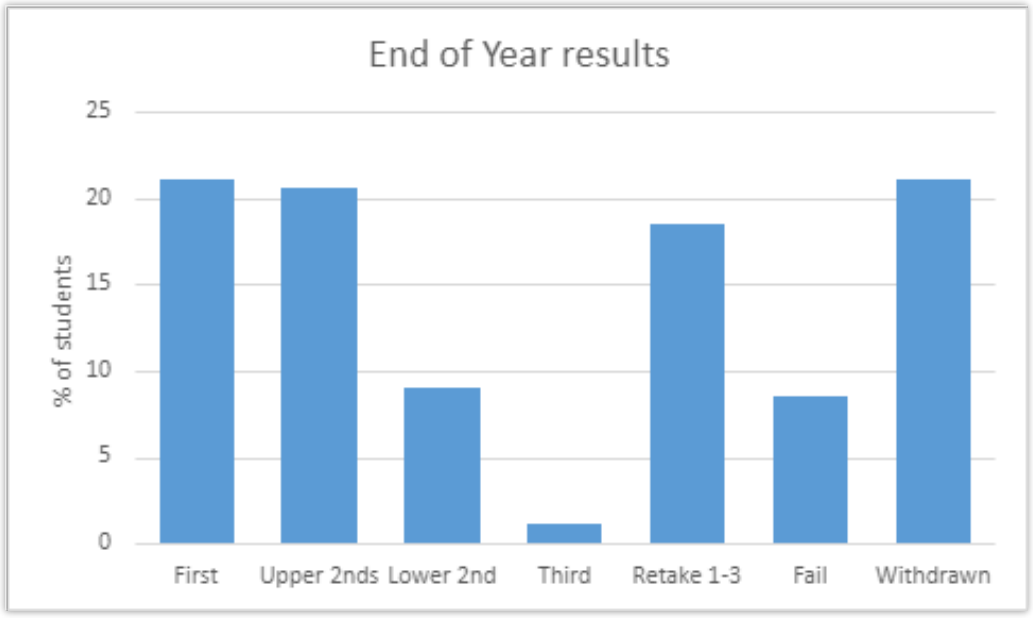


Figure 6: End of year results after first sits by percentage of students within each category.

A breakdown of the results at the end of the year are shown in Figure 7, firstly by percentage of each course that ended the year with each classification and secondly by the classifications breakdown for each course. The students enrolled on the Games Development degree had the biggest percentage of students with a grade of 70+ (first class), but being the larger cohort, this was largely expected. It is interesting to note that Games Development also had the largest number of students who withdrew before the end of the year. The Games Development students tend to be the most driven and passionate about their course, with a strong course identity, and a strong sense of a career in a related subject, with 80% aspiring to a career in the games industry. Conversely, the Games Development students also tend to have a high drop-out and failure rate, which is driven by students who enjoy playing games and have decided that they would like a career in the field, without really understanding what that entails. Students studying Games Development need to be strong programmers in order to be successful, as the

course is quite strongly related to the Software Engineering degree; I believe that this is a factor that explains at least some of the issues with end of year results for this course.

The Computing degree path had the largest percentage of withdrawals before the end of the year. This programme has the opposite characteristics of the Games Development course, in that students tend not to know what career path their degree will take them onto. When asked about their career aspirations, 33% had a vague idea of a career in the computing field, but there were also a variety of other careers mentioned, such as airline pilot, network engineer, technician, web developer, and 22% reporting that they were not sure.

The Software Engineering students had the smallest percentage of students who had withdrawn or failed. This course also had 45% of the cohort completing the year with good honours. Almost 60% of the Software Engineering cohort who answered the questionnaire had clear career aspirations in a related field, and 15% having only vague plans in the computing field.

It was the Forensic Computing students who had the highest percentage of good honours grades (46%) at the end of the year, and 50% having a clear idea of their chosen career path. 25% of the cohort had a vague idea of a career in the computing field and 25% were not yet sure what career path they would take.

The Computer Networking students had the smallest percentage of students who completed the first year of study with good honours (38%). A large proportion of the cohort had clear career aspirations (61%) with 25% having a vague idea within a related field. None of this cohort said that they were completely unsure of their career path, with the rest of the students reporting semi-related career aspirations, such as software engineer, games developer and teacher.

For some of the courses, there appears to be a link between career aspirations and success; a study by McKenzie and Bennett (2022) found that career aspirations impact students' success by influencing their motivation, goal-setting, and decision-making processes. Students with clear career aspirations are more likely to stay motivated, persist in the face of challenges, and work towards achieving success in their chosen career paths, although the Computer Networking students buck that trend. Motivation is linked to self-efficacy, with students who are confident in their career choices and ability to achieve being more successful (Gao & Eccles, 2020). Gyepi-Garbrah et al. (2023) suggest that behaviour is a result of deliberate choices aimed at maximising pleasure and minimising pain, with students likely to prioritise efforts that lead to good performance and desired outcomes, thus guiding their decision-making towards achieving success. Recognising and fostering these factors is crucial for developing effective educational

strategies and support systems, to allow students to maximise their potential.

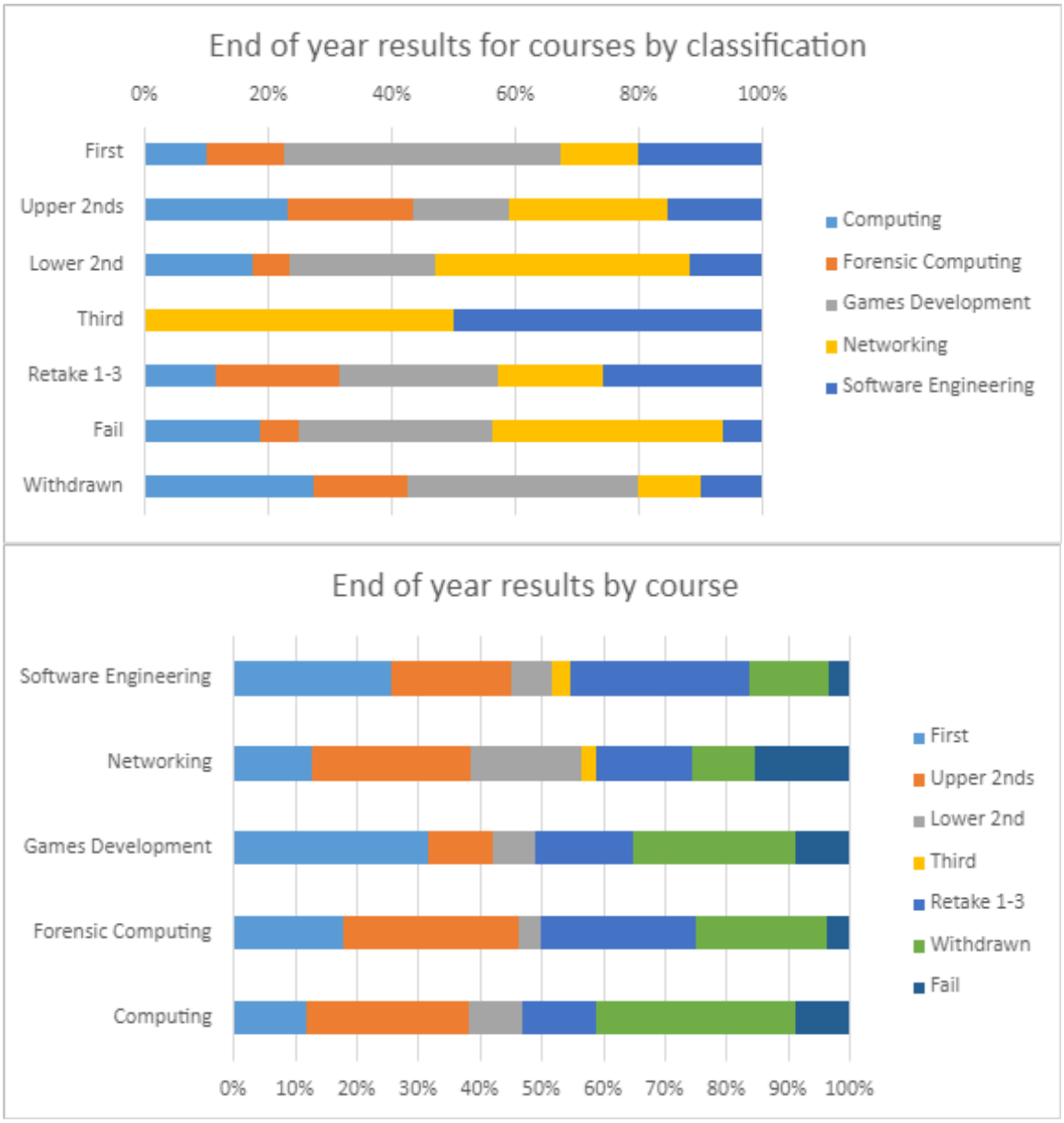


Figure 7:Breakdown of results at the end of the year for each course by classification (top) and by course (bottom).

A breakdown of the end of year results by the students' entry qualifications are shown in Figure 8. This data (and a number of the following data breakdowns) was hard to display as one visualisation, as it was difficult to decide whether to have the classification as the main focus or to have the entry qualification. Displaying the data in the way chosen allowed me to be able to compare the different entry qualifications side by side, which was insightful.

The data represented provides a breakdown of the distribution of grades across different academic qualifications, namely A Level, BTEC qualifications, Access/Foundation Course, and an unknown qualification. The purpose of this discussion is to analyse and interpret the findings, as

well as to identify any patterns or trends that may emerge from the data.

Almost half (43%) of students that had previously studied A Levels achieved a First class grade, with 69% achieving good honours. This suggests a high level of academic achievement amongst students who previously studied A Level, with almost a quarter (24.87%) of the students having this type of qualification. Only a small number of students had retakes (11%) or failed more than 3 modules (4%), indicating a relatively low proportion of underperforming students in this qualification, which makes up around a quarter of the cohort.

Of the students who had previously studied a BTEC qualification, which makes up almost half of the cohort (44.97%), the distribution of grades appears to be more varied compared to A Level. Only 12% of this group achieved a First class, with a higher number of students achieving an Upper 2nds grade (25%), with a total of 37% finishing the year with good honours. Conversely, the same number of students had resits (25%) or failed more than 3 modules (12%), indicating that a BTEC is less predictable of obtaining a positive outcome than A Levels. This is worrying considering the number of students that are entering HE with a BTEC qualification and suggests that their needs and experiences are not recognised or supported adequately (Mitton & Hensby, 2024).

The data of the students who had previously studied an Access or Foundation Course (10.58%) showed that the majority of students achieved either a First or an Upper 2nd grade (60%), which suggests that the Access/Foundation Course qualification may have prepared students better for further study, as evidenced by the high proportion of students achieving the top two grades. It is also worth noting that the nature of the Access/Foundation year may have already weeded out a proportion of the students who were less likely to succeed or more likely to underperform. The Access/Foundation years attract a mixture of students; those who did not get their required grades for entry to Level 4 and the more mature students returning to study after a break. Black (2021) found the opposite in her study, whereby students with non-traditional or vocational course qualifications performed worse than their counterparts with other entry qualification, suggesting that entry requirements cannot be used as a reliable predictor of success.

In terms of retakes and failures, it is interesting to note that the highest number of retakes occurred in the students who had previously studied for a BTEC qualification, with a total of 21 individuals falling into this category. On the other hand, the number of failures is relatively low across all qualifications, indicating a generally high level of success among the students.

Of the 189 students who were studying computing in 2015/16 and completed the initial questionnaire, ~25% had A Level entry qualifications, ~45% had a BTEC qualification, ~11% had

an access course, foundation year or similar qualification, and the remaining ~19% did not complete the questionnaire, which is most likely an indication that they arrived at least two weeks late. Students who arrive late or who do not engage in orientation/transitional activities are often associated with poor results or of not completing the year (Grebennikov & Shah, 2012). Figure 8 illustrates this issue with alarming clarity, showing that 57% of these students were withdrawn before the end of the year, a further 15% failed the year (with 4 or more failed modules) and another 14% had at least one resit to take over the summer, leaving only 18% of the students who arrived late, regardless of their entry qualifications being successful on first sit of assessments. This emphasises the importance of addressing the issue of late arrivals and its impact on student success. The data suggests that students who start the academic year late face significant hurdles in terms of academic performance and completion rates.

The analysis of the data presented in Figure 8 provides valuable insights into the distribution of grades across different previous academic qualifications. It is clear that each previous qualification has its own unique characteristics and patterns of achievement, but it is difficult to determine whether it is the nature of the qualification or the nature of the students who choose them.

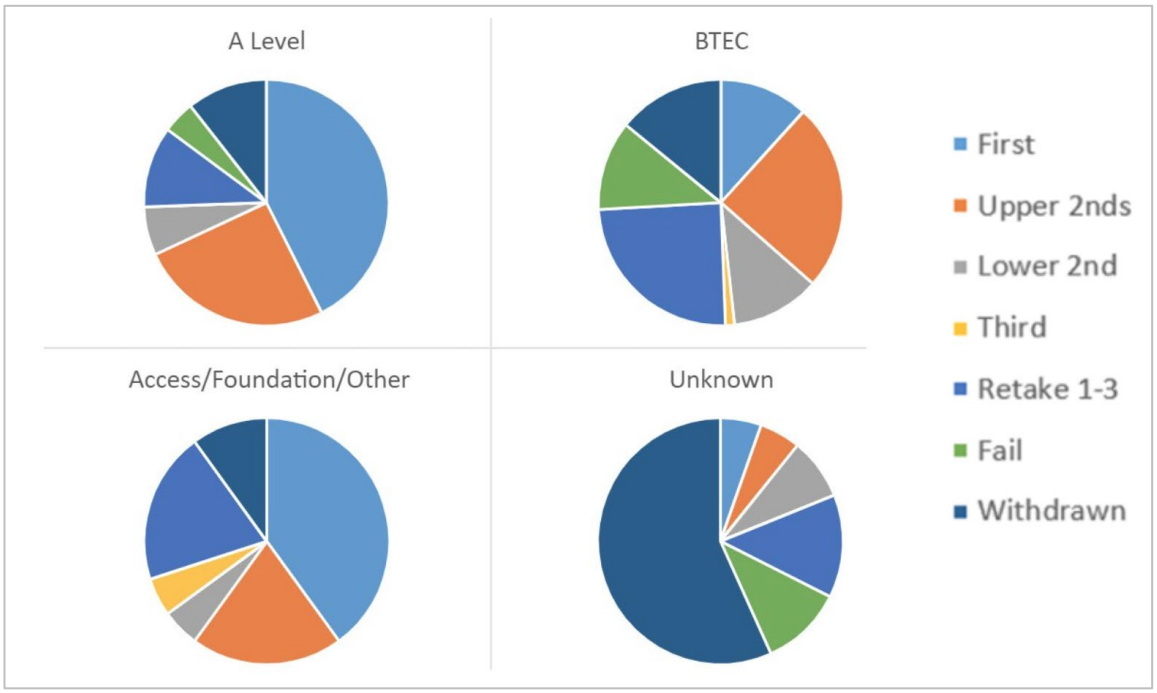


Figure 8: Breakdown of classifications at the end of year 1 by entry qualifications. The unknown category is students who did not complete the questionnaire.

Figure 9 is a breakdown of the same end of year results by the age of each student at the start of the academic year. Of the full cohort who started the year, 116 students (61%) were 21 years old or younger, 12% were aged between 21 and 24 years, and 7% were over 25 years old. The

remaining 20% did not complete the questionnaire so their age is unknown.

From the under 21 age group, 48% of the students finished the year with an average grade of 60+ (categories of First and Upper 2nd, classed as 'good honours'), and 23% having either been withdrawn (14%) or having more than 3 failed modules (9%). As a percentage of the group, the under 21s performed slightly better than the 21 to 24 year olds, but were out-performed by the mature students (25+ years old), that had 61% of the group finishing with good honours and 8% (1 student) withdrawn before the end of the year. This is perhaps influenced by their levels of self-confidence, with mature students being more engaged and self-confident than the younger students (Yorke, 2016). Research tends to suggest that mature students usually perform worse than their younger counterparts, with an increase in the likelihood of withdrawal (Barbera et al., 2020; Grebennikov & Skaines, 2008). The data from my study does not follow this pattern, with the 25 and overs having a high percentage of good honours, a low withdrawal rate, but also a high percentage of students who had to retake module assessments (31%). The students who had to retake some of their assessments were mainly aged 21-24 years old (26%) or 25 and over (31%), with a much smaller percentage of the under 21 age group, which suggests that some of the older students may require additional support and guidance to meet the required academic standards. Addison and Williams (2023) found that students aged 24 and above had a higher risk of failure, but do not attempt to explain why. Mature students often juggle busier lives, greater responsibilities, and differing expectations compared to their younger peers. As a result, they may struggle to balance competing priorities and fully integrate into university life (Williams & Roberts, 2023). This can lead to a wider range of academic outcomes, with some achieving high grades while others face greater challenges in their studies.

The Lower 2nd grade category shows a significant difference in the number of students across different age groups. The 21 to 24 years old age group has the highest percentage of students in this category (13%), followed by the under 21 age group (9%). This suggests that a considerable proportion of students in these age groups did not perform as well as their peers in the First and Upper 2nds categories.

A small number of students across most age groups did not meet the minimum requirements for passing their assessments. It is worth mentioning that the 25 and over age group had no failures. This could imply that younger students may face challenges in meeting the academic expectations set by the class.

Overall, an analysis of the different age groups provides valuable insights into the distribution of grades and highlights the variations in academic performance and the potential challenges faced by students in different age brackets.

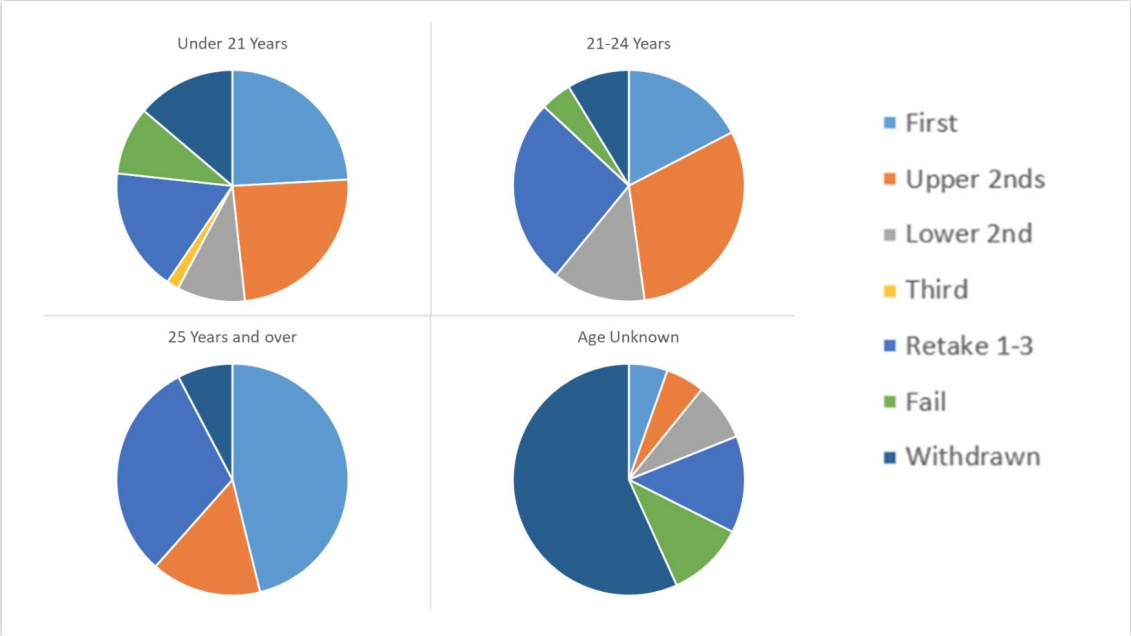


Figure 9: Breakdown of classifications at the end of year 1 by age at start of academic year.

The results at the end of the year by the student's living arrangements for the academic year are depicted in Figure 10. Some students did not answer this question on the questionnaire, resulting in 31% (58 students) of the cohort's living arrangements unknown. There were 63 students (33%) who were living in some form of student accommodation, 43 students (23%) living outside Preston and 25 (13%) living in Preston but not in student accommodation.

Of the students living in student accommodation, 55% finished the year with an average grade classed as good honours, whereas the percentage of students living in Preston with good honours was lower (44%) and the students living outside Preston was higher (66%). Students living in student accommodation, which includes private rentals, student halls, etc. managed better than I anticipated; they are often seen as the group of students who are away from home for the first time and dealing with a multitude of issues and emotions related to independent living, establishing new relationships and adjusting to a new way of life (Vasquez & Rohre, 2006). They have the advantage of living close to campus, with no additional travel expenses to attend classes, and accommodation often within a ten-minute walking distance of campus but often do not have the discipline or stability that living at home with their families often provides. This could be attributed to the convenience and proximity of such accommodations to the educational as well as the structured routines and shared experiences that come with communal living (Richter & Walker, 2008). Perhaps for a proportion of the students living in halls/student accommodation, it provides them with a supportive environment, with common shared goals which helps to foster academic growth and enhances their overall university experience (Vasquez & Rohre, 2006).

The group that had the largest percentage of retakes was the students living in Preston (28%), which makes them the lowest performing group of the three (discounting the ones that were unknown), although they are also the smallest group. Some students may choose to live at home to reduce living expenses, while others may prefer the comfort and familiarity of their own homes (Thomas, 2020). It is unknown what 'home' looks like for these students; it could be living with parents in their family home, living with their partner, alone or with friends. Living at home may provide a sense of stability and support, which can positively impact academic performance, but may impact engagement and increase the isolation of those students, as suggested by Wilcox, Winn and Fyvie-Gauld (2005) who found that students living outside student halls were more likely to cite feeling lonely.

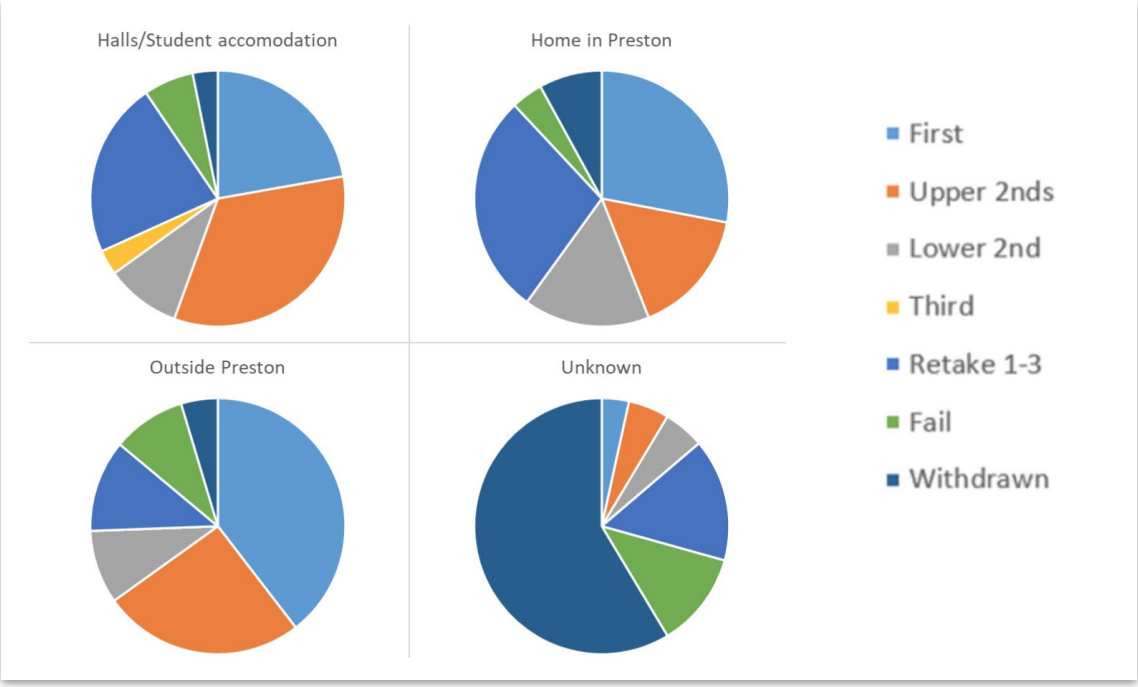


Figure 10: Breakdown of classifications at the end of year 1 by living arrangements for the year of study.

There have also been assumptions made by colleagues that students who have studied maths beyond high school usually cope better with their studies, as they are assumed to have a more logical mind set, giving them an advantage when it comes to programming and problem solving. Having asked the participants if they studied maths beyond high school, the question results, along with the end of year grades of the students were used to calculate a chi-square test in Microsoft Excel, based on the observed and expected frequencies for each category. This resulted in a p-value of 0.021, which, based on a significance level of 0.05, suggested that there is a statistically significant relationship between the students' end of year results and their participation in further maths studies. The data used can be seen in Table 2.

Results	Observed Frequencies		Expected Frequencies	
	No	Yes	No	Yes
First	16	22	25.3	12.8
Upper 2nds	25	12	24.6	12.4
Lower 2nd	10	4	9.3	4.7
Third	2		1.3	0.7
Retake 1-3	23	7	19.9	10.1
Fail	10	2	8.0	4.0
Withdrawn	15	4	12.6	6.4

Table 2: Data used for Chi-Square Test to measure significance of studying further maths.

To further emphasise the difference that studying further maths appears to make, Figure 11 graphically represents the percentage of students that completed the questionnaire stating whether they had studied maths beyond high school or not.

Of the 152 students who had completed the questionnaire, 51 students (34%) said that they had studied maths and 101 students (66%) stated they had not. Of the students who had studied maths, 67% finished the year with good honours as opposed to 41% of the students who had not. If studying more maths is a factor that affects success, this is affecting approximately two thirds of the students each year, which is worth further exploration. There were also more students who had resits (23%), withdrew before the end of the year (15%) or failed more than three modules (10%) that had not studied maths as opposed to the students that had.

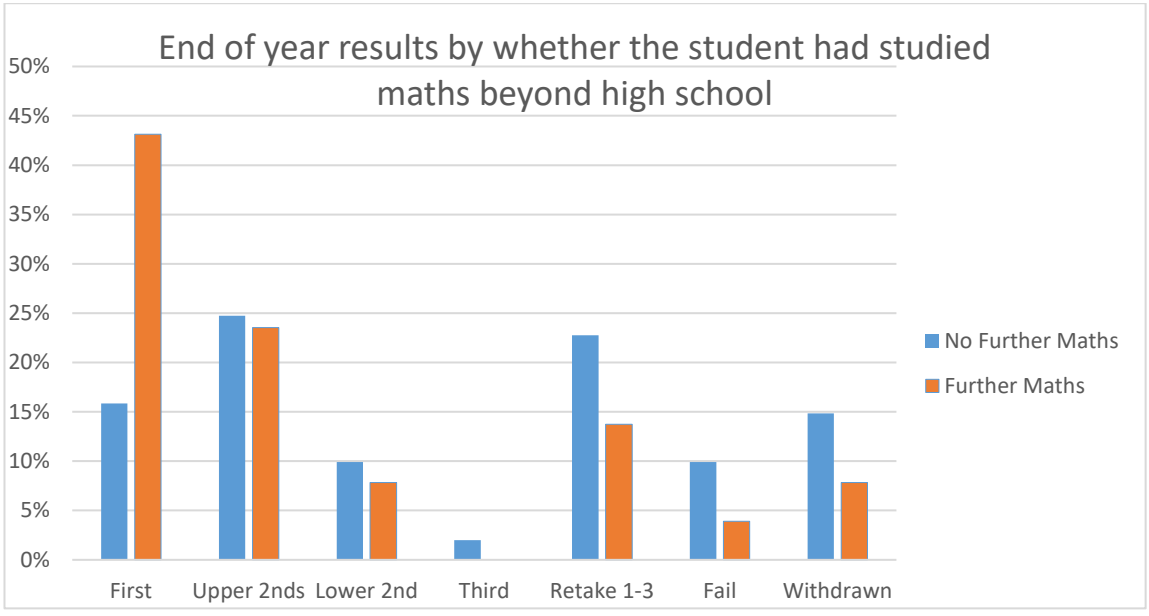


Figure 11: Breakdown of classification at the end of year 1 by whether the student had studied maths beyond high school.

Overall the results related to students' previous maths studies are worth further exploration. This does not seem to have been explored as a factor in the related literature but could be significant in understanding student success. Offering students additional maths that

complement their studies could increase the likelihood of success.

The attainment gap between students who identified as Asian or Black compared to students who identify as white is often discussed in academic circles (Bhopal & Pitkin, 2020; Boero et al., 2024; Richardson, 2013; Wong, ElMorally & Copsey-Blake, 2021), known as the awarding gap. Of the 152 students who completed the questionnaire, 27 students (18%) identified as Asian or Black, regardless of their country of origin (the non-British in this cohort was only 4 students, so they have been counted together and have been grouped as BAME), 106 students (70%) were White and the remainder identified as European (9 students), other ethnic background (3 students) or preferred not to say (4 students).

As can be seen in Figure 12, there were 34% of the students identified as BAME that completed the year with good honours, as opposed to 54% of the students who identified as White and 48% of the 'other' students. This looks to be a large difference, but a Chi-Square test for independence calculated in Microsoft Excel found insufficient evidence to conclude that there was a statistically significant relationship between grades and ethnicity with a p-value of 0.0577 which is just outside the significance level of 0.05. This calculation may be flawed due to the number of observations for each category, as it works best if there are 5 or more observations for each frequency, and several were below this. No further Chi-Square statistical tests were conducted due to the limitations in the data distribution and frequency. The tests performed have sufficiently addressed the research questions with additional tests unlikely to yield further meaningful insights.

Of the students who identified as BAME, 22% either withdrew before the end of the year or failed more than three modules (and were therefore given a fail recommendation). Meeuwisse, Severiens and Born (2010) suggest that BAME students take longer to realise that the course is not for them. This may be due to the differences in family resources, academic guidance, parental involvement or language barriers (Mishra, 2020) or the influence of broader systemic and cultural factors (Marandure, Hall & Noreen, 2024). This may help to explain why the BAME and White groups have the same percentage of non-successful students, but with the White students leaving earlier, withdrawing rather than failing as they have realised the course is not for them sooner.

For this particular cohort, their nationality is not known, or whether English was the first language of all students, so there could be hidden challenges due to differing educational systems, language barriers and social integration (Cowley, 2018). With the need to reduce or eradicate the attainment gap being a priority for many universities, this is worth further exploration.

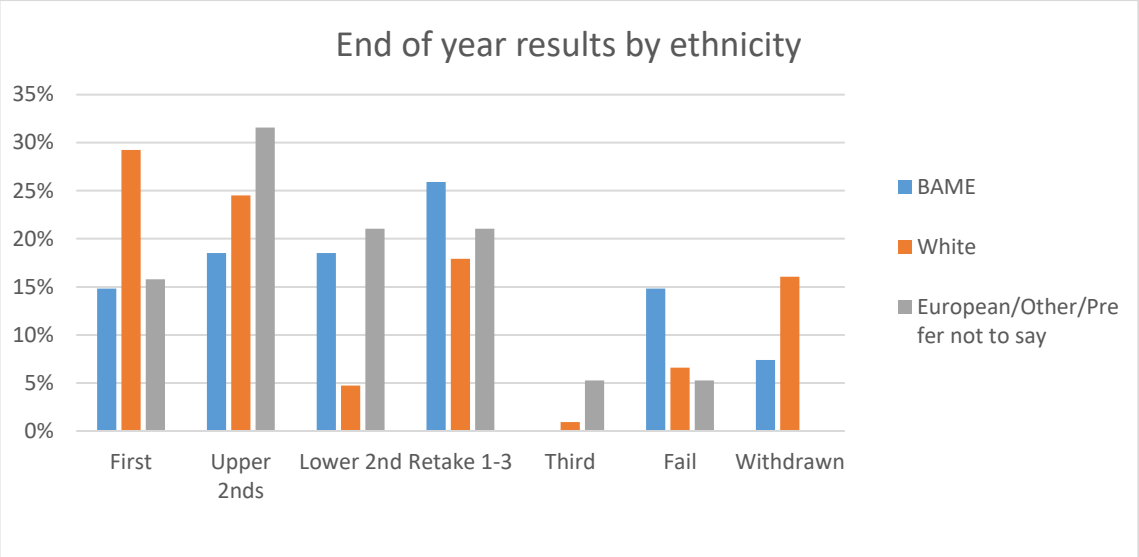


Figure 12: Breakdown of classification at the end of year 1 compared to self-identified ethnicity of students

Figure 13 shows the student results mapped against their self-reported friendship. Many students report that they find it difficult to make new friends, and so I thought it would be worth investigating if their actual friendships had an impact on their end of year results. This question was asked in the questionnaire administered 6 weeks into teaching, and had a total of 131 respondents, of which 15% reported that they had a wide circle of good friends on the course, 67% said that they had a small group of good friends, 11% said that they had one good friend, and a small percentage of students (7%) reported that they had no good friends on the course. Whilst recognising that my own experiences may differ significantly from these students, it is concerning to note a lack of social support and potential feelings of isolation among these individuals. The reasons are unknown, so could be due to various factors such as personal preferences, limited opportunities for social interaction, or difficulties in establishing connections with others. It is important to understand this issue and provide inclusive support systems that recognise the diverse backgrounds and needs of students. Ensure that all students feel a sense of belonging and have the opportunity to form meaningful connections with their peers is essential for their wellbeing and academic success.

Looking at academic performance, it is interesting to note that there is no clear correlation between the number of good friends and academic success. Students across all groups reported varying levels of friendship within the course, with students reporting they have no good friends achieving as well as their counterparts. This suggests that academic performance does not necessarily dictate one's ability to form close friendships within the academic setting, but research does show that social adjustment to university is beneficial (Rummel et al., 1999) and that students with good social skills achieve better (Pokropek, Borgonovi & Jakubowski, 2015; Wilcox, Winn & Fyvie-Gauld, 2005).

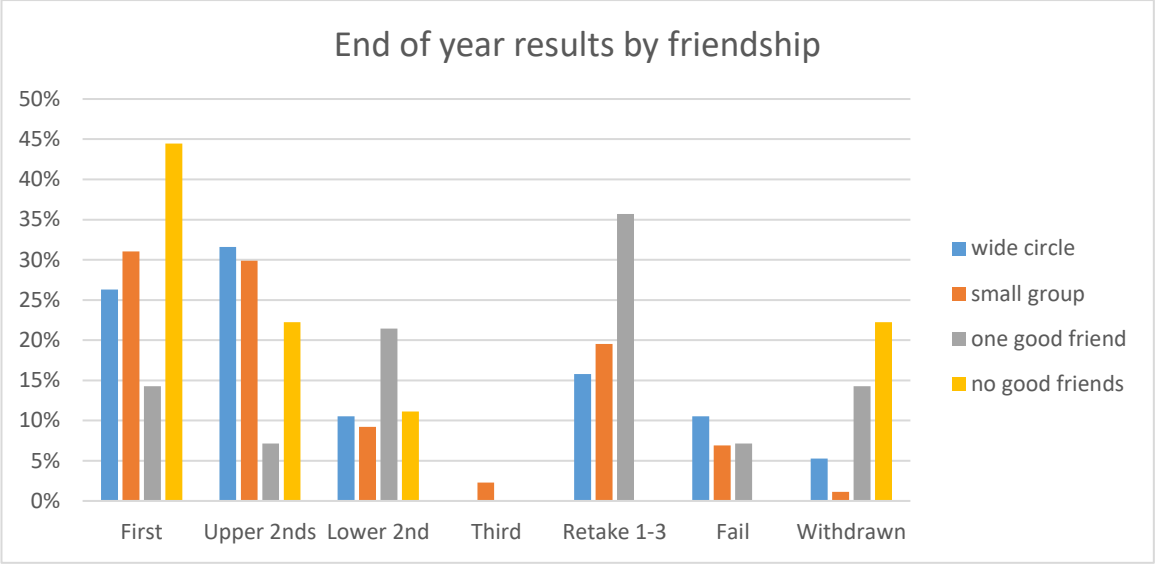


Figure 13: End of year results by student's self-reported friendships.

Overall, the findings from Figure 13 highlight the importance of social connections and the potential challenges faced by students in forming and maintaining friendships within an academic course. This is evident from looking at the levels of withdrawal in relation to friendship, as they are relatively high for students who had only one or no good friends. As the use of artificial intelligence increases, particularly for social support, issues of loneliness and poor human connections may increase (Crawford et al., 2024), so it is crucial to foster a supportive and inclusive environment that promotes human social interactions and encourages the formation of strong social networks among students.

The data presented in Figure 14 provides insights into the classification distribution among female and male students at the end of the first year. It is evident that there are notable differences in the classification outcomes based on gender. The number of female students is small (10%) compared to male, so there is going to be more variation in any comparison, due to the numbers (f = 19, m = 170). It is worth noting that the gender data was collected from the university system, which recorded this data as binary. Students were not asked to self-identify by gender, but any further studies should take account of the more complex gender landscape.

Firstly, when considering the overall distribution, it is observed that the same number of male students (22%) ended the year with grades classed as First class, as did withdraw before the end of the year. The same is also true for female students, with First class and withdrawal rates of 16%. This indicates a significant gender disparity in the highest academic achievement. Overall, there were 43% of male students completing the year with good honours as opposed to 32% of female students. Also, there were significantly more female students (42%) who had to retake assessments compared to male students (16%). This indicates that male students are more likely to achieve a relatively high academic performance, compared to their female counterparts. This

could be attributed to various factors such as differences in study habits, learning styles, or external pressures, whereby the students may have a preferred assessment method, such as reports or presentations (Bevitt, 2015). Research by Spieler, Oates-Induchovà and Slany (2021) suggests that females experience gender stereotype influences as young teenagers, that gives them a negative impression of the subject. It could also indicate levels of confidence and self-efficacy, as male students are less academically engaged but more confident than their female counterparts (Spieler, Oates-Induchovà & Slany, 2021; Yorke, 2016).

Interestingly, there are no female students who failed 3 or more modules, and only 16% who withdrew, while there were 9% of male students who failed, and 22% who withdrew. This suggests that female students may have a higher likelihood of avoiding these lower classifications, potentially indicating a higher level of academic competence or different support mechanisms in place.

Overall, the data highlights the existence of gender disparities in academic performance and classification outcomes for computer science students, which may warrant further investigation to identify the underlying factors contributing to these differences, such as societal expectations, gender biases, or variations in study habits and support systems (McGrath Cohoon, 1999). By understanding these factors, educational institutions can develop targeted interventions to address the inequalities and promote equal opportunities for all students, regardless of gender.

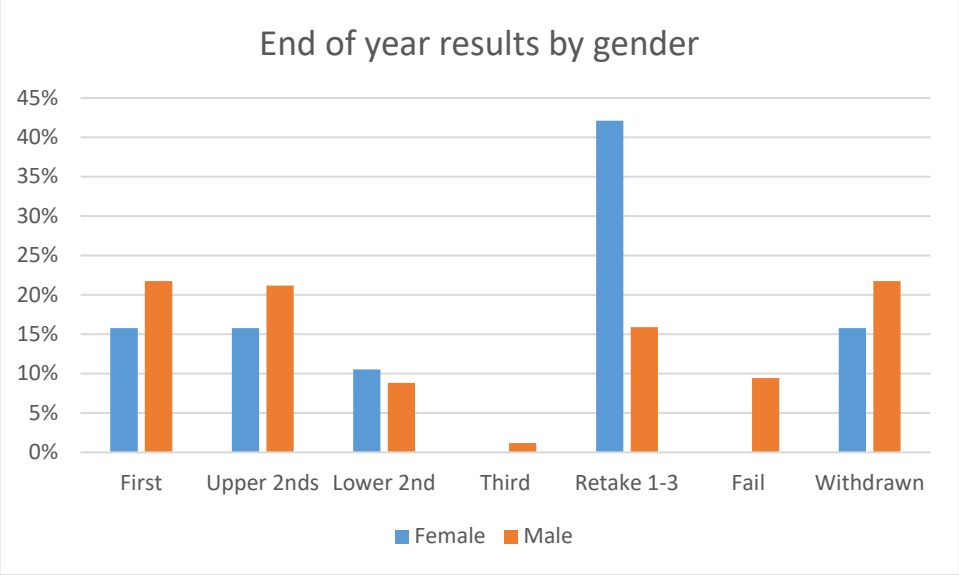


Figure 14: End of year results by student's self-reported gender.

The results presented in Figure 15 provide valuable insights into the participants' perceptions of their programming ability correlated with their end of year results. The majority of the participants who strongly agreed that they could work out what a computer programme did by

reading the code (83%) completed the year with an average grade of 60+ (classed as good honours). None of the students who strongly agreed with the statement failed or withdrew from the course. Almost half (47%) of the participants who agreed with the statement also completed the year with good honours. This suggests that these groups possess a high level of confidence in their programming abilities, although 47% of the participants who responded negatively (both disagreed and strongly disagreed with the statement) also achieved good honours. This could indicate that students grew in confidence during the year, or played down their programming abilities.

Of the students who responded, 64% answered the question positively, with 45% answering negatively. It is worth noting that the questionnaire used a Likert scale to measure participants' agreement or disagreement with the statement, with a deliberate omission of the neutral option to force a positive/negative response, but which may not capture the full complexity of their attitudes towards programming.

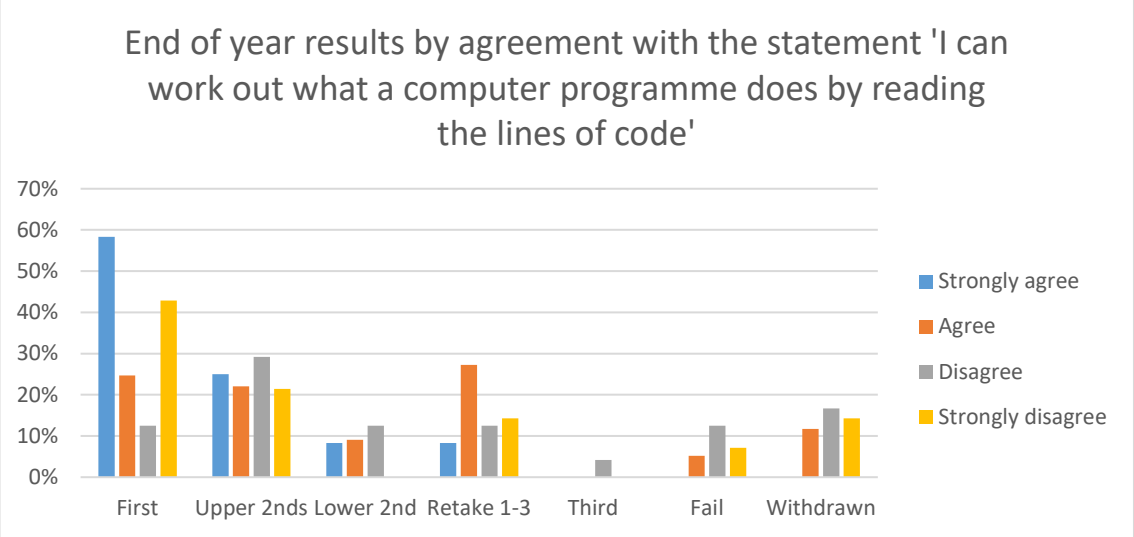


Figure 15: Self-reported programming ability versus classifications.

The analysis in Figure 16 shows the relationship between attendance and end of year results data and reveals a strong positive correlation between attendance and average grade, with a Pearson correlation coefficient of 0.7428. This indicates that students who attend classes more frequently tend to achieve higher grades. The statistical significance of this correlation is underscored by a p-value which is much less than 0.05, suggesting that the observed relationship is highly unlikely to be due to chance. Additionally, the t-statistic of 13.45 far exceeds the critical t-value of 1.976, providing further evidence of the significance of this correlation.

This highlights the importance of regular attendance in achieving academic success, emphasising that students who consistently attend classes are more likely to perform better academically.

There is a large body of research that has looked at the importance of attendance in successful outcomes for students (Addison & Williams, 2023; Astin, 1984; Biggers, Brauer & Yilmaz, 2008; Bowden, Tickle & Naumann, 2021; Buglear, 2009; Danino, May & Mitchell, 2013; Forbes, 2009; Forsman et al., 2015; Kahu, Picton & Nelson, 2020; Koljatic & Kuh, 2001; Tinto, 1975, 1988; Yorke, 1998), with few specifically looking at areas of problem based learning (PBL), which a large amount of a computing related degree entails. Bijsmans and Schakel (2018) found that in PBL, attendance also has a clear additive impact.

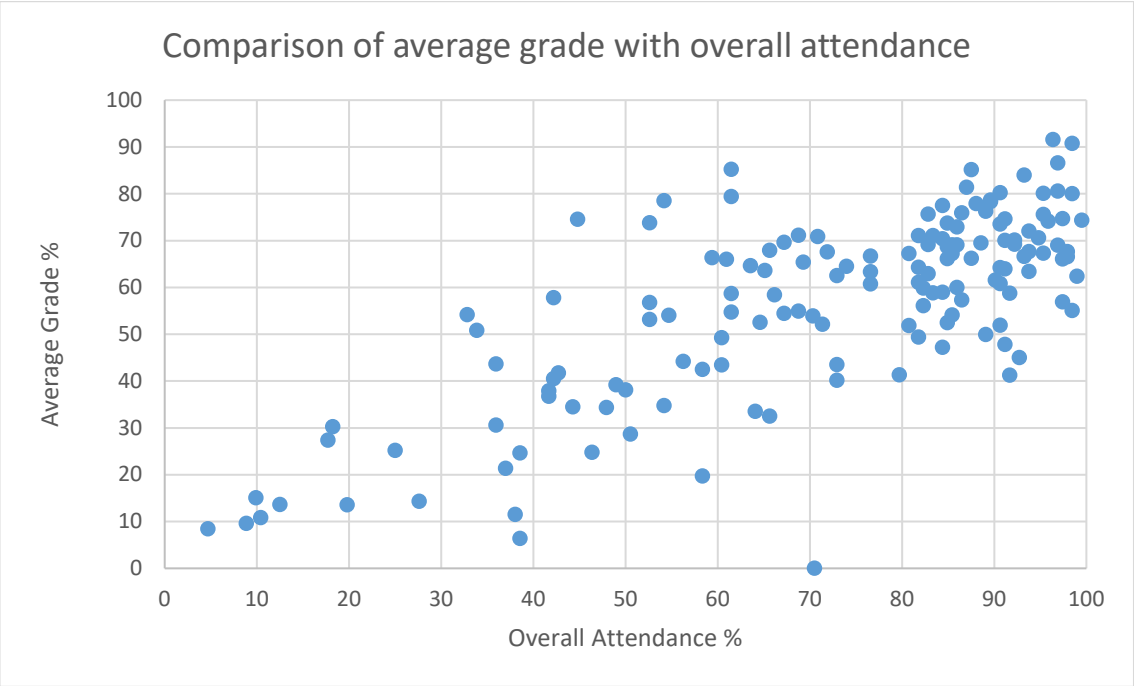


Figure 16: Scatterplot comparing attendance with average grades for each student.

4.4. How Fear Affects Studies

One of the final questions on the questionnaire asked students what their biggest fear was as they started the academic year. This was a free text box for students to write whatever they wanted; some wrote a sentence or more, whilst others put a one-word answer. All of these answers were then analysed and categorised using themes that gave an overarching sense of the fears.

Some examples of the answers provided and how they were coded are given in Table 3. Some answers were harder than others to code and for some I had to interpret what I thought the student was trying to portray, which is obviously prone to error. If I was unsure how to code a response I left it until the end, so that I coded all the trickier ones together, and applied consistent reasoning to all responses. Because of the freeform nature of their responses, some responses had more than one answer, so could have been interpreted in multiple ways. For those, I coded the first response from the student, making the assumption that they would put

their biggest issue first.

Fear themes	Examples that were coded as each fear
Failure	Not being good enough; Failing the course; Falling behind; Letting myself and my family down; Not being able to keep up; Underachieving.
Finance	Running out of money; Money worries; Fuel costs from travelling here.
Managing	Managing my time; Cooking for myself; Getting into bad habits.
Friendship	Meeting new people; I won't be as social as I'd like; Not finding friends with similar interests; Not getting on with people; Having to deal with flatmates.
Fitting in	Getting used to university; A different way of learning; Getting lost; Breaking away from my shell in an unfamiliar place.
Workload	Juggling work and leisure time; Overworking myself with studies or the pressure; Balancing studies and a job.
Wrong Course	Finding out that the path is not for me; Picking the wrong course; Being bored.
Other	Finding somewhere to park; Not getting enough sleep; Missing lectures because of trains.
None	I don't have any; None; I strive to avoid fears.

Table 3: Categorised fears that students had as they started the first year of university with some examples.

Figure 17 shows a tree map of the coded responses to the question about the student's biggest fear on starting the academic year. As can be seen, the fears of failure and friendship are larger than the other fears combined, with fear of failure on its own accounting for 32% of responses. Fear of failure is rarely mentioned in literature about university retention, which may be because such discussions tend to focus on more tangible and measurable factors, such as financial difficulties, social interactions, lack of support systems, or personal circumstances. The literature often discusses self-efficacy, which could be a substitute for fear of failure. While fear of failure is an important aspect, it is more abstract and harder to quantify compared to concrete issues such as grades or financial status. Consequently, research and discussions about retention issues usually prioritise easily identifiable and actionable factors, even though fear of failure may significantly influence a student's decision to leave university.

Social aspects are frequently reported in the literature because they play a critical role in student retention and success (Pokropek, Borgonovi & Jakubowski, 2015; Salisu, Douglas-Oloyede & Thomas, 2024; Tinto, 2023; Wilcox, Winn & Fyvie-Gauld, 2005). Positive social interactions and a sense of belonging can significantly impact a student's motivation and overall well-being, making them more likely to persist in their studies. Conversely, feelings of isolation, lack of peer support, and poor integration into the university community can contribute to a student's decision to leave (Astin, 1984). Research highlights that social connections, including friendships,

involvement in campus activities, and supportive relationships with faculty, are key determinants of a student's ability to adapt and thrive in the university environment, thereby emphasising the importance of social factors in discussions of drop-out rates (Danino, May & Mitchell, 2013; Kahu & Nelson, 2018; Thomas, 2002; Tinto, 1988; Webb & Cotton, 2018; Yorke, 2016).

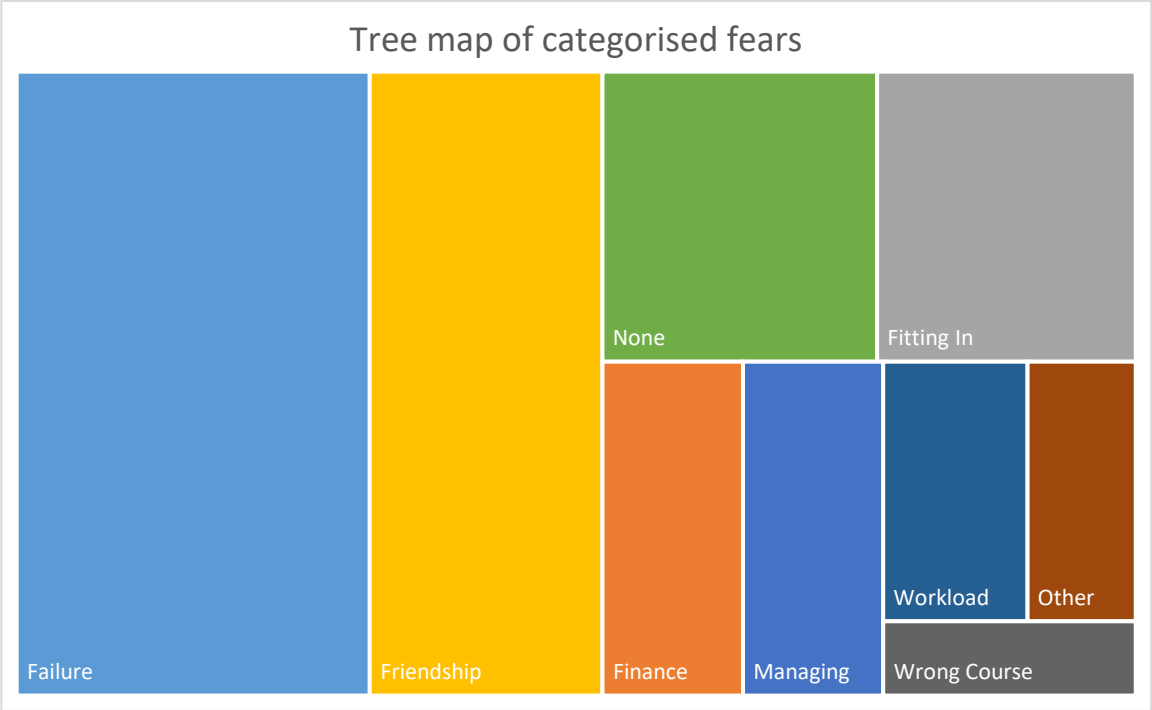


Figure 17: Tree map showing volume of each coded fear from questionnaire data 2015/16.

Figure 18 represents the end of year results plotted against the percentage of students whose main worry at the start of the year were categorised as failure, finance, fitting in, friendship, managing, workload, wrong course, other, and none. The graphic represents 149 of the students, which is 79% of the cohort. The graphic excludes the students who did not complete the survey at the beginning of the year.

Of the students whose main fear was failure, only 6% of the students failed more than 3 modules, and only 2% withdrew before the end of the year. Almost half of the students (49%) completed the year with an average grade of 60+ (classed as good honours), but 28% had at least one resit to complete before they could progress to the next year. This is interesting, as their fear of failure did not manifest into failure for most of them. This could be due to a lack of self-efficacy (Yorke, 2016) or perhaps an awareness of their fear made them work harder to overcome it.

The students whose biggest fear was around making friends or having social anxiety accounted for 21% of the participants. This group had more withdrawals (13% of group) and a smaller

number of students who failed 3 or more modules (6%). 55% of this group complete the year with good honours, and 19% had at least one resit to complete. This is also interesting, as their withdrawal and failure rate is reasonably low. It could be that the students who really struggled with the social aspects or were particularly uncomfortable with their situation decided to withdraw to pursue other interests.

Of the 18 students who completed the questionnaire and withdrew before the end of the year, the largest number came jointly from the students who said their biggest fear was friendship or that they did not have any fears. As a percentage of the fear group, there were 30% of the students who said their biggest fear was managing that withdrew, so perhaps they actually did not manage their time well. At the other end of the spectrum, the 74 students who completed the year with grades of 60+ (good honours) were more evenly split across the fear groups, with an average of 48% per group.

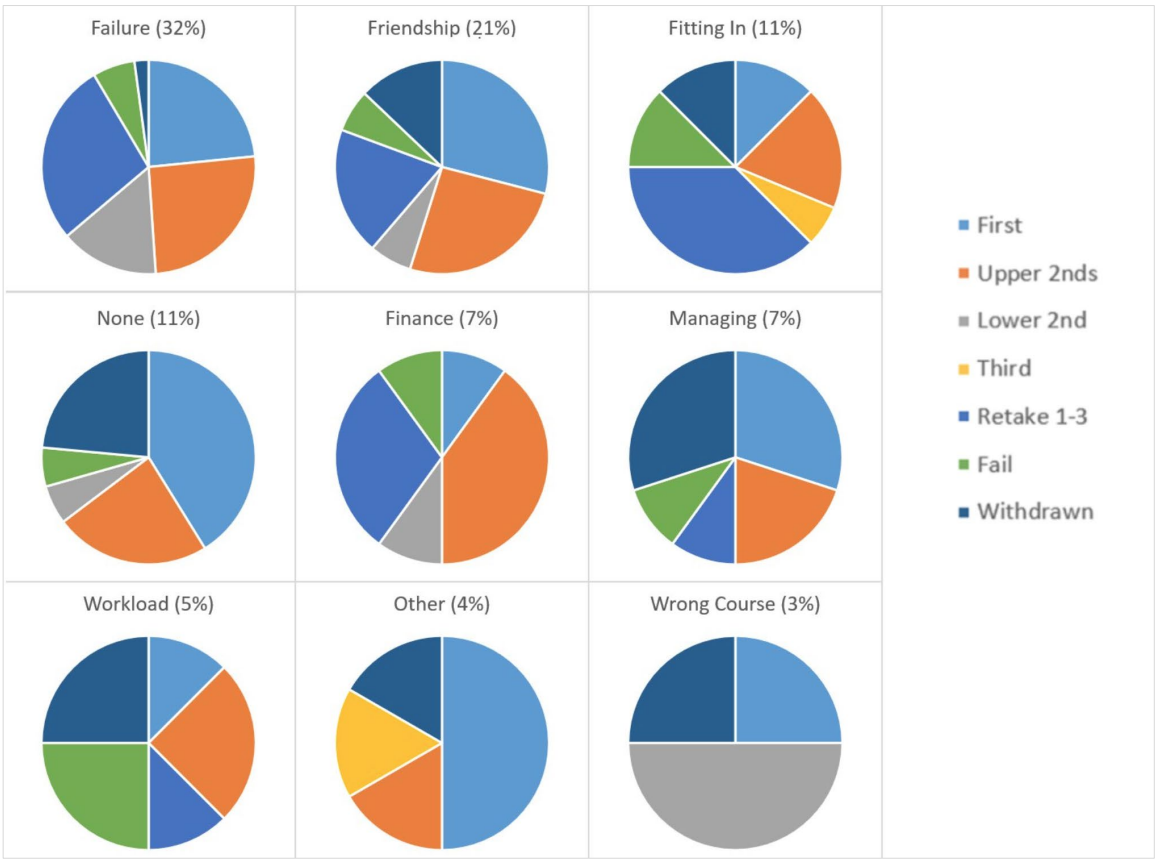


Figure 18: Breakdown of classifications at the end of year 1 by student's biggest fear at the start of the year.

As can be seen in Figure 19, the students whose biggest fear at the start of the year was related to fitting in, concerns about the workload and fears that they had not chosen the correct course did not perform as well as the other groups, including the students who said they did not have any fears or the ones that did not fall into the themes identified (classed as 'other').

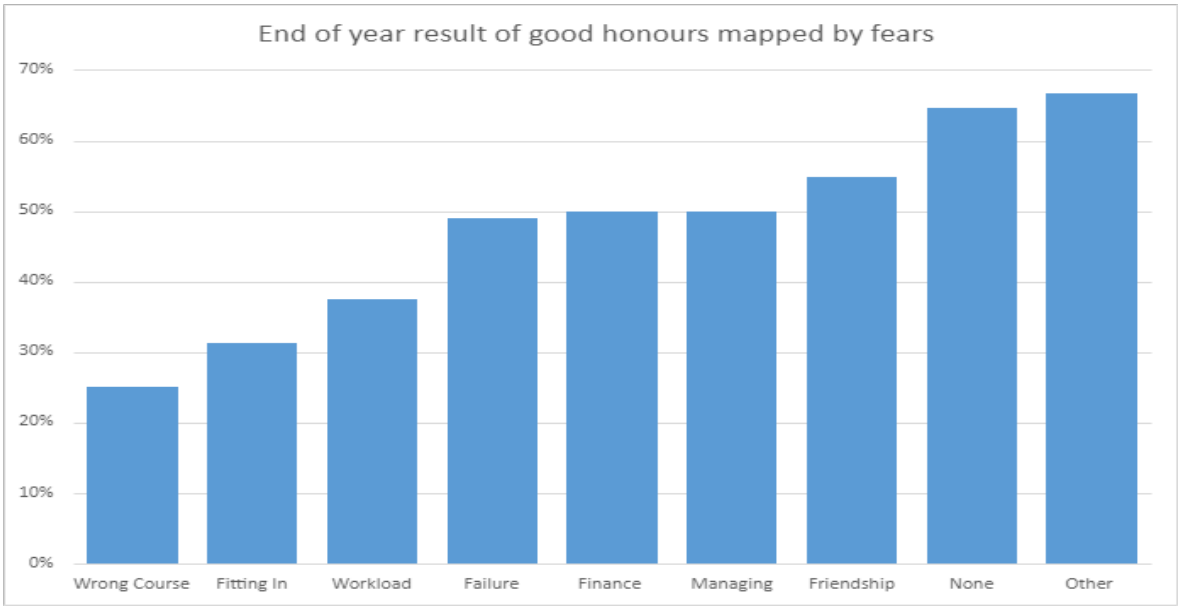


Figure 19: Breakdown of fears by student's classified as good honours at the end of year 1.

Figure 20 shows the average attendance of students plotted against the fear group, excluding all students who were withdrawn before the end of the year. The lowest average attendance (58%) was for the group of students who were not present for the questionnaire at the start of the year, which reinforces that their engagement, on average, did not improve throughout the year. Students with financial worries at the start of the year had the next lowest attendance on average (60%); this accounted for 7% of the participants and may indicate that they either did not have sufficient funds to travel to classes or were working instead of attending classes. Research by Crozier et al. (2008) highlights the difference between students from a working class background, who struggle to balance workload and time management, as opposed to middle class students who have more confidence and a greater social engagement. The highest average attendance was for the group that were difficult to categorise (other, 3% of participants) with an average of 84%, closely followed by students whose main fear concerned friendship (81%), fitting in and failure (both 73%), and it is comforting to see that those fears, on the whole, did not impede the student's abilities to attend.

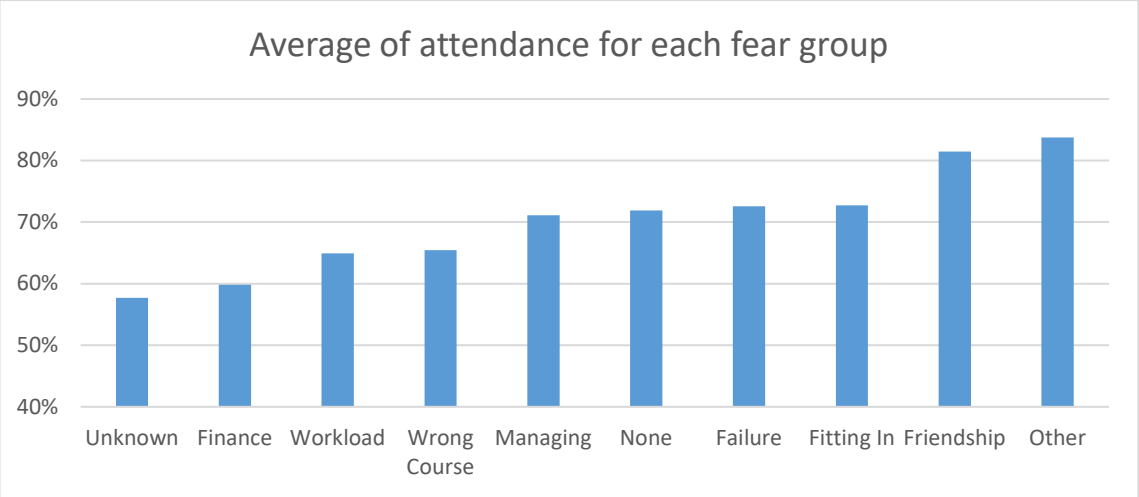


Figure 20: Breakdown of fears by average attendance.

4.5. Chapter Summary

The chapter explored how questionnaires facilitated the exploration of various aspects of students' academic and social integration, learning preferences, and satisfaction with the educational experience. This chapter provides a comprehensive analysis of how various characteristics of university students correlate with their end-of-year grades. The study examined a range of demographic and personal factors, including age, gender, ethnicity, course choice, career aspirations, prior qualifications, living arrangements, friendship groups, attendance and fears.

The analysis revealed significant patterns and trends that highlight the multifaceted nature of academic performance. Age, attendance and prior qualifications emerge as strong predictors, with mature students and those with higher prior academic achievements generally attaining better grades. Gender differences are noted, though their impact varies across different courses and contexts. Ethnicity also plays a role, with disparities in grades suggesting variations in prior educational experiences, access to academic resources, and socio-economic backgrounds. Course choice and career aspirations show a clear link to academic success, indicating that students with a clear, passionate focus tend to perform better. Living arrangements, such as whether students live on-campus, off-campus, or at home, also affect grades, with those in supportive and stable environments achieving higher marks. Friendship groups and social integration are critical, as students with robust social networks and positive peer interactions tend to excel academically.

Lastly, the study explored the impact of students' fears, particularly fear of failure, and found that while it is a significant psychological factor, its effects are less directly measurable compared to other more concrete variables. Overall, this chapter underscores the importance of

considering a holistic view of student characteristics to better understand and support academic success.

Building on the comprehensive analysis of student characteristics and their correlation with end-of-year grades, the next chapter delves deeper into the personal experiences and insights of a smaller sample of the cohort.

Chapter Five

5. Interview Data: Analysis and Discussion

5.1. Introduction

Chapter 5 investigates the findings from interviews conducted with Computer Science students, offering a qualitative perspective on their educational experiences. The chapter aims to bring forth the nuanced narratives, opinions, and reflections shared by the participants, providing a rich, in-depth exploration of the themes related to the student experience in Computer Science. The structure of the chapter is designed to first detail the qualitative findings from the interviews, followed by a critical analysis that interprets these findings within the broader context of existing research, theoretical considerations, and the overarching research questions of the study. The chapter will then examine the data by timeframe, to look for temporal variations across the interviews.

By conducting interviews at regular intervals throughout the academic year, this qualitative approach aims to provide a richer, more nuanced understanding of the factors influencing academic performance. These interviews offer firsthand perspectives on how students navigate their university journey, manage challenges, and leverage their strengths. Through these personal narratives, this chapter seeks to complement and expand upon the quantitative findings of the previous chapter, offering a more detailed exploration of the lived experiences behind the data.

5.2. Demographics

The interview participants were self-selected using an opportunistic sampling strategy, as discussed in the methodology chapter. The participants were anonymised by referring to each one as a number in order to protect their identity. A table of their main characteristics can be seen in Table 4.

The participants were predominantly male and had an average age of 22 at the beginning of the study, with seven aged over 21 years old, so considered as mature students. Nine of the students were living in university or private halls on or around campus, with the rest commuting to university each day from the local area.

Participant	Gender	Age at start	1st Gen	Living	Previous Qual Type
P01	M	27	no	Halls	BTEC
P02	M	18	yes	Halls	BTEC
P03	F	24	yes	Halls	BTEC
P04	M	21	no	Home	EU equiv
P05	M	18	unknown	Halls	BTEC
P06	M	18	no	Home	BTEC
P07	M	24	no	Home	BTEC
P08	F	19	yes	Halls	A Level
P09	M	19	no	Home	A Level
P10	M	21	unknown	Halls	unknown
P11	M	22	unknown	Halls	unknown
P12	M	26	yes	Home	unknown
P13	M	34	no	Halls	A Levels
P14	M	18	unknown	Home	BTEC
P15	M	18	unknown	Halls	BTEC
P16	M	27	yes	Home	unknown
P17	M	18	yes	Home	BTEC

Table 4: Main characteristics of participants

Table 5 summarises the participants by their domicile and gender. None of the volunteers were studying on the computing course, five of the students were studying networking (29.4%), three were studying forensic computing (17.6%), six were studying games development (35.2%), and three were software engineering (17.6%). This is not quite in line with the larger population but felt close enough to be representative in terms of course, gender and home country. There were no volunteers from Computing or Information Systems, which made up 15.7% of the population, but both of those courses have the same first year as Forensic Computing and Computer Network Technology, and as students have the option to switch course at the end of the first year, I did not feel that this hindered or negatively impacted the research.

Course Title	No. of Overseas Students	No. of Female Students	No. of Male Students	Total Number of Students
BSc (Hons) Computer Games Development	1	1	5	**6**
BSc (Hons) Computer Network Technology	0	0	5	**5**
BSc (Hons) Forensic Computing	0	1	2	**3**
BSc (Hons) Software Engineering	1	0	3	**3**
TOTAL	**2**	**2**	**15**	**17**

Table 5: Breakdown of Sample Participants

Although the institution has been named in this thesis, all participants and their details have been anonymised. This means that students' specific courses of study have not been identified, and individual student vignettes are not included to preserve their anonymity.

More than half of the participants (53%) had taken BTEC qualifications in college, of which seven achieved a grade of at least D*D*D. Of the information known, about half of the participants were considered first generation students, in that no-one from their immediate family had attended university before. All seventeen participants successfully completed the first year with an overall average grade of almost 73%. The lowest individual student average was 57%, and the highest was 91%, with ten of the students averaging 70% or above.

Due to the self-selection of participants for the interviews, it may have biased the data gathered, as individuals with strong opinions or particular experiences may be more likely to volunteer to participate. This can result in a sample that does not accurately represent the entire student cohort. Additionally, those who feel positively about their experiences may be more willing to share their views, skewing the data toward favourable outcomes. Conversely, students with negative experiences might volunteer to voice their grievances. This bias can limit the generalisability of the findings, as the perspectives of more neutral or less engaged students might be underrepresented.

5.3. Thematic Analysis of Interviews with Students

The set of seventeen first interviews were copied into an NVivo Project, checking the transcriptions once more against the recordings. Once all were input to NVivo, the coding process began, which involved the marking of words or phrases that summarised the essence of the topic, to use as prompts and triggers for further analysis (Miles, Huberman & Saldaña, 2014).

These coding approaches were used in order to capture the thoughts, feelings and perspectives of each participant. Provisional coding provided a list of codes as a starting point. The provisional codes were from a deductive approach, based on the fears identified in the quantitative data and my research questions. The initial codes were coping, expectations, feelings, finance, friendship, future, previous experiences. The code list was then edited and expanded inductively as the coding process continued.

All of the first interviews were coded in this way. Once this was complete, and I felt more confident with the coding process, I reloaded the interviews to a new NVivo project and coded them all again. At the end of this second attempt, the results from both coding exercises were compared to check for internal consistency (Miles et al., 2014). This process allowed me to review and reflect on the codes I had used and try to consolidate and validate the codes that I had generated. There were some minor discrepancies between the two attempts, where I now felt that some of the earlier coded data may have been trivial or not important for the study,

but generally, the results were very similar. Some new codes were added, and some broad themes emerged that largely related to the 'Pathways to Engagement' proposed by Kahu et al. (2020). The four pathways (emotions, wellbeing, belonging and self-efficacy) are the mechanisms that show whether students have engaged with their university or not, and largely align with the data gathered about student fears related to family, failure, financial, friendships and future. The pathways also encompassed my codes related to the participant's course and/or study, in relation to their coping/coping strategies, expectations, workload, comparison to others, and specific modules within the course. Each of the codes was evaluated in terms of whether it was felt to be positive or negative which was then used in conjunction with other codes to further interrogate the data and to understand the participant's feelings towards the coded item.

The data was also coded in relation to the interview stage and for each question within each stage, so that the data could be investigated both by participant and by timeframe to show different perspectives of the data.

I also looked at the data in a reflexive way, using a code to record interesting observations from the interviews, that may warrant further investigation or that just provoked more thought from me. For example, several students shared during the interviews that they were the top students at their colleges, but were now struggling to keep up with their peers. This piqued my curiosity, prompting me to consider whether they truly were top students, who had conveyed this to them, and how such information had influenced their self-perceptions and decisions since then. Reflecting on my own experience, I recall a significant moment from my teenage years. My German teacher reprimanded me for 'messing about', asserting that just because I could easily pass the exam, which was months away, I should not distract my classmates. From that point onwards, I stopped trying in German classes, believing I did not need to, which was to my detriment, as I ultimately did not achieve the results I felt I deserved. This experience highlighted for me how a seemingly flippant comment from someone in a position of authority can have a lasting impact, both negatively and positively.

Theme	Associated Codes
Social	Belonging Friendship Family
Personal	Comparison to others Self-efficacy Finances Future
Pressure	Workload Expectations Failure

Mental Health	Wellbeing Emotions Coping/Coping Strategies

Table 6: Table of themes and corresponding codes that emerged from interviews with students.

The thematic analysis of the interviews conducted with students has led to the identification of several codes that offer insights into the multifaceted nature of their experiences in higher education. These codes have been organised into distinct themes to provide a comprehensive understanding of the factors influencing students' academic journeys. A summary of the themes and associated codes can be found in Table 6.

I did think that 'failure' would warrant a theme of its own, but it was not mentioned as much as expected within the interviews, perhaps because I did not ask a direct question about failure. Failure seemed to fit well within the theme of pressure, as that encompasses their feelings towards the workload and expectations. Self-efficacy has similarities to failure, but has been kept as distinct codes within separate themes, as the items coded to self-efficacy are more nuanced than a direct relationship with failure. Each of these themes has been explored further in the following sections, using examples from the interviews.

5.3.1. Theme: Social (Belonging, Friendship, Family)

In Higher Education (HE) like anywhere else, the people around you and that you connect with play a very important role. For most students, they help create a strong sense of belonging, friendship and along with family ties, shape each student's sense of identity, support networks, and overall well-being.

Social networks are crucial for many students; they shape the interactions and relationships that students develop throughout their first year in higher education (Gallagher & Gilmore, 2013). The concept of belonging emerges as a central thread, encompassing students' quest to find their place within the academic community and establish a sense of connection with peers, faculty, and the institution at large. Whether through shared interests, cultural affinity, or shared experiences, the sense of belonging plays a pivotal role in shaping students' academic engagement and retention.

For some students, belonging was an evolving process marked by initial uncertainty but growing comfort over time. The ambiguity of early social interactions is illustrated by one participant, where enjoyment of company does not necessarily equate to a strong sense of inclusion:

> *"Well I usually sit with [named three fellow students] on the back row, paying attention, I am with them but I don't know if I am part of their group, I just sit with them, because they are fun, they are funny and I like to be with them." (P04, Interview 3).*

Another participant experienced a more positive shift from isolation to involvement, which underscores the dynamic nature of belonging, influenced by time and deeper social connections:

> *"I feel as though I am getting more involved a lot more, like, at the end of the year we are planning on moving in together and stuff like that, whereas last year I felt I am never going to leave home and live in at uni or anything but this year I feel more involved." (P08, Interview 5).*

Preparedness also plays a role in the ease of fitting in. This highlights how prior knowledge and expectations can facilitate a smoother transition and a stronger sense of belonging:

> *"I think I am fitting in quite well to be honest, I think I have been more prepared than the majority of students, because I already knew what to expect from all of it." (P13, Interview 1).*

Social interactions varied with the context, as illustrated by another participant, which reflects how students navigate social dynamics based on shared interests and situational contexts:

> *"With each class it is different really, for example in lectures I will sit with a lot of the [people on the same course as me], well one of them I was teamed up with in the four week challenge[3], so I knew him anyway the other guys I just get along well with, one of them [has a similar hobby to me] so I chat to him but when you put us into different classes it depends on who is in the class really I just sit with people who meet my personality needs, it is different people in every class really." (P13, Interview 3).*

Others balanced social and academic settings differently. One student described how pre-existing relationships and new classroom dynamics both play roles in forming a sense of belonging:

> *"I go to lectures with the same people but in the classroom it is just me and another person in there but generally we are approachable really so it is not a problem, however, I know in the lectures it is the people I know from college and stuff that I go with but they are on a different course and then in the labs it's just a couple of people really then generally if anyone else is around just approachable really." (P14, Interview 3).*

Increased social engagement over time was evident as the interviews progressed. One of the participants in particular mentioned this in the fourth interview, which took place in February. This showed the evolution from purely academic focus to a more integrated university life and highlighted how belonging can develop through increased social interaction:

[3] The Four Week Challenge (also known as 4WC, but officially is called The Computing Challenge) is the first 20-credit module that students encounter in the first year of study. It is a burst mode module, that delivers an end-to-end Agile team development project, designed to help students transition to university, make friends and align their expectations. See Danino, N., May, L. & Mitchell, N. P. (2013). Reprogramming 1st year students: An action research case study. *UCLan Journal of Pedagogic Research*, *4*(1). https://doi.org/https://doi.org/10.5420/ujpr.4.

> *"I am happy at Uni now, at first I just wanted to do the work and then go home, now I am quite happy to stick around. I want to see if anyone's around to meet up and see if the games room is empty and it is so I am going to go to the games room after here." (P16, Interview 4).*

These excerpts collectively suggest that the sense of belonging among first-year computing students at UCLan is multifaceted, influenced by social dynamics, personal growth, and individual preparedness. Research by Astin (1984) found students who had frequent interactions with faculty members and other students had a greater sense of belonging than ones that did not. This is borne out by the extracts above, as the participants appear to become more comfortable and feel a deeper sense of belonging as they get to know their peers and lecturers. Mattering to others was found to be significant in research by Hallam (2023) in increasing the sense of belonging and connection to the university. Understanding these nuances is vital for developing effective support strategies that foster a more inclusive and supportive environment, with more opportunities for social interactions between staff and students.

Friendship emerges as another essential dimension of the social landscape, representing the bonds forged and nurtured between students, their peers, flatmates and wider network. From initial acquaintanceships to deep-rooted friendships, students' social networks provide a source of support, camaraderie, and shared experiences. Exploring the dynamics of friendship sheds light on the role of peer relationships in fostering academic success, emotional well-being, and personal growth. One participant described how initial university activities facilitated friendship formation. This underscores the importance of structured activities in helping students establish new social connections:

> *"with the 4 week challenge I got to know more people, the fact that from high school to college, I already knew people from high school and from college to uni I hardly know anybody, there is literally no-one I know on the course so all the friends I have made are new friends and the four week challenge helped me with that." (P17, Interview 1).*

The dynamics of these friendships can vary greatly. The following illustrates the layers of social relationships, from close friends to more casual acquaintances.

> *"there is a group I have that I usually hang out with, there is this one guy who we were with in the four week challenge that we have actually become quite close to and then of course there is another friend of mine, we have been friends since the beginning so these are two good friends that I can rely on, the others we just talk, sort of friends I would say." (P10, Interview 3).*

Some students find that friendships evolve naturally through shared academic efforts and leisure activities. This highlights how academic collaboration can foster stronger bonds between students:

> *"it's really strange because I didn't really set out to make friends and I have made them, I think that is a big thing when you are doing the assignments, you are not on your own just sat in the house on your own concentrating , you're working with others, you are helping solve problems together, just go for dinner together have an hour out and just sit and chat together and I think it has helped a lot that." (P16, Interview 5).*

However, not all students prioritise social interactions in the same way. Some prefer a quieter social life:

> *"I don't feel personally that I am missing out because most people categorise student life as you know first year is the party year, second year is the study year but I have never been much of a social person I have usually liked to focus on a task and when I am done stay in my little area and if I have got friends who want to do something I will probably do it with them but it won't be for long, so long as it is not night clubs and stuff like that I'm fine but I don't feel like I am missing out, I am not interested in drinking, partying, classic student life, stuff like that." (P02, Interview 1).*

For some students, friendships are more fluid and situational, taking their time to choose their friendship groups carefully:

> *"I was going into labs and I really didn't know anybody the only people I knew were the loud ones. I used them to stay apart from everybody in the room, once I have been into enough labs and get to know everybody and they calm down there are more people there that I can talk to and be friends with and that's good." (P16, Interview 3).*

And:

> *"That is a very complicated story because I used to have a lot of friends and then, I think I talked about it last time, a big problem happened and now everyone is kind of separated out and then a lot of people have gone off to uni and I still skype with a lot of friends who have gone off to uni and play games on line and stuff but if I am going to go out with someone or meet someone it will be at uni it won't be in [my home town]." (P09, Interview 3).*

Ultimately, the experiences of making friends at university are diverse. While some students seamlessly integrate and form lasting friendships, others find their social circles to be more transient and situational. Despite these differences, the presence of friends, whether close or casual, significantly impacts students' university experiences, offering both social and academic benefits (Wilcox, Winn & Fyvie-Gauld, 2005). The literature shows that social situations can cause increased anxiety, but equally, loneliness and isolation can be similarly distressing (Gravett & Winstone, 2022; Russell & Topham, 2012), so it is vital that students are given plenty of opportunities to form friendships. My own findings support that meaningful connections with peers and academic staff contribute to students' feelings of belonging and engagement. Authentic connections enhance students' sense of mattering and well-being, while alienation from genuine interactions can lead to feelings of isolation and hinder academic success.

Additionally, the familial aspect of the social realm cannot be overlooked, as students often grapple with the transition from home to university life and navigate the complexities of family expectations, support, and relationships. Whether maintaining connections with family members or renegotiating boundaries and autonomy, the influence of family dynamics reverberates throughout students' experiences, shaping their sense of identity and belonging. This relationship will be different depending on whether the student is living in student accommodation or commuting to university, but it is clear that family plays a critical role in shaping the university experiences of first-year computing students at UCLan. The interviews reveal how family dynamics, support systems, and personal challenges influence students' academic and social lives. For some students, the family environment at home poses challenges to their concentration and rest. One student shared what living at home was like for them, indicating how a disruptive home environment can impact their ability to focus on their studies and maintain a balanced daily routine:

> *"Home is extremely noisy with kids because Mum is a child minder, being awakened at 7 o'clock in the morning by screaming children isn't that good." (P03, Interview 1).*

On the other hand, family can provide significant support, especially for those who have relatives nearby. This highlights the practical and emotional support family members can offer, easing the transition to university life:

> *"Okay, I think I have a good position here at Uni anyway, as my sister lives here, I go there quite regularly, she feeds me, does my washing." (P08, Interview 1).*

Living away from home presents new challenges and learning opportunities. One student described the adjustment to independent living, which requires the development of new skills and routines, to foster independence:

> *"I moved into the accommodation, but it was a new experience because my brother wasn't living in halls, he was living at home, so it was something new for everyone. I think, when I am at home I can just eat with my family, now I have to preplan what I want to eat and make tea for myself." (P15, Interview 1).*

Family crises and significant events also have a profound impact on students' well-being and academic performance. For instance, one student recounted recent personal difficulties. Such events can be overwhelming, affecting students' focus and emotional state:

> *"There has been a lot happening recently particularly in my family, I found out a few weeks ago that my Aunty is dying of cancer and on Monday, when it was my birthday my boyfriend crashed his car." (P08, Interview 3).*

Family tragedies also deeply affect students, which amplifies the importance of family support during difficult times and the emotional toll these experiences can have on students:

"My stepdad died over Christmas so it threw all our Christmas plans to pot. It did take over Christmas and I ended up seeing my Mum a lot." (P16, Interview 3).

Family influences on students at UCLan are multifaceted. While some students benefit from the support and proximity of family members, others face challenges due to noisy home environments or personal crises. Missing family or dealing with family issues all play a part in a student's university experiences. The lack of awareness or empathy that family may have towards the students' studies could be due to the lack of cultural capital within the family dynamics (Roksa et al., 2020), which could add to the challenges for first generation students. The transition to university life requires adjustments, and the support of family can play a crucial role in helping students navigate these changes successfully, whilst balancing their home and study time.

In summary, the theme of "social" within the context of first-year higher education encompasses codes of belonging, friendship dynamics, and the intricate interplay of family relationships. By delving into these interconnected dimensions, the nuanced ways in which social experiences shape students' academic journeys and contribute to their overall well-being and success are revealed. Early experiences for students, before new friendships have been established, can be isolating or troublesome, so it is important that students have their other social networks to rely on in the early days for support and reassurance (Wilcox, Winn & Fyvie-Gauld, 2005). Worries or social anxiety can put students at a disadvantage, impacting both academic achievement and their mental health (Archbell & Coplan, 2022), with students from non-traditional backgrounds requiring extra support due to social, cultural or economic deficits (Stephen, O'Connell & Hall, 2008). The caring approach of friends, teaching and support staff is critical to ensure students feel that they matter, which can significantly impact student motivation and persistence in their studies (Hallam, 2023).

5.3.2. Theme: Personal (Comparison, Self-Efficacy, Finances, Future)

The theme of "personal" serves as a lens through which to examine the multifaceted dimensions of individual experience and identity. This theme delved into the intricate interplay of a student's self-perception, financial realities, and future trajectories.

The comparison to others explores how students perceive their standing in comparison to peers, exploring their own progress and achievements in relation to others. In this study, students often measure their academic success, social status, or personal development by comparing themselves to others, which can shape students' perceptions of self-worth and competence within the academic environment (Rivera & Garden, 2021). The theme of comparing themselves to others emerges strongly from the interviews, reflecting the diverse ways in which first-year

computing students gauge their performance and progress relative to their peers. This comparison can manifest in competitive drive, perceived inadequacies, or as a desire for validation (Davis & Parmenter, 2020). For some students, competition is a motivating factor that drives their efforts. One student expressed a strong competitive spirit, which highlights how competition can spur engagement and performance, though it can also lead to a strategic relaxation once the objective seems within or out of reach:

> *"I am terrible for competition, if something is made into a game with me I try and knock everybody off the top, not really in the four week challenge I think we got to the third week and just seeing where we were we thought just chill out now lads." (P01, Interview 2).*

In other cases, students feel a collective struggle and use their peers' experiences to normalise their own challenges. This suggests a shared sense of difficulty that can be both comforting and concerning. Some courses seem to struggle with particular topics, for example, on the Forensic Computing course, there is a large proportion of the cohort that struggle with programming:

> *"In Forensics it's not really the same so if you ask every single person in Forensics they will say the same that they are struggling, yes I know everyone is, pretty much a few people have got 45% and that is what they are aiming for because they can't physically aim higher because they don't know what they are doing." (P01, Interview 4).*

Team dynamics and perceived contributions also play a role in how students compare themselves to others. One student highlighted their discomfort with unequal effort in group work. This is a common issue, with teamwork being the cause of many early problems between students in their first year. Working together is an important skill that students develop throughout their studies as a transferable skill for employment (Dunne & Rawlins, 2000). The following quote emphasises the frustrations that can arise when comparing individual contributions within a group:

> *"I am okay working in teams if everyone is trying their best, if three are working as hard as they can but two are just staying there relaxing and letting the other three do the work, I don't like that." (P04, Interview 5).*

Age and experience can further complicate feelings of comparison. A mature student reflected on how personal expectations, based on their life stage, can heighten the impact of comparisons:

> *"I feel there is pressure because I feel I should be doing better than everyone else just because of my age, life experience and stuff like that and when I am doing stupid mistakes that other people aren't that are six or seven years younger than me it's just a bit annoying." (P07, Interview 2).*

Competition can also foster a desire to outperform specific peers. One student mentioned how

he was motivated by outperforming another student. Such targeted competition can drive focused efforts and determination:

> *"I don't want to do that because the next Games Concept I want to start pretty much probably starting next week along with my research, when I am not doing my research, because I want to beat [this student] on it. He always gets the highest mark and I want to beat him." (P09, Interview 3).*

However, comparison can also lead to feelings of inadequacy. One student reflected on their struggle with written work:

> *"I think when it comes down to actual written work, I can get the same results as everyone else but I think it takes me a little bit longer, I find myself having to read things over more, I have seen people in class and they will do a work sheet in like half an hour and it would take me 2 hours and I thought that was fast." (P13, Interview 2).*

Similarly, another student noted their perceived lack in programming skills:

> *"So far everybody else has done a lot more on the programming than I have and a lot of the things that literally everyone in the entire class thinks is easy." (P02, Interview 1).*

These quotes highlight how comparison can erode self-confidence and create pressure to keep up.

In summary, comparisons among peers are a double-edged sword. While they can motivate and drive students, they can also create pressure and feelings of inadequacy (Mitchell, Danino & May, 2013; Rivera & Garden, 2021). A more in-depth analysis and more specific understandings can help develop support systems that address both the positive and negative aspects of peer comparison.

Self-efficacy, or the belief in one's ability to succeed, emerges as a key aspect of the personal theme. Students' confidence in their academic skills and capacity to overcome challenges influences their approach to learning, and ultimately their resilience when they are faced with adversity (Gao & Eccles, 2020). Understanding students' self-efficacy sheds light on the factors that bolster or hinder their academic performance and engagement in higher education. Self-efficacy beliefs impact various aspects of human functioning, including cognition, motivation, emotions, and decision-making. For example, when asked to pick a word to describe how they were feeling at that point, one participant picked the word 'surviving', because they were struggling in one module. This shows low confidence in their abilities, and that one factor influences their whole outlook. These beliefs influence whether individuals approach challenges optimistically or pessimistically and affect their ability to motivate themselves and persevere

through difficulties (Bandura, 2012). Additionally, self-efficacy beliefs play a crucial role in regulating emotional states, impacting vulnerability to stress and depression. This theme reflects the students' varying degrees of confidence in their academic capabilities and their perceptions of personal and academic growth.

Several students expressed a growing sense of competence and achievement through their experiences. One student expressed the positive impact of the four-week challenge, which indicates how structured challenges can bolster students' confidence in their ability to learn and master new skills quickly:

> *"I know it is going to get a bit harder next year but I suppose the progression, you know, the four week challenge, the thing I have taken from that is that you can learn how to do something in a short space of time and at the end of it know how to do something you didn't think you would be able to do at all, which is kind of great" (P07, Interview 2).*

Another student emphasised the importance of respect and recognition from peers and tutors as a measure of their success. This highlights the role of external validation in reinforcing self-efficacy:

> *"I would like to be respected by the students but just really the tutors like yourself and [other staff names], if I get to know you all and you respect me and the work that I have done I feel as though I have achieved something and feel that I am getting somewhere in life at university." (P16, Interview 2).*

Students also shared their strategies for overcoming personal challenges and improving their academic performance. One student described their efforts to compensate for perceived disorganisation and slow learning pace. This proactive approach to learning highlights a strong sense of self-efficacy:

> *"I have always been quite disorganised and I have been slow so what I have been doing especially since near the end of high school and sort of in college I started trying to find ways, learning more about myself and how I learn and then I started working ways around to like, I anticipate anything that I might do wrong and try to find a way to work round my own flaws so that then I can keep up with people because I know I have to put in more time and effort than most people do to do the same amount. I have to figure out ways to help myself achieve that and that is what I have been trying to stick to." (P06, Interview 2).*

And:

> *"I still feel as though I am learning. I feel as though I am achieving, systems analysis I feel as though I am doing well in that, I think I am doing well, I am achieving, making progress." (P16, Interview 2).*

Conversely, some students also conveyed doubts and frustrations. One student expressed disappointment with their programming results, acknowledging personal responsibility.

"A bit disappointed with a few of the results that came through but that is my fault more than anything, Introduction to Programming, a bit disappointed with, 62 in the assessment and 60 in the exam, I thought I would get a lot more, oh well, try harder next time." (P01, Interview 3).

Another student highlighted the challenge of transitioning from C# to C++, stating:

"I am finding Programming quite difficult, C sharp was dead easy, I loved C sharp but C++ is above my head kind of thing." (P01, Interview 4).

The need for feedback to guide improvement was also a common theme. One student expressed a desire for more detailed feedback, which indicates a reliance on external feedback to gauge progress and adjust efforts accordingly.

"I wanted more feedback on the actual content itself, am I actually on the right track, have I discussed the actual things that the report wanted." (P02, Interview 1).

Self-doubt was evident in reflections on perceived knowledge gaps. A student shared their concern about their computing knowledge, where their previous experience had given them a strong sense of achievement that they were discovering was not as strong as they had thought:

"I kind of feel that I have a lot less knowledge than I thought I did, because I did well in high school, because I did IT in high school and I did well in college, I actually got the highest grade in college which isn't too bad, but after the first few weeks and trying the programming out and app inventor and doing a couple of other computing things as well I kind of feel my knowledge that I thought I had has actually dropped a little bit, like I realise I am not as smart in computing as I thought I was, which is kind of worrying now because I feel I am not going to last very long, which is why I think I need to start studying more and getting more books out because I really do not want to fail and that is the biggest worry for me all year and it probably will continue to be, I am worried that I will do a slip up by accident or I haven't studied as much so will end up failing and getting kicked off." (P02, Interview 1).

Conversely, other students expressed high ambitions and confidence in their abilities. One student highlighted their competitive nature and drive to excel:

"I really wanted to get a first, that's still doable, but I know that I can mess up, I feel, there is pressure because I feel I should be doing better than everyone else just because of my age, life experience and stuff like that and when I am doing stupid mistakes that other people aren't that are six or seven years younger than me." (P07, Interview 2).

Another student described their readiness and ambition, whilst also acknowledging that they have areas of weakness in their knowledge base:

"I have prepared myself quite well with the programming aspect of things, and by doing my GCSE English again, a couple of years ago, I've kind of kept myself in the loop I suppose. People will mention about how you probably used this in college, like um no, never heard of that, never heard of that, so yeah, sometimes it can be a little

daunting like all these guys know exactly what they are doing, and I haven't got a clue. At the same time I think I'm a fast learner and I can pick it up quite fast, quite well. And I tend to find myself that even on a brand new subject I've never learnt before, I can still out-perform a lot of people. I want to be one of the better ones in the class, that's for sure, I would like to lead the class and well, I'm one of the few students that have gone for the masters, the MCOMP, so I am definitely aiming for a first, all the way. And I actually understand that the games industry is a very cut throat one and you've got to be one of the best to make it really, so I aim to be the best. Why not?" (P13, Interview 1).

Overall, these examples from the interviews underscore the complexity of self-efficacy among first-year computing students. While some students feel confident and capable, others struggle with self-doubt and the pressure to succeed. Self-efficacy, which is a student's belief in their capability to succeed, influences their sense of belonging in academia and success (Faust & Rosendale, 2023; Kinnunen & Simon, 2011). Success and early achievements can help to build self-efficacy, leading to a stronger sense of academic belonging, while a lack of success can reduce self-efficacy and hinder academic belonging, making students doubt their place at university (Kahu, Ashley & Picton, 2022). Understanding these diverse experiences can inform strategies to support students' self-efficacy and academic achievement.

Financial realities emerged to a lesser extent, but were still a significant dimension in the first two interviews. From worrying about student loans and part-time employment to managing living expenses and educational costs, students have to confront the economic realities that underpin their academic journey (Trust, 2023). The financial landscape intersects with broader issues of social equity and access, influencing their choices and affecting their agency and autonomy. Some students exhibited a confident and well-managed approach to finances. One student shared their effective budgeting skills, indicating a good approach to financial planning, to ensure that their funds last:

"money wise not so much because so far with my money I have done pretty well with that, I haven't spent too much, I have enough to last me until my next loan comes in and stuff like that." (P02, Interview 1).

Other students highlighted the sacrifices they make to save money, such as living at home. This highlighted how financial considerations can influence students' social and living arrangements:

"not as exciting as for some other students may have because I am staying at home just to save money." (P06, Interview 1).

Employment during studies emerged as a strategy for financial stability. One student mentioned their effort to secure seasonal work to supplement their income. This illustrates how students seek additional income sources to support their financial needs during the academic year:

> *"Right now I am trying to get a Christmas job, I forgot to mention that, I keep forgetting so that's why I haven't got one, I am trying to get a Christmas job, something to do over the holidays and earn some money as well." (P06, Interview 2).*

Long-term financial planning and savings were also highlighted by students who worked before attending university demonstrating a proactive approach to managing expenses:

> *"throughout work I have not spent much of it, I only moved out of my parents just over a year ago, my girlfriend was at Uni and we planned on moving in together afterwards and I thought if I save up now then we are not going to be short when we move in together which has worked out so yes, I have got quite a bit saved up just for this and because, it counts as two years of University even though I only did three weeks of the second year, so student finance only cover me for four years, so for the next two years I will get a tuition loan, but this year I will have to pay for, oh no I will get a grant as well for the last two years, but this year I have to pay for it myself, but, I will be fine." (P07, Interview 1).*

The advantage of taking a gap year to work was noted by another student, who felt better prepared financially as a result. This suggests that taking time to work before starting university can provide a financial cushion, alleviating stress related to tuition and living costs:

> *"The year out helped me prepare financially because I never stopped working. I have a decent savings account now and am in a good position financially." (P08, Interview 1).*

Financial independence and the desire to maintain a modest yet comfortable lifestyle were also important to students. One student expressed their goal of living within their means while still having the flexibility to make purchases. This highlights the balance students seek between financial responsibility and the freedom to enjoy impulse purchasing:

> *"Just being able to live off what I have earned, like I say I do work and have managed to make that budget work and would like to be able to comfortably, if I want to buy something, I don't want to live lavishly, but would like, if I see something online that I want to buy, I want to be able to go out and buy that." (P09, Interview 2).*

Financial management is a crucial aspect of university life, impacting students' daily decisions, social experiences, and overall well-being (Williams & Roberts, 2023). Understanding these financial themes can inform support services aimed at helping students manage their finances more effectively, thereby enhancing their academic and personal success, particularly in the first few months of the academic year.

Thinking about their future aspirations, whether driven by passion, ambition, or familial expectations, students grapple with the tension between personal goals and external pressures, navigating the pathways that lead toward their envisioned futures. For some students, a clear understanding of their desired career path motivates their academic choices. One student

expressed a preference for programming, which highlighted a targeted approach to selecting modules that align with their future aspirations:

> *"Yes I don't know why, but I think [doing programming next year] is more suitable for where I want to go at the end of uni, I can read codes but writing them is a different thing." (P01, Interview 4).*

Achieving a specific degree classification is crucial for others, particularly in securing employment with desired companies. This underscored the importance of academic performance in meeting specific employer requirements and the need to be focused on the bigger picture:

> *"my choices are degree, job or nothing because there is nothing else that I want. I would be happy with a 2:1 because BAE Systems accept a 2:1." (P03, Interview 1).*

Geographical preferences also play a role in shaping future plans. A student articulated their desire to live in the local area, which had then dictated where they studied:

> *"I want to study here, because I want to work here, I always thought the best place to study is the place where you want to work after university so I want to study here, because I want to work here, because I want to live here." (P03, Interview 1).*

Some students adopt a pragmatic approach, focusing on completing their degree and acquiring skills that would enhance employability, even if immediate job prospects are uncertain. They explained:

> *"I went into it, my aim was to make sure that I did everything, like all extra work, not do just enough to get by but make sure I did everything because when I finish the course I will be [older] instead of 21 like most people will be. Well, the way I was thinking was this, even if I don't get a job at the end of this I am still determined to finish the course and if I don't get a job, directly out of this course, at least I have tried to do something and I will have some skills that I have picked up […] and should be set for the rest of my life I guess, with a decent wage." (P07, Interview 1).*

Flexibility in career options is also evident among students who are open to various opportunities or do not have a clear path in mind. This highlights the challenge of choosing a degree without clear aspirations, that may have an impact on future employment:

> *"I don't know, anywhere where they will have me and pay the money. I have never known what I wanted to do, I have always kept my options open and when it gets to uni it gets really, really restrictive." (P08, Interview 2).*

Family influence can also significantly impact career decisions. A student who initially considered a different field shared that familial guidance had shaped their career aspirations:

> *"I was going to do Business at university but I can't see myself working in that kind of environment so I was looking into computing a lot because my cousin is a Networks*

Engineer so I asked him a lot and I just thought lets go for Software Engineering and see where it takes me, and I thought it was a good idea." (P17, Interview 4).

These insights reveal that while some students have clear, targeted aspirations, others are navigating broader, flexible pathways, which is reflected in the literature (Grebennikov & Shah, 2012). The varied future goals reflect a mix of confidence in chosen careers, adaptability to changing interests, and the influence of external factors such as family and employer expectations. Research suggests that students who have a clearer understanding of their career aspirations are more likely to be positively impacted by that (DeShields, Kara & Kaynak, 2005), so it is clear that work to help students develop their career path is important. This issue precedes tertiary education, with Walkey et al. (2013) reporting students in high school that did not have clear future aspirations underachieved.

In summary, the theme of "personal" within the context of first year of study encompasses the complexities of self-perception, financial realities, and future aspirations. By delving into these interconnected dimensions, I have illuminated the diverse ways in which personal experiences shape students' academic journeys and contribute to their sense of identity, agency, and purpose within higher education and beyond. It is clear from the literature that students who are financially stable and have a strong sense of confidence in their vocational futures are more likely to be successful (Kahu, Ashley & Picton, 2022; Sandler, 2000).

5.3.3. Theme: Pressure (Workload, Expectations, Failure)

Pressure manifests itself in many ways, be it academic workload, meeting or living up to expectations, or the fear of failure, and how students deal with that pressure affects everything else in their lives. With resilience, students have the capacity to bounce back from setbacks and overcome obstacles so that they can continue their studies and thrive (Kahu & Nelson, 2018). The less resilient students can struggle with even minor setbacks, which then impact their self-confidence and put their future aspirations in jeopardy. Exploring this theme helps to understand the challenges and stressors that students encounter at various points in their first year.

The variabilities of the academic workload across the year can leave some students feeling overwhelmed, struggling to balance competing priorities and meet deadlines. Studying how students see those pressures and how they cope when they feel overwhelmed by the workload gives valuable insight into the cohort. The fluctuating nature of workload throughout the year can impact student experiences. One student described how there was a lull between the intensity of the burst module and the modules that followed it:

> *"During the four week challenge it was full on for four weeks and then it kind of slowed down in a weird way and it took a while to pick up again, it is good and I am enjoying it." (P16, Interview 1).*

Exhaustion from continuous workload is a recurring theme. One student expressed their fatigue which highlights the physical and mental toll that sustained academic efforts can take on students, but also that their prior experiences may not prepare them for the level of effort required to be full time students:

> *"I am just so exhausted with university, I am in Monday and Tuesday but can't do Wednesday or Thursday at the moment." (P03, Interview 3).*

The same student in the following interview shared that their difficulties had not abated, indicating that it can be challenging to maintain consistent engagement with their studies:

> *"Nothing has changed, I'm still behind on work, not behind just struggling to find the motivation to do the work. I am not only really behind, I haven't been to Interactive Applications since New Year and I haven't been to Programming since New Year so I haven't done any of the work sheets so I have got Interactive Applications to a pass but Programming I haven't started and that's scary because I can't do Programming in C++ because I don't know anything about it, Practitioner Skills is fine I just need to fill in the blanks and Systems I have only missed one work sheet and I haven't done last week's work sheet yet" (P03, Interview 4).*

Peaks in workload intensity, particularly around key deadlines, add to the stress. These peaks create periods of heightened stress and require students to manage their time and energy effectively:

> *"There seems to have been two peaks during the year it was right after research week, we had to give the practitioner skills assignment and the introduction to programming assignment so it was like everything together that week but then the same peak as this one but this one is more, it is not too much but more than it has been." (P04, Interview 4).*

Several students mentioned a noticeable increase in workload as the academic year progressed. This gradual intensification of workload is a common occurrence within the curriculum which leads to mixed experiences among first-year students adjusting to university-level expectations:

> *"It has just got a bit, not overloaded but more than we had to start with at the start of the year." (P01, Interview 4).*

The pressure of accumulating assignments and approaching deadlines is another significant stressor. A student described this end-of-year pressure, which reflects the importance of effective time management to cope with academic demands:

"No, yes, kind of, a little bit. Pressure wise it has with everything being chucked at us at the end of the year, yes but it is okay as long as you keep to your schedule." (P01, Interview 5).

The intimidation factor of complex tasks can also deter students from attempting them. This highlights how fear of failure can prevent students from engaging fully with their coursework:

"when people get intimidated a lot of people would avoid it rather than sitting down and seeing just what you can do because as soon as you start on it you realise how it will all fit together but it's about people being so intimidated that they don't even attempt it because they are so scared that they are not going to be able to do it and the fear gets to them." (P11, Interview 2).

Despite these challenges, some students find ways to cope by staying organised and proactive. This approach reflects an adaptive strategy to manage increased workload:

"There is more work now because we are coming to the end of the year, might be too many deadlines, I don't know I will just try and keep on top of it." (P15, Interview 4).

In summary, students face significant workload challenges characterised by increased demands, pressure peaks, and motivational struggles. Effective time management and proactive coping strategies are essential for managing these demands, while the intimidation of complex tasks and the physical toll of sustained effort remain critical issues to address. Students who struggle to cope with workload pressures at university are less effective at dealing with stress and meeting the complex demands of university life (Xuereb, 2013). With a heavier workload, students are more likely to take a surface approach to their learning (D'Eon & Yasinian, 2022), which could impact their motivation to continue their studies. A balanced manageable workload is crucial so that students can plan their time effectively, taking account of other responsibilities and commitments that the students may have (Scully & Kerr, 2014).

Students arrive with vague preconceived ideas of what their course will be like, what work they will have to do and some have quite specific expectations of what is to come, which can affect their preparedness (Byrne & Flood, 2005). For universities to help students adjust to university life, it is important to understand what students expect, so that their expectations can either be met or changed to reflect what the course, work and university life will actually be like. This was a recurring theme throughout the interview process, not just in the early interview, which was a surprise. Many students found the course aligned with their initial expectations, especially in terms of content, indicating that for some, the course met their expectations and confirmed their interest in the subject matter:

"It is the course I expected, when I looked on the internet, to know what uni to go to, I was thinking about doing something about programming. And I thought, oh I like games, so I thought programming games would be good. I didn't know anything

about programming, so it was something I looked forward to, it was not a requirement to know programming from before. So I found that might be one of my fears, I hope I can be up to date, and be on track with the course. But I like how I'm doing for now, I wouldn't say I am top of the class, but I am ahead of most of the people so, I am feeling good, I think this is the course I wanted, and I think it's going to work." (P04, Interview 1).

However, the transition from college to university was a significant adjustment for many students. One student expressed the challenge of adapting to university, highlighting the pressure to meet new academic expectations:

"The course is fine, it is nothing to do with the course to be honest, I would say the major thing about the course is just the giant gap between college and the uni, because I would say that so far I have been treating uni like it is college as in there is a lot more leeway as to what you can do but I have been told all the way through college you are here now, late submissions you do get penalties for it you can't miss something or you will get zero marks and at the moment I have been in the mindset of no it's fine all these resubmits and stuff and I will say that the first task that we were given for the four week challenge report , that one, I will say that I did worry about that, I over thought it so much that I started to panic a little bit, I got it done and I submitted it on time but it is the fact that the standards are a lot higher than I am used to so it is just a matter of, is everything correct, am I actually doing it right and I pestered a lot of my friends that I have made here, the standard is a huge increase that I am still getting accustomed to, to be honest." (P02, Interview 1).

Students also found the structure and workload of university courses different from what they anticipated. This emphasised the adjustment to managing multiple concurrent modules, which contrasts with their previous educational experiences:

"I need to do [the assessments] one at a time, I can't do everything, that is why I was so surprised when I came to University and you load it all at once. I was under the impression you did one module and then you did another one and we get them lumped together and I wasn't expecting that." (P03, Interview2).

For some students, the transition from coursework-based assessments to exams was unexpected and challenging. Several students talked about how the work was different between their previous studies and what they expected of university:

"I came from a BTEC where it is all course work so I kind of feel at home doing assignments, I wasn't used to exams, like in your exam my hand hurt because I hadn't written so much in years." (P05, Interview 4).

And:

"I did a BTEC in college and that was completely different to uni, you spend all the time talking in college and the work was dead easy, I got top marks in one of them." (P03, Interview 4).

In contrast, students with different previous educational experiences found aspects of the

course familiar:

> *"No, yes and no, yes I think it is, a lot of time I am sitting in lectures and thinking, yes I did that in A levels, I did that in A level computing, so it is kind of what I was expecting because when I applied I thought it was going to be something like what I did in computing at school but more expansive, so yes, it is more or less what I expected." (P08, Interview 2).*

The impact of family experiences on expectations was also evident. One student shared their initial uncertainty, which suggests that familial experiences can influence students' expectations and initial perceptions of university life:

> *"Coming into university, I was a bit iffy about would I like it, would I not like it, because my sister has been through uni and she didn't like it, so she dropped out the first year. So I was a bit iffy but when I came and I saw the module and the course, and then the four week challenge that's what got me into it and made me think, yeah I want to study here and stuff like that." (P17, Interview 1).*

Unusual or unexpected elements of the course, such as the four-week challenge burst mode module, also played a role in shaping students' experiences. This highlights how specific course components can surprise students and affect their initial adjustment:

> *"I wasn't expecting to do the four week challenge module first. I am not sure anybody mentioned that at the open days because it caught me off guard. They probably didn't say four week challenge but they did say you were going to make an app in the first few weeks but it wasn't called the four week challenge so I just thought it was something you did for your own course not something you all did, I guess it was just me but who knows." (P14, Interview 5).*

These interview excerpts reveal the complex interplay of expectations and experiences among first-year computing students. Research suggests that clear information is critical before students enrol, with targeted marketing and clear guidelines being crucial for success (Grebennikov & Shah, 2012), with the interviews highlighting the need for clear communication and support to help them transition successfully into university life. For students from a widening participation background, it is even more important that information is clear, so that expectations can be managed, as they may lack cultural capital (Stephen, O'Connell & Hall, 2008), having no family role models or familial experience of higher education (Williams & Roberts, 2023).

As seen from the questionnaire findings, fear of failure is a major hurdle to overcome for many students. This relates and somewhat overlaps with self-efficacy, as many students talked about this fear in terms of feeling not good enough, rather than directly using the term failure. Understanding how students perceive and cope with failure provides valuable insights into resilience and personal growth, but as a stand-alone topic, this did not feature as much as

expected within the interviews, but probably due to the questions asked rather than the lack of fear of failure still present.

One student expressed a common fear of falling behind in multiple modules and the consequent pressure to manage their time effectively. This proactive approach aims to mitigate the fear of accumulating unfinished tasks, highlighting time management as a crucial strategy:

> *"The only real fear would be like, falling behind in like a load of modules, but I'm trying not to leave things to last minute so that it doesn't all pile up, I just have to space it out within the week." (P15, Interview 1).*

Group projects can exacerbate this fear, particularly when team members do not contribute effectively. A student recounted their frustration around the fear of failing due to others' lack of effort, which is an issue with any team project, as their grades are affected by efforts of peers:

> *"I kind of, I knew straight away, by the fact that he was always absent or his participation in the project was just minimal and when he did do a job it was half arsed and he didn't really try." (P13, Interview 2).*

Challenges in specific academic tasks, such as writing up their research experiment, further amplify this fear. This uncertainty about academic requirements can lead to anxiety and hinder progress:

> *"I struggle with write ups and to be fair I don't really know how to write up research I don't know what you are supposed to do with your data." (P12, Interview 3).*

Practical tasks also trigger fear, particularly when students doubt their technical abilities. A student shared their anxiety about practical exercises and how making mistakes can lead to avoidance and decreased confidence, exacerbated by being told they are not very practical in nature:

> *"Networking, I don't know about that one yet because the networking sheets I am doing fine with but there was a practical that we did where we created ethernet wires which everyone else managed to do but I actually gave up because I have never really been good at practicals and my Mum says it is because I always treat things gently because I am always afraid of breaking something and that's why I probably couldn't get on the computer because I would be worried that if I stuck it in it would instantly break or I would place it wrong or if I removed it, it wouldn't go back in and even though it is just a simple like cutting placing wire thing I just ended up sort of thinking about it too much wondering if it was going to break or not work and by half an hour or an hour of doing it I just gave up. DIY and practicals I have always avoided since high school, that has to change but it's that I have always done it so it is going to be hard to change, because whenever I hear the word practical I just get demotivated before it even happens." (P02, Interview 1).*

The consideration of changing courses reflects another aspect of this fear. One student contemplated switching to a different subject area due to doubts about their current path. This

indecision illustrates how fear of failure in their current course can lead to questioning their overall career direction:

> *"That is what I originally wanted to do when I was 17, I wanted to be a personal trainer or physio so I was in the mindset about two or three weeks ago to think is it too late to change over to the sports science course, I am kind of glad I didn't though." (P01, Interview 1).*

In summary, the fear of failure among first-year computing students at UCLan is multifaceted, affecting their time management, teamwork, confidence in practical tasks and overall academic engagement and performance. The findings from Choi (2021) showed similar outcomes. Addressing the fear of failure requires supportive strategies that enhance students' confidence, provide clear guidance on academic tasks, and foster reliable teamwork dynamics. Nunes et al. (2022) showed some element of failure is inevitable within the STEM (Science, Technology, Engineering and Maths) disciplines, so building strong resilience and destigmatising failure is essential.

Overall, the theme of "pressure" within the context of first-year computer science higher education encompasses the challenges of workload, expectations, and failure, alongside the resilience that enables students to navigate and overcome adversity (Kahu, Picton & Nelson, 2020). Delving into these interconnected dimensions through the longitudinal interviews illuminated the diverse ways in which pressure shapes students' academic journeys and fosters the development of resilience and perseverance within higher education and beyond. Choi (2021) argued that students are expected to be autonomous, self-regulated and responsible for their own learning, therefore managing a healthy life-study balance is crucial. This can be explored by finding ways to train students to have a healthy approach to failure and build resilience against the pressure of academic success.

5.3.4. Theme: Mental Health (Wellbeing, Emotions, Coping)

Within higher education, students grapple not only with academic demands but also with the intricate nuances of mental health and emotional wellbeing. The theme of "mental health" serves as a critical lens through which to examine the holistic wellbeing of students within the higher education landscape. Mental health encompasses the multifaceted dimensions of emotional wellbeing, where students navigate a spectrum of feelings, experiences, and challenges that impact their overall psychological wellness. From moments of joy and fulfilment to periods of stress and anxiety, students grapple with the ebb and flow of emotions that shape their daily lives and academic experiences. Wellbeing refers to a state of flourishing characterised by a sense of fulfilment, purpose, and balance in various domains of life. Understanding students' wellbeing sheds light on the factors that promote resilience,

satisfaction, and overall quality of life within higher education (Kahu, Picton & Nelson, 2020). The theme of wellbeing is prominently featured in the interviews, encompassing both mental health challenges and coping mechanisms. Students often expressed how their university experience impacts their mental and emotional state, revealing a spectrum of struggles and strategies for maintaining wellbeing. Adjusting to university life can be particularly challenging, leading to severe anxiety and panic attacks for some. This highlights the need for mental health support services, especially for those struggling with the transition to independent living:

> *"I had a couple of panic attacks the first couple of weeks here because I am not used to it, not used to change, so after the first two or three weeks I had a couple of like breakdowns and panic attacks, but that is just me though. I have got to balance how I am living at the accommodation along with the studying it is just the independent living and life skills are the only things that I am lacking pretty much at the moment." (P02, Interview 1).*

Several students describe feelings of being overwhelmed and the rapid advancement of coursework, which can negatively affect their mental state. The need for peer support to understand complex topics also highlights the importance of a supportive learning environment:

> *"the only thing that has got different over the course of time is that stuff has got more overwhelming, that is the only thing, certain things have got more advanced quite quickly, I have known some people like with normalisation, [name] knew about that from the start and he seemed to get it quickly and to be honest I think if I hadn't had him I don't think I would have got it myself, I am absolutely fine with it now but it was that making it up." (P07, Interview 5).*

The pressure of exams and presentations can also weigh heavily on students, with one expressing relief at having fewer tasks to manage. This suggests that workload management and clear milestones can significantly impact student wellbeing:

> *"Yes, when I woke up this morning I thought this is really good now, you know, I have only got my presentation to do and two exams so yes, it is a massive weight off my shoulders, can I go to this time next year." (P01, Interview 5).*

Feelings of isolation and the need for social support are crucial for maintaining mental health. A student described how being alone exacerbated their negative thoughts which emphasises the importance of social interactions and a supportive community in mitigating feelings of depression and anxiety:

> *"I am drowning in my mental thoughts not University, at University I am surviving and stressed. I like coming to University. When I am at home, obviously when I am at home on my own my thoughts take control of me and I get down, and then an extra week off, I'm like, no. I need people around me to stop feeling like I do." (P03, Interview 2).*

Family background and past experiences also play a role in students' mental health. One student

mentioned their history of stress and anger issues, which required counselling which suggests that pre-existing conditions can influence how students cope with university stressors:

> *"Well I grew up with my Dad and he is a bit of a stresser to put it mildly so I must get it from him, I had to go for counselling for a bit, for anger and stress issues." (P12, Interview 3).*

Support from significant others can be a vital factor in improving students' wellbeing. One student credited their partner with helping them cope better with life. This underscores the importance of personal relationships outside university in providing emotional stability and support:

> *"before coming back to Uni and starting my foundation year I met my partner and he has helped a lot coming through all this, and, I keep saying he has fixed me, he completely disagrees, but I like to think that he helps me to cope better with life, whereas before I used to sit in my head I am on an island but now I'm on, not an island but a continent with everybody else." (P16, Interview 1).*

In summary, wellbeing is affected by a range of factors, including academic pressure, social isolation, pre-existing mental health issues, and the availability of support systems. Wellbeing is affected by different aspects of belonging, from friendships providing support during times of stress to feeling secure in their chosen academic path. This echoes through the literature, and all contributes to student wellbeing (Kahu, Ashley & Picton, 2022). The examples emphasise that academic belonging is fundamental to student success and likely attrition, highlighting the importance of fostering a sense of belonging for overall student wellbeing, particularly when a typical student is at a vulnerable point for the onset of many mental illnesses (Goodday et al., 2019). Addressing these issues through robust support services, fostering a supportive community, and recognising the importance of personal relationships can help improve students' overall mental health and wellbeing.

Emotions play a significant role in shaping students' mental health and wellbeing, influencing their thoughts, behaviours, and interpersonal relationships. Exploring the dynamics of emotions provides valuable awareness of the factors that contribute to students' emotional wellbeing and resilience, finding out what they find frustrating or exhilarating (Astin, 1984). The theme of emotions is a significant aspect of the first-year computing students' experiences at UCLan, encompassing a wide range of feelings from stress and anxiety to excitement and relief. These emotions profoundly influence their academic performance and overall university experience. Several students expressed feeling emotionally and physically drained, indicating high levels of stress that impacted their ability to cope with university demands. This sentiment highlights the pervasive nature of stress and its detrimental effect on academic life:

> *"Last time [we met] things were pretty emotional, things haven't changed, things have gotten worse. No, not really coping, I am struggling still, I am tired and just emotionally drained it is just too hard to carry on. It's just other things at play messing with my university, my emotions shouldn't really affect it but they are." (P03, Interview 2).*

The same student reflects a similar struggle in a later interview too, which shows that this particular student has had a very difficult year:

> *"Nothing has changed, I'm still behind on work, not behind just struggling to find the motivation to do the work. More of a struggle, I'm tired, I am emotionally and physically tired all the time. I don't know, it's just myself, motivating myself to do stuff, I do have extenuating circumstances which give me, what do you call it, extensions, it helps." (P03, Interview 4).*

Despite the challenges, some students also experience positive emotions related to their university journey. This sense of adventure and enjoyment can be a crucial motivator and a counterbalance to the stress experienced:

> *"Like an adventurist feeling, I enjoyed it and I just made the most out of it. I am just enjoying Uni." (P06, Interview 1).*

Feelings of excitement and satisfaction from learning new things quickly are also prevalent. This indicates that overcoming initial nervousness and engaging deeply with coursework can lead to positive emotional experiences:

> *"I was a bit nervous because last time I was here [as a student on a different course] it wasn't what I expected. That makes me feel a bit better. I just sort of got excited about it and through the four week challenge, it was stressful, but the pace I was learning stuff, it sort of made me feel good." (P7, Interview 1).*

The sense of relief and accomplishment upon completing tasks is a recurring theme. This relief can contribute to a positive emotional state, reinforcing the value of completing challenging tasks:

> *"A massive relief at the end of the research project, I don't know, maybe I made a big deal out of it in my head even though it wasn't really a big deal, just put a lot of pressure on me to get it done right and I am just happy it is out of the way now." (P13, Interview 4).*

Some students manipulate their own emotions in order to achieve the outcomes that they want:

> *"I was in a bad mood all last week but I am okay now. I kind of think I sometimes force myself, and stress myself out on purpose so that I get things done but it is a really great feeling when I think there is no need to stress it is already done. I am really, really enjoying it, I really am, I did a foundation year, last year which was really enjoyable. I'm loving it to be honest." (P08, Interview 3).*

The university environment and social interactions play a crucial role in shaping students'

emotions. One student expresses appreciation for the university setting and the people around them. This highlights how a supportive and enjoyable environment can enhance students' emotional wellbeing and overall satisfaction with their university experience:

> *"I really like being at University, mainly because of the people around and I really like the setting, before I came I expected it to be an enclosed area like normal schools are with distinct boundaries like you are entering the gates of the university but the way it is spread out like a novelty, I enjoy that." (P10, Interview 1).*

In summary, the emotional experiences of students are multifaceted, ranging from significant stress and emotional drain to excitement, enjoyment, and relief. Recognising and addressing the emotional challenges students face, while also fostering positive experiences, is essential for supporting their mental health and academic success. Xuereb (2013) found that students who experienced negative emotions had more profound difficulties with their university experience. Factors such as a student's sense of belonging and feelings of isolation are associated with wellbeing, performance and overall satisfaction (Goodday et al., 2019).

Dealing with emotions and the intricacies and stresses of balancing their studies, work and life brings into focus how students cope with those demands, and what coping mechanisms they have in order to protect their mental health. Whether through seeking support, practising self-care, or accessing professional resources, students develop coping strategies to counteract the challenges of academic workload, social pressures, and personal setbacks (Hussey & Smith, 2010). Exploring the dynamics of coping sheds light on the resilience and resourcefulness that students harness in their quest for emotional balance and psychological wellbeing. One prominent coping mechanism is engaging in physical activity, particularly using the gym facilities with regular gym visits helping relieve stress and find a sense of balance:

> *"I go to the gym almost every day that's my way of dealing with everything. That's the UCLan gym. It's fantastic isn't it? I am getting there, I had to go home at the weekend just to get away from it all. I am settling in I can't imagine being anywhere else to be fair." (P01, Interview 1).*

Another coping strategy involves a strong sense of resilience and the desire for personal space. This student's determination and need for personal space highlight a proactive approach to managing and coping with stress:

> *"I will definitely cope with it because I am one of those who even if I am in one of the most unruly or harshest of environments I will still get the things I have to get done, done. It's just when it is not working and things like that I would prefer to just have my own space because I have always wanted to have a place of my own to be honest." (P02, Interview 1).*

Whilst another student manages by not setting their expectations very high:

"I was home tutored after leaving school, I was bullied so dropped out. For loads of reasons because of who and what I am, yes my life is a downer. I have to keep in a down mood as it kind of lowers the drop." (P03, Interview 3).

For some students, writing serves as an effective coping mechanism. Journaling helped this student process emotions and reduce the mental burden of stress:

"I have got, not a journal but a diary sort of thing where I write things down to try to get them out of my head. When things are bothering me, when things are starting to pile up on me, like when I lose a friendship or something and I need to move on then I will write in it and write down how I feel and maybe I will act on that and maybe I won't, but it gets it off my chest then." (P16, Interview 1).

Students often turn to their peers for help, finding that fellow students provide explanations that are easier to understand than those from teachers. Peer support offers a relatable perspective and fosters a collaborative learning environment:

"when I'm struggling a little bit with things instead of getting help from the teachers I have decided to get help from the students in the class because they explain it differently from the teachers and they explain it looking at the way students would see it because they are students themselves." (P17, Interview 3).

But when those peer relationships are fraught with their own problems, some students still find ways to remain resilient:

"I always tried not to stress over whatever we had to do, I remember doing the four week challenge, it was a lot of stress because we were missing one of the group and some of the members were not working so, I was trying to calm down and do whatever we had to do at my own pace and not too fast but not stopping, taking breaks, working hard but not too hard if that makes sense, not overwhelm myself with work or tasks." (P04, Interview 5).

Effective time management and planning are crucial coping strategies. Recognising this habit helps plan to avoid last-minute stresses:

"I know it is my fault I know I need to start things earlier and to get down to a time table to know when I am doing things, I have a habit of starting it, getting a satisfactory part of it out of the way in the beginning and then thinking it's fine I've started it I've got a good chunk through and then it's the last week." (P05, Interview 5).

Some students cope by breaking tasks into manageable steps and finding motivation through incremental progress. This approach helps build confidence and reduce overall stress:

"I think the more I am sort of getting stuff out of the way, it just makes it feel, I don't feel stressed about it, the easier I find things it makes me take on the next step a bit easier, even if it is a different module, I think well, I have done that I can do this easily it is all sort of linked in a way, so yes." (P07, Interview 1).

Overall, students employ a variety of coping strategies to manage stress and maintain their well-being. Coping effectively with difficulties is vital in maintaining a healthy outlook and managing stress (Xuereb, 2013). The examples above include physical activity, personal resilience, journaling, peer support, time management, incremental progress, and seeking professional help. Understanding and supporting these strategies can enhance students' abilities to cope with the demands of university life, as coping strategies have been found to contribute to easing distress and promoting wellbeing (Brooker & Vu, 2020).

In summary, the theme of "mental health" within the context of first-year higher education encompasses the complexities of emotional wellbeing, coping strategies, and systemic factors that shape students' psychological wellness. Emotions are a factor that can impact engagement (Kahu & Nelson, 2018), as well as a variety of other issues such as issues with friendship, living alone and poor health (Brooker & Vu, 2020). By exploring these interconnected dimensions, I have tried to illuminate the diverse ways in which mental health influences students' academic journeys and contributes to their overall wellbeing and success within higher education.

Figure 21 provides a summary of the codes by volume from the whole interview process. It is evident that the conversations seemed to centre mostly on the participant's self-efficacy, friendships and belonging, which collectively accounted for almost half (47%) of the coding. Failure was the least coded element, but as already discussed, this is not necessarily due to the lack of this feeling. The questions asked of the participants directed the conversations quite significantly, so the lack of failure discussion is not really a surprise. Self-efficacy, friendship and belonging were consistently the main coded item for each interview phase, partly led by the questions asked, but also by the conversations that participants then brought on. In this context, self-efficacy has replaced talk of failure, which then mirrors the highest fears listed from the questionnaire findings for the interview participants, with failure and friendship being the predominant factors.

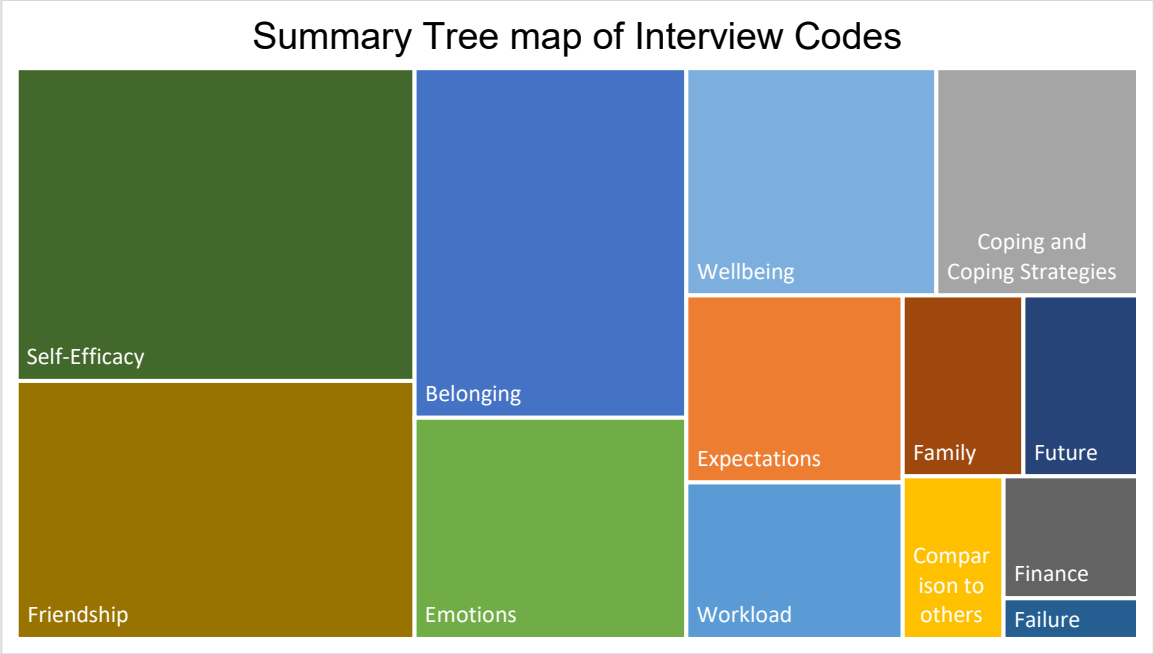


Figure 21: Tree map depicting the volume of codes from the interviews.

5.4. Temporal Analysis of Interviews

Shifting the focus to an analysis of the data by participant and timeframe gives a different perspective to my research. This approach allowed me to look at the personal experiences and temporal variations that might have been overlooked when the interview data was categorised solely by theme. This approach recognised the individual behaviours and how their responses evolved over time, providing a richer, more nuanced picture of the data. It also enabled me to identify any changes in participant engagement or consistency, allowing a new perspective for interpreting the overall findings and for making informed decisions based on this data.

A direct comparison of the interviews is not possible due to the nature of the questions asked, which impacted the quantity of the codes and themes recorded. For example, the first interview was used to set the scene and benchmark, so asked more questions, with the later interviews focusing more on how things had changed over time; hence the comparison of which theme was mentioned more, and therefore seemed more important at each point in time has been done by percentage of codes at each point. Figure 22 compares the themes coded at each interview cycle, and peaks with the social theme in interview 3, which was mostly driven by a question asking about what social groups they were part of. Apart from this anomaly, the graph indicates that participants talked more about their mental health (wellbeing, emotions and coping) and less about their personal experiences (comparison, self-efficacy, finances, future) towards the end of the year.

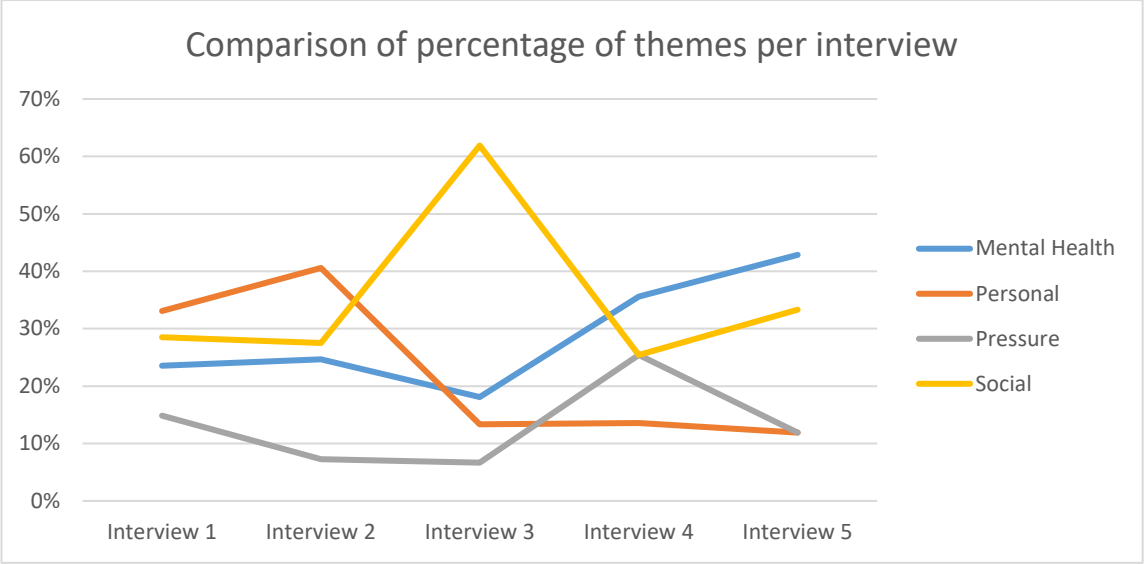


Figure 22: Themes percentage for each interview cycle.

Figure 23 illustrates the distribution of the six most-used codes throughout the interviews, which account for at least two-thirds of the codes in each of the five interview timeframes. As can be seen, the 'workload' code shows a significant increase in relevance in the final two interviews, showing that this is more prevalently on their minds towards the end of the academic year, when the number of assessments increases. The 'emotions' and 'coping' codes are mentioned steadily throughout the interviews, with 'coping' steadily rising throughout the year, in keeping with an increase in assessments as the year progresses. Self-efficacy was discussed more at the beginning of the year, as students talked about their confidence and capabilities in successfully completing their studies. The codes 'belonging' and 'friendship' remain relatively steady with a peak in February, due to the interview questions already discussed earlier in this section. The 'friendship' code also has an increase in the final interview, when participants talked about their plans for the following year, which for some included looking for a house share with their friends. Overall, these trends highlight dynamic changes in students' experiences and perceptions over the academic year, with particular emphasis on friendship and belonging remaining prominent throughout, confirming that social interactions are important (Gallagher & Gilmore, 2013; Gravett & Winstone, 2022; Wilcox, Winn & Fyvie-Gauld, 2005).

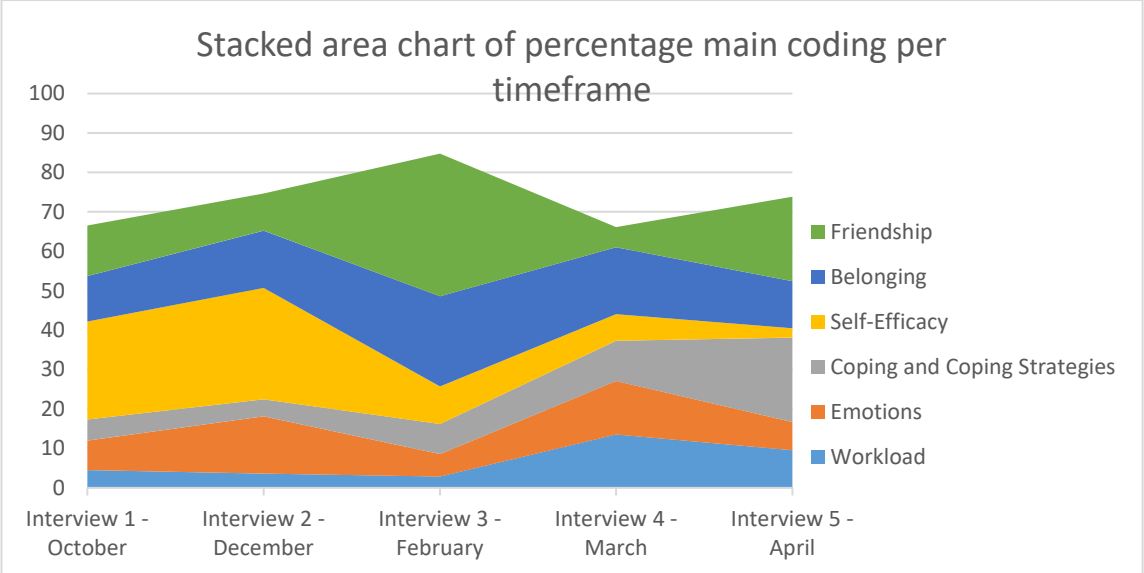


Figure 23: Stacked area chart depicting the percentage of most used codes over the five timeframes

In interview 2 and all subsequent interviews the participants were asked to choose which word from a list of words best described how they were feeling about university and their studies. The words were ranked in order of best to worst as achieving, thriving, comfortable, coping, surfing, bored, surviving, worrying, drowning, and stressed, but were presented to the participants in a random order.

Table 7 shows the results of that question posed to participants from interview 2 through to interview 5, with the trend line showing the 'value' of the word each student identified with, ordered and categorised as a scale of 1 to 10 (where 1 = stressed, 2 = drowning, 3 = worrying, 4 = surviving, 5 = bored, 6 = surfing, 7 = coping, 8 = comfortable, 9 = thriving and 10 = achieving). Whilst this scale cannot accurately determine what each student meant by the word they chose each time, nor that they all used the same word to describe the same state, it does enable a representation of how each student felt over the span of the academic year. Most of the participants appeared to feel more positive as the year progressed, ending with a trend line with an upward trajectory; with two exceptions, participants 4 and 12. Participant 3 had the most negative year of all of the participants throughout the year, which is evidenced in the thematic analysis and can be summed up by their phrase "my life is a downer" used in interview 3. Once most of the assessments had been completed, their spirits did lift, and they were much more optimistic in interview 5. Participant 12 started the year quite bright and optimistic, but during interview 4 expressed that they were stressed and not enjoying their studies as much. Unfortunately, they did not attend the final interview, so their feelings at the end of the year are unknown, but they did pass the year with an average grade of 75% and progressed to year two of their studies, which indicates that the slip in feeling motivated may have been just a

temporary one. Participants 2 and 11 were excluded from Table 7 as a trend line could not be displayed for them due to the number of missed interviews.

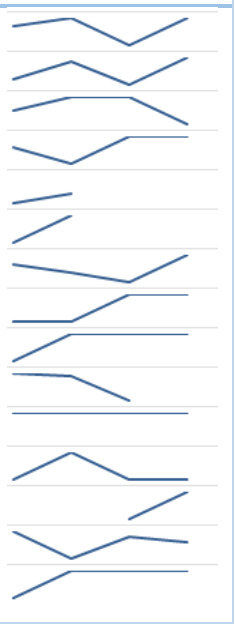
Participant	Interview 2	Interview 3	Interview 4	Interview 5	Trend Line
P01	Comfortable	Achieving	Surviving	Achieving	
P03	Surviving	Coping	Worrying	Comfortable	
P04	Thriving	Achieving	Achieving	Comfortable	
P05	Comfortable	Bored	Achieving	Achieving	
P06	Coping	Comfortable	X	Achieving	
P07	Worrying	Comfortable	X	Coping	
P08	Thriving	Comfortable	Coping	Achieving	
P09	Comfortable	Comfortable	Achieving	Achieving	
P10	Comfortable	Achieving	Achieving	Achieving	
P12	Thriving	Comfortable	Stressed	X	
P13	Achieving	Achieving	Achieving	Achieving	
P14	Comfortable	Thriving	Comfortable	Comfortable	
P15	X	X	Coping	Comfortable	
P16	Achieving	Bored	Thriving	Comfortable	
P17	Coping	Comfortable	Comfortable	Comfortable	

Table 7: Participants' word describing how they were feeling at each timepoint.

Of the participants, 58% completed the year on first sit with an average grade classed as a First (70+), 24% had an average classed as Upper Second (60-69%), and three students had an average in the 50s with one resit to do over the summer period. All participants successfully progressed to year 2 of their studies, with all but one of the participants also successfully completing their second year of study, progressing to either their final year or a sandwich (also known as an industry placement) year. Completion of the final year is much harder to report, as there were more possible outcomes. Some students were on a four-year study programme with an integrated masters, and some, as already stated, took an industrial placement before completing their final year of study. Unfortunately, I did not have access to the data for the participants that did not immediately complete their final year, but can confidently report that 15 of the 17 participants (88%) successfully completed their full programme of studies. This is a good outcome, and whilst the reasons are unknown, it is possible that the sense of belonging and of someone taking an interest in them that my research created had an impact on their success.

Figure 24 depicts the results at the end of the year for students who were interviewed in comparison to the rest of the cohort, which highlights that the students that were interviewed completed the year in a better academic position, on average, than their counterparts. This could be influenced by feeling valued by the interview process (Hallam, 2023) or because of the actual characteristics of the students who volunteered to be part of the process, or most likely,

a combination of both.

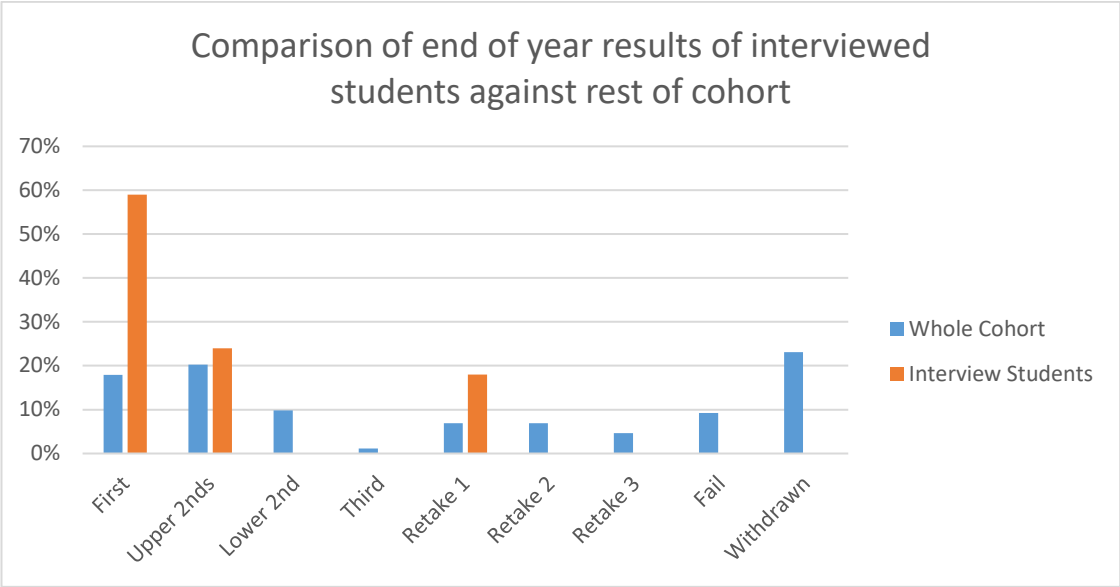


Figure 24: Comparison of students who were interviewed against the rest of the cohort at the end of the year.

5.5. Interview 6: Looking Back

Whilst it was not possible to catch up with all of the participants as they completed their studies, I did manage to speak to nine of the participants towards the end of their final year. Reflecting on their experiences, many students highlighted the significant progress they made throughout their time at university. The realisation of how much they had learned became more apparent when comparing themselves to peers outside the university environment. One student noted:

> *"When you are in the university environment you don't think how far you have come because everyone round you has come just as far if not further but when you take it outside it just hits you, you see just how much you have learned and how it compares to other people and how they perceive you because of it, it is an interesting feeling." (P05, Interview 6).*

This sentiment underscores the transformative impact of the university experience on personal and academic growth. Additionally, students appreciated the supportive environment at UCLan, where they felt comfortable reaching out to faculty members for guidance. This accessibility and rapport with faculty members contributed to a positive academic experience and helped alleviate feelings of uncertainty and isolation. As one student shared:

> *"It's been great, like I have never felt much, what's the word for it, apprehension perhaps, I have always felt I could always contact someone if I needed to, sometimes it is hard when you first know them like when I was first having my meetings with [name], my supervisor, about lectures and stuff, I wasn't quite sure how to set up that rapport and email but now I feel that I could email him and ask him a question any time." (P09, Interview 6).*

Despite the high points, students also faced significant challenges. The second year was particularly difficult for many, marked by increased responsibilities and stress. One student recounted their difficulties, which highlights the struggle of balancing academic demands with personal and financial responsibilities, which can lead to burnout and academic difficulties:

> *"The low points were in the second year when I took on a lot of things and I had a lot on my plate […] I was sleep deprived and also to keep up with the costs I had to do a part time job […] it was just a lot of problems and a lot of stress, and I fell behind with the work." (P06, Interview 6).*

The anticipation of upcoming assignments and exams also caused considerable stress, with students feeling overwhelmed by the workload. One student described this experience, illustrating the emotional rollercoaster that students experience, with the pressure of looming deadlines often leading to feelings of anxiety and stress:

> *"When there is so much you can just see ahead and thinking, how can I get that done especially in the circumstances I have got so leading up to the things is just a low and afterwards a high." (P07, Interview 6).*

Forming connections with classmates emerged as a crucial factor in navigating university life. Peer support provided both academic assistance and emotional encouragement. One student mentioned these relationships fostered a sense of community and belonging, which was especially important to their success:

> *"What helped was I formed connections with the majority of my class as soon as I can so that if I ever needed help or get their opinion I got it and those connections really helped me through, making friends and being able to contact them at the right time so that I can operate more efficiently and get my work done better." (P06, Interview 6).*

The unexpected value of friendships was also highlighted by another student who initially intended to focus solely on academic study. This evolution from a solitary academic focus to reliance on peer support underscores the importance of social integration in the university experience:

> *"Strangely enough that first interview has stuck with me all through Uni, when I am talking to my friend I said when I spoke to Lesley way back at the beginning, I said I don't want any friends and now, I dunno I find I can't leave the house without them. […] we all met up yesterday to kind of say goodbye and everything, we are obviously going to meet up at Graduation and other things but it was just to say, see you soon and I thought this is so different. I came to Uni with this fixed idea in my head, I was just going to get my degree and go home." (P16, Interview 6).*

Motivation and time management were identified as key personal strategies for success. Students found that stress, when managed well, could drive motivation and productivity.

Additionally, proactive learning and effective time management were seen as essential skills. These are highlighted by the following quotes:

> *"That stress that gives me motivation because with pressure I find motivation and with motivation I find passion and with passion I do good work and I think why don't I do this more often." (P05, Interview 6).*

And:

> *"Time management is, in my opinion, the single most important skill to have. Curiosity and being pro-active, as in teach yourself, don't wait to be taught, are very helpful as well." (P04, Interview 6).*

Conversely, some students identified personal attitudes and systemic issues as hindrances to their education. One student candidly acknowledged this self-awareness, which highlights the internal barriers that can impact academic performance.

> *"I would say that nothing has hindered my education other than my own attitude." (P05, Interview 6).*

Others pointed to structural aspects of the educational system, such as assignments and exams, which they felt restricted creative freedom. This suggests a need for more engaging and flexible assessment methods that align with students' interests and foster intrinsic motivation:

> *"I truly believe assignments and (in particular) exams, stifle creative freedom. […] Students are graded on work which they may find boring." (P01, Interview 6).*

The participants also gave advice on what academics could do to support them better or to at least be aware that attendance is not the same as engagement:

> *"I think some could understand more, be more understanding or more emotionally supportive some of them, I think it is just personality, I don't think they understand." (P12, Interview 6).*

> *"It is easy to say you can recognise when someone is falling behind but how can you, you see somebody in a lecture, they are looking at you, you think oh they are paying attention but in their own world they could be dozing off, thinking what am I doing, am I supposed to be here, what will we have for tea." (P05, Interview 6).*

Overall, the reflections of their first year as students reveal a complex interplay of challenges and supports that shaped their academic journey. High points include significant personal and academic growth, facilitated by a supportive university environment and strong peer connections, fostered early in the year by their participation in The Computing Challenge. Low points are marked by the struggle to balance multiple responsibilities and the stress of looming deadlines. Key factors that helped students navigate these challenges include forming supportive peer relationships, leveraging stress as a motivator, and developing effective time management and proactive learning strategies. Conversely, personal attitudes and restrictive

assessment methods were seen as hindrances to academic success.

5.6. Interview Observations

There were several points during the coding process that I observed things that piqued my interest and although not directly relevant to the codes and themes that were emerging, they struck a chord with me. This section will highlight some of those observations, reflecting both directly and indirectly.

During one of the interviews, a participant used the word "surviving" to describe their current emotional state. As I delved deeper into why they felt like that, it became evident that their struggle was primarily with one specific module out of the five they were concurrently studying. Despite performing well in the other four modules, this single challenge had significantly impacted their overall perception of their academic performance. This scenario led me to reflect more deeply on the concept of self-efficacy, and how their self-confidence was disproportionately affected by their difficulty with one module, overshadowing their achievements in the others. This situation felt fundamentally wrong to me. It emphasised how fragile self-efficacy can be and how easily it can be undermined by isolated struggles, despite overall competence and success. This reflection prompted me to consider the broader implications of such experiences. It is natural and human to have weaknesses, and yet, many students, like the participant, struggled to accept that excelling in every area is not a realistic expectation. The societal and educational pressures to be uniformly excellent can be overwhelming, leading to unnecessary self-doubt and stress. Recognising and accepting that one can still be successful and accomplished without being the best at everything is vital for maintaining healthy self-esteem and motivation. This incident reinforced the need for a shift in how we address and support self-efficacy among students. By promoting a culture that values effort, progress, and resilience over perfection, we can help students build a more robust and realistic sense of self-confidence, better equipped to handle both successes and setbacks.

During another interview, a participant shared that although they sat with other students in class, they were uncertain whether they were genuinely part of the group. They chose to sit with these students because they were fun and enjoyable company but still felt unsure about their place within the group. This disclosure struck a chord with me, prompting a deep reflection on the nature of social connections and perceived belonging in educational settings, and led me to ponder how many other students might be experiencing similar feelings of loneliness and isolation, even while seemingly integrated into friendship groups. This raised important questions about the visible versus the invisible aspects of social dynamics within academic environments. Reflecting on this, it becomes evident that loneliness and social isolation can have

profound impacts on mental health and academic performance. I remember during my own studies, feelings of inadequacy and hoping that my peers and tutors would not notice. It made me wonder how many students are silently grappling with feelings of disconnection, despite the presence of peers around them. This participant's experience highlighted the importance of being vigilant; how often have I overlooked the subtle signs of a student feeling out of place? It reinforced the importance of not taking social cohesion at face value and recognising that true belonging requires more than just physical proximity.

Finally, in one of the last interviews, a student shared that they initially planned to coast through their first year of study, believing it didn't really count. They remembered being advised against this approach, considering it the best tip they received. This reflection led them to believe many students who adopted a laid-back attitude likely regretted it now. This story made me ponder the widespread misconception among new university students that the first year is less significant. The first year does not directly count towards their degree classification, although it does count indirectly, as if not taken seriously, it can lead to missed opportunities for academic growth and skill development. Many students might struggle in subsequent years due to the lack of a strong foundation, highlighting the importance of addressing this myth early on. This example reminded me of the critical role educators and mentors play in guiding students to understand the long-term benefits of consistent effort from the start. It also reminded me of the value of timely and impactful advice, showing how a single piece of guidance can positively alter a student's academic trajectory.

5.7. Chapter Summary

This chapter synthesised the thematic analysis from interviews conducted with 17 participants across five timeframes during their first year of study, and a reflective interview towards the end of their final year. The discussion centred around four key themes: Social, Personal, Pressure, and Mental Health, each encompassing several sub-themes or codes, followed by a temporal analysis of the interviews by participant and timeframe.

Within the social theme, the sense of belonging emerged as a critical factor in the student experience. Initially, many students struggled to find their place but gradually developed a sense of belonging through forming peer connections and integrating into their classes. Friendship played a vital role, with some students entering university with the intention of focusing solely on their studies but eventually finding that friendships provided essential support and enriched their university life. Family support varied among participants; some relied heavily on their families for emotional and financial support, while others faced pressure or experienced distance from their families, impacting their overall experience.

The personal theme highlighted how students frequently compared themselves to their peers, affecting their self-esteem and perception of academic progress. This comparison could be motivating for some, but discouraging for others. Self-efficacy, or confidence in their abilities, fluctuated throughout their studies, often tied to their success in overcoming academic challenges. Financial concerns were an additional stressor, with many students juggling part-time jobs alongside their studies, which impacted their academic focus and overall wellbeing. Future aspirations were also a consideration, with students feeling pressure to achieve high grades to secure desirable jobs, while some still remained uncertain about their career paths.

The theme of pressure underscored the increasing intensity of the workload over time, particularly peaking during assignment deadlines and exams. Students had to adapt to a more demanding academic environment than they had previously experienced. Expectations, both personal and external, played a significant role, as students adjusted to the higher standards of university work. The fear of failure was a pervasive concern, with many students worrying about failing assignments or falling behind or performing worse than their counterparts. This fear often resulted in procrastination or excessive stress, which adversely affected their performance and mental health.

Students' overall wellbeing fluctuated significantly, with many experiencing high levels of stress, anxiety, and some were even prone to panic attacks, particularly during periods of intense academic pressure. Emotional responses varied widely, ranging from enthusiasm and excitement to frustration and exhaustion. Many students often felt overwhelmed by the demands of university life. Coping strategies were diverse; some students sought support from friends or university resources, while others engaged in activities such as exercise to manage stress. Over time, some students developed effective coping strategies, while others continued to struggle with stress management.

Reflecting on their journey by the final year, students recognised their academic and personal growth. Many acknowledged the substantial progress they had made and the skills they had developed despite the numerous challenges. Key insights included the importance of building a robust support network, the value of effective time management, and the necessity for proactive mental health care. Students noted that forming connections with classmates and seeking help when needed were crucial for their success.

Analysing the data by participant and timeframe provided a different perspective on the research, allowing for a deeper understanding of personal experiences and how they evolved over time. This approach highlighted individual behaviours and changes in engagement, offering a more nuanced interpretation of the findings. All participants progressed to their second year,

with most also successfully completing their third year. This strong outcome suggests that factors such as a sense of belonging and the supportive nature of the research process itself may have positively influenced student success.

Overall, the qualitative research has highlighted that every student has a unique experience, based on their previous knowledge, experiences and outlook, and as such, will react uniquely to the interactions and experiences that they encounter. Many of the students' reactions to incidents and events would have gone unnoticed by their teaching staff and the university generally without the regular interviews. This is the most concerning finding for me, as without the relationship with students on an individual basis, it is impossible to know if they are okay, coping with life and their studies or are quietly drowning or feeling overwhelmed by it all.

Chapter Six

6. Recommendations, Conclusions and Reflections

6.1. Introduction

This chapter aims to encapsulate the core insights gleaned from the experiences of first-year students, integrating thematic analysis of interview data, questionnaire responses, and academic performance. Through these reflections, the complex nature of student engagement and success acknowledges the unique and diverse paths each student navigates.

This research explored the multi-faceted experiences of first-year computing students at UCLan in the academic year 2015-16, focusing on what influenced their academic outcomes at the end of the year, their feelings about themselves and their course, and their feelings and worries throughout the year. The insights gained from these students provide a comprehensive understanding of the challenges they face and the methods they employ to navigate their academic journey. In the following sections, I will reflect on the research findings, draw conclusions based on the evidence, and offer recommendations aimed at enhancing student support and fostering academic success in future cohorts.

6.2. Contribution to Knowledge

As already highlighted, each student journey is unique, but there are common issues that students experience, even though their reactions to them are varied. This study specifically focussed on Computer Science students to understand the issues that are particularly relevant to them, but having done the research it became evident that the issues are applicable to the wider student population. The Computer Science students were particularly fearful of failure and forming friendships, which is characteristic of the students that take computer science courses. These concerns are likely to be less pronounced amongst a wider student population, being particularly prevalent in Computer Science due to the nature of the discipline and its student demographic. Drawing on my findings, I have developed a conceptual framework designed to enhance the student experience for Computer Science students, as illustrated in Figure 25. While this framework is tailored to address the specific needs of Computer Science students, many of the themes and attributes identified are likely to resonate with the broader student population, highlighting its potential applicability beyond this specific cohort.

At the core of the model is the student, with the attributes identified through my research as key to enhancing their experiences. These attributes are represented in the inner coloured segments of the circle, corresponding to the themes of social integration, academic pressure,

mental wellbeing and personal development. The outer rectangles, drawing from both the literature and my research, highlight the responsibility of the higher education institutions to create opportunities and foster an environment that maximises each student's chance of success.

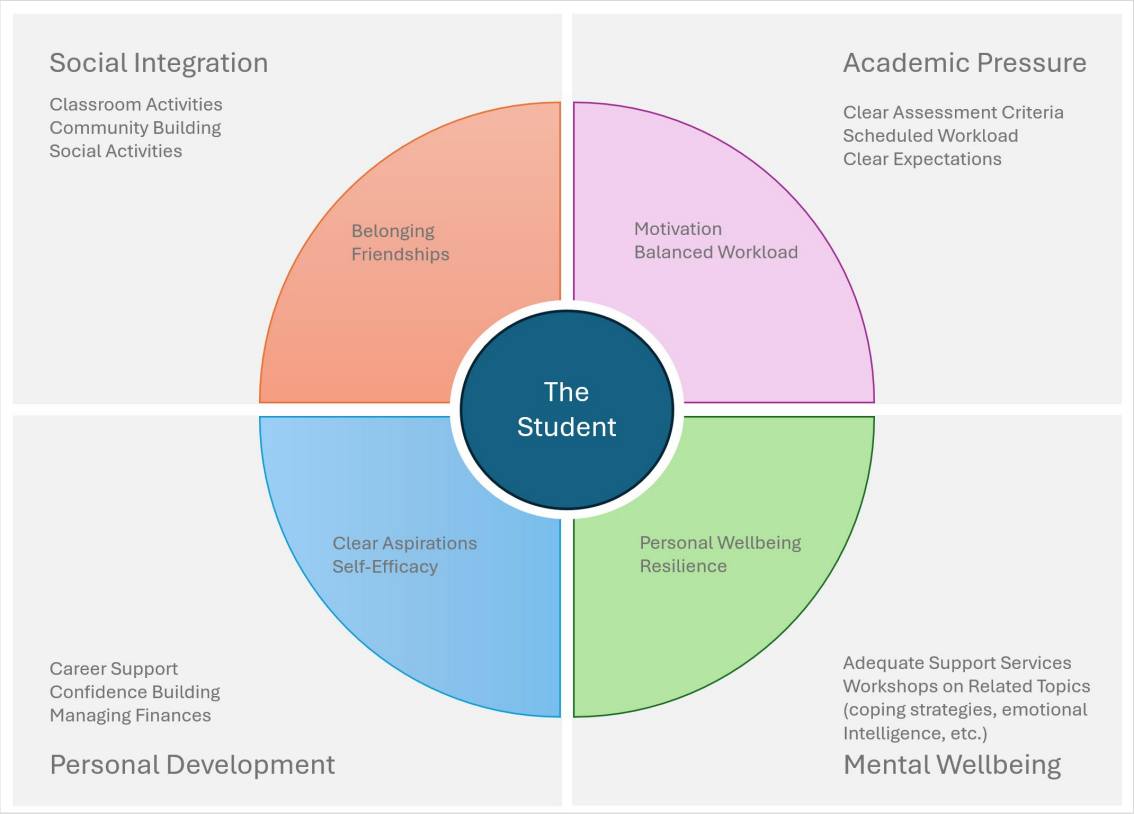


Figure 25: Student Experience Conceptual Framework

For a student to achieve social integration, the academic staff must promote classroom and social activities and create a community where students can find lasting friendships and a sense of belonging. To relieve academic pressure and to ensure that students can be confident and motivated learners with a balanced workload, academic staff must ensure that assessments are clear in terms of what students are expected to do and how they will be assessed against criteria, as well as ensuring that the workload is spread in a timely manner throughout the year. For students to maintain a healthy mental state, it is paramount that there is adequate and timely support and access to the necessary services, as well as more general embedded support around coping with stress and being emotionally intelligent, for students to maintain their personal wellbeing and build resilience. And finally, to support personal development, universities must offer timely and appropriate career guidance, to ensure that students have clear aspirations and confidence in their choices for their future career.

The Computing Challenge, also known as the Four Week Challenge, discussed by participants throughout the interviews, provides a practical and impactful application of the conceptual

framework for Computer Science students. This module, designed collaboratively by myself and two colleagues, was initially created to facilitate our students' transition to university life, addressing their needs and challenges in a structured and supportive manner. Its primary goals include helping our students learn how to be successful students, form friendships, and get an introduction to their course content. The module spans the first four weeks of teaching in the first year of the programme, featuring a team-based development project rooted in Agile principles. The module emphasises social integration and the alleviation of academic pressure, creating a competitive yet fun environment to boost student motivation and engagement. It includes regular classes, numerous feedback opportunities, and a peer mentoring scheme, all designed to help students adjust and comprehend the academic and social expectations of university life for their discipline. While the module includes some aspects of personal development, expanding this component could further support students. Enhancing the focus on personal development in future iterations of the module could provide students with a more comprehensive foundation for their university experience, ultimately fostering greater self-efficacy and coping strategies. This approach aligns well with the observed trends in the interview data, where coping strategies, friendships and self-efficacy were pivotal elements in students' adaptation processes.

6.3. Recommendations

This study has provided a comprehensive exploration of the multifaceted experiences of first-year university students in Computer Science, examining their journey through a combination of thematic analysis of interview data, quantitative analysis of questionnaire responses, and assessment of end-of-year academic results. The research offers valuable insights into the complexities of student life for Computer Science students and the factors that contribute to their success and challenges. The findings highlight the significant role of prior educational experiences in shaping their preparedness for university. Those who had studied A Levels and those who had studied any further maths appeared to be better equipped for the transition, whereas students from widening participation backgrounds, with more varied educational experiences, may have faced greater difficulties adjusting. Demographic factors and prior learning experiences contribute to differences in academic confidence and readiness. Courses like Computer Science at the University of Central Lancashire that do not have subject specific pre-requisites attract a diverse cohort of students, further emphasising the need for tailored support. Recognising these differences is crucial to identify key factors that support academic success, informing strategies to better support students from diverse educational backgrounds. Based on these findings, several key recommendations for varying levels can be made to enhance student support and success:

Recommendations for academic colleagues in Computer Science:

- Encourage early engagement from students. Use ice-breaker activities and social events to help students connect with peers, encourage group projects and collaborative learning opportunities to help form meaningful friendships and foster a sense of community.
- Provide opportunities for regular and constructive feedback to help students understand their strengths and areas for improvement, boosting their confidence and academic skills.
- Develop mentoring schemes to provide guidance, academic and social support to new students.
- Integrate opportunities for building self-confidence and managing academic pressure into the curriculum.

Recommendations for Computer Science students:

- Open yourself to the opportunities that universities can offer and seek help when you need it. The best advice comes from the Computer Science students in this study:
    - *"Oh, make friends, get involved." (P16, Interview 6).*
    - *"Make friends on your Course early on because it can be invaluable towards the end." (P07, Interview 6).*
    - *"Get to know people, because if you don't form these things, [..] social links, you will struggle because students who are alone tend to struggle." (P06, Interview 6).*
    - *"Definitely don't wait, because I see this a lot, don't wait for the pressure to build up [..] don't burn out, don't rush yourself, pace yourself, know what your strengths and weaknesses are when doing your work and studies and just try to work on them." (P06, Interview 6).*
    - *"Don't get too stressed, I think. Yes, obviously there are some people who are way too stressed, and I don't think it helps the grades when you are stressing like that." (P12, Interview 6).*

Recommendations for support services:

- Offer a comprehensive set of workshops that will help students manage stress, build coping strategies and deal with the pressures of finding a work-life balance.
- Ensure counselling services are easily accessible, with sufficient staff to meet demand.

- Promote study skills workshops to advise on time management, exam preparation, academic writing to help students cope with academic demands.
- Offer workshops on career planning and financial literacy, so that students can plan for their future, knowing they have chosen the right path.

Recommendations for institutions:

- Ensure that all students feel welcome by implementing policies for social justice.
- Create spaces on campus that encourage social interaction and provide comfortable environments for students to relax and socialise.
- Promote and integrate mental health support with clear pathways for students to access help and reduce the stigma to encourage students to seek help when they need it.

6.4. Conclusions

This study has highlighted the complexity of the first-year university experience and the multiple factors that influence student success within the discipline of Computer Science. The exploration of social, personal, pressure-related, and mental health themes revealed a complex and interwoven landscape of student experiences. Each journey is distinct, shaped by individual circumstances, backgrounds, and personal aspirations. Despite the varied experiences, common threads emerged, such as the critical importance of friendships and social inclusion, which significantly influenced students' sense of belonging and academic perseverance. Furthermore, external factors beyond the university environment frequently impacted student well-being and performance, highlighting the broader context in which educational journeys unfold. I believe that this study has addressed my initial research questions and shed light on the many factors that contribute to student success, the obstacles that hinder it and the drivers for overcoming the issues.

One of the most significant findings is the critical role of social integration in student wellbeing and academic success. Students who reported a strong sense of belonging and who formed meaningful friendships were more likely to navigate the pressures of university life effectively. The support network provided by peers and family emerged as a vital component in mitigating stress and fostering a positive university experience. This emphasises the importance of fostering a welcoming and inclusive campus environment that encourages social interaction and community building.

Personal development, particularly in terms of self-efficacy and confidence, were also key

themes that emerged from the interviews, but also from the questionnaires, under the guise of fears around failure or not being good enough. Students who believed in their ability to succeed and who could effectively manage their mental health tended to perform better academically. The research highlighted the importance of self-efficacy in overcoming academic challenges and the need for universities to provide resources and support systems that enhance students' confidence and skills. Workshops on financial literacy, career planning, and personal development could be instrumental in improving student's resilience.

The pressure associated with academic workload and expectations was a recurrent theme. Many students struggled with the sudden increase in academic demands compared to their previous educational experiences. The fear of failure and the stress of meeting high expectations often led to anxiety and decreased academic performance. This finding points to the need for universities to manage academic transitions more effectively, perhaps through gradual increase in workload, better orientation or induction programmes, and ongoing academic support. The rollercoaster of emotions, workload, and life experiences was a common narrative among students.

Mental health emerged as a crucial factor influencing student success. The study found that students who employed effective coping strategies were better able to manage the stress and demands of university life. However, some students reported experiencing significant mental health challenges, including anxiety, depression, and burnout. This highlights the urgent need for a robust and comprehensive mental health services on campus, including counselling, stress management workshops, and peer support programs, with the capacity to cope with a growing need for these services, as students often comment on the long waiting lists to access these services. Universities must prioritise mental health as a core component of student support, as there are many students who do not come forward that could also benefit from these services if the stigma was removed.

An important consideration in this study is the potential influence of the Hawthorne Effect (Cook, 1967), whereby participants alter their behaviour because they know they are part of a research study. While all interview participants successfully passed their first year, it is worth exploring whether their involvement in the study, including regular interviews and reflection, may have positively influenced their outcomes. The mere act of discussing their experiences might have helped them process challenges and seek appropriate support.

The interviews were conducted in the academic year 2015-16, and it is important to acknowledge that a lot has changed since then, impacting the student experience. External factors, such as changes in societal expectations, technological advancements, and evolving

educational practices, may alter what is considered important for student success. Despite these changes, the core finding that each student's journey is unique and influenced by a complex interplay of personal, social, and academic factors remains relevant. This study reinforces that understanding the complexity of student engagement and experiences is crucial for improving educational practices and support systems (Kahu, 2013; Raaper, 2021). By acknowledging the individuality of each student's experience, universities can develop more personalised and effective support strategies.

In conclusion, this study has highlighted the complexity of the first-year university experience and the multiple factors that influence student success. The findings emphasise the need for universities to adopt a holistic approach to student support, integrating social, personal, academic, and mental health resources. By doing so, institutions can better equip students to navigate the challenges of university life, enhance their wellbeing, improve their academic outcomes and career prospects.

6.5. Final Reflections

Embarking on a doctoral journey has been an incredibly transformative experience, marked by a series of challenges, growth, and profound learning. Reflecting on this journey, I am struck by the numerous personal and professional milestones that have shaped my development as a researcher and individual. One of the most significant aspects of this journey has been the evolution of my research skills. At the outset, the process of formulating research questions, designing a study, and analysing data seemed daunting. However, through persistent effort and guidance from my supervisors, I have gained a deep understanding of qualitative and quantitative research methodologies. The process of conducting in-depth interviews, analysing thematic data, and integrating quantitative findings has been particularly rewarding, as it has allowed me to develop a comprehensive understanding of the complex student experiences I set out to explore.

The doctoral journey has also been a test of resilience and perseverance. Balancing the demands of rigorous academic work with personal commitments required a high level of time management and self-discipline. There were moments of self-doubt and fatigue, but these were counterbalanced by the support and encouragement from my peers, family, and academic mentors. Their belief in my abilities played a crucial role in helping me push through challenging times and stay committed to my research goals. This just highlights for me that I am no different; all students, regardless of age, experience or background need to feel that they are not alone and that support is available if or when they need it.

One of the most enriching aspects of this journey has been the opportunity to engage with a diverse community of scholars. Attending conferences, participating in workshops, and collaborating with fellow researchers has expanded my intellectual horizons and provided valuable feedback that has informed and refined my work. These interactions have not only enriched my research but also fostered a sense of belonging within the academic community.

Finally, this journey has deepened my passion for education and student development. The insights gained from my research have reinforced my commitment to improving the student experience and advocating for holistic support systems within educational institutions. As I look back, I am filled with a sense of accomplishment and gratitude for the knowledge, skills, and relationships I have gained along the way. This doctoral journey has not only been a path to an academic degree but a transformative process that has profoundly shaped my personal and professional identity.

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Appendix A: Participant Recruitment Information

I am conducting research as part of my own studies

I want to know more about you – students studying in Computing related topics

- What issues you face
- Highs and lows of the year
- Motivations and distractions

So that we can make positive changes to help all students

- Settle into university
- Help motivate you

Want to get involved or know more?

- Email me
- Ask me a question now
- Come and talk to me later

Thanks

Lesley

My details:

Lesley May

Email: lmay@uclan.ac.uk or telephone 01772 895302

Appendix B: Ethics Committee Approval

20 July 2015

Candice Satchwell / Lesley May
School of Education and Social Science
University of Central Lancashire

Dear Candice / Lesley

Re: BAHSS Ethics Committee Application
Unique Reference Number: **BAHSS 273**

The BAHSS ethics committee has granted approval of your proposal application '**An Investigation Into Retention Issues For Computing Students at the University of Central Lancashire**'. Approval is granted up to the end of project date* or for 5 years from the date of this letter, whichever is the longer.

It is your responsibility to ensure that

- the project is carried out in line with the information provided in the forms you have submitted
- you regularly re-consider the ethical issues that may be raised in generating and analysing your data
- any proposed amendments/changes to the project are raised with, and approved, by Committee
- you notify roffice@uclan.ac.uk if the end date changes or the project does not start
- serious adverse events that occur from the project are reported to Committee
- a closure report is submitted to complete the ethics governance procedures (Existing paperwork can be used for this purposes e.g. funder's end of grant report; abstract for student award or NRES final report. If none of these are available use e-Ethics Closure Report Proforma).

Yours sincerely

Peter Herissone-Kelly
Chair
BAHSS Ethics Committee

* for research degree students this will be the final lapse date

Appendix C: Participant Information Sheet and Consent Form

Participant Information Sheet – Interview Participation

You are being invited to take part in a research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.
Thank you for reading this.

What is the purpose of the study?

The research will be used to inform the thesis for an award of Professional Doctorate in Education. The thesis will explore the issues faced by students enrolled in the first year of study on a computing course at the University of Central Lancashire. The study aims to improve the understanding of the issues faced by students, with a view to develop strategies that may help students with the transition from Further Education to Higher Education

Why have I been chosen?

You have been selected as you are enrolled on the first year of a computing course at UCLan.

What will happen to me if I take part?

If you take part you will be asked to attend a series of interviews at intervals throughout the first year of your course. Each interview will take approximately 30 minutes and will take place in a quiet classroom or office. You may also be asked to take part in a focus group at a later date.

Do I have to take part?

It is up to you to decide whether or not you want to take part. If you decide to take part you will be asked to sign a consent form. You will be free to withdraw your participation at any time without giving a reason and without any detriment to yourself. Your learning and marks will not be affected by your decision whether to participate or not.

Will my taking part in the study be kept confidential?

All data will be collected and anonymised before being used to inform the thesis for this research. Participant information will be held securely until the research comes to an end; it will then be destroyed.

Who is conducting the research?

Lesley May

Who may I contact for further information?

Lesley May
Email: lmay@uclan.ac.uk or telephone 01772 895302

Thank you for your interest in this research.

Consent form

Title of Project: An Investigation Into Retention Issues For Computing Students at the University of Central Lancashire

Name of Researcher: Lesley May

Please initial box

1. I confirm that I have read and understood the participant information sheet for the above study and have had the opportunity to ask questions. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason. ☐

3. I understand that any information given by me may be used in future reports, articles or presentations by the researcher. ☐

4. I understand that any information I provide will be anonymised and that I will not be identifiable. ☐

5. I agree to take part in the above study. ☐

6. I understand that I may be asked to take part in a focus group at a later date. ☐

Name _____ Signature _____ Date _____

Signature of Researcher _____ Date_____

Appendix D: Origins of Data

University Systems:

Data Gathered	Possible Answers
Student	Home, Overseas or European
Registered programme of study	Computing, Forensic Computing, Games Development, Computer Networking, Software Engineering
End of year results	Grades for each module that then derived GPA, classification, number of failed modules.

Questionnaire 1, administered September:

Data Gathered	Possible Answers
Gender	Male, Female
Age	18, 19, 20, 21, 22, 23, 24, 25 to 29, 30 and above
Ethnic Group	Asian British, Black British, Other British, White British, European, Other Ethnic
Disability/Learning Difficulty	Yes, No, Prefer not to say
Studied any maths beyond GCSE level, even if didn't pass/complete the course (AS Level maths, etc).	Yes, No
Entry Qualification Type	A Level, BTEC, Access/Foundation, Other
I can work out what a computer program does by reading the lines of code	Strongly Agree, Agree, Disagree, Strongly Disagree
Future Aspirations	Free text coded to Software Engineer, Cyber Security, Games Dev, Network Eng, Forensic Computing, Vague Computing, Other, Not sure
Biggest Fear Starting University	Free text coded to Failure, Finance, Managing, People, Settling in, Workload, Wrong Course, None, Other

Questionnaire 2, administered November:

Data Gathered	Possible Answers
Current Living Arrangements	Halls/Student Accommodation, Home Preston, Home Outside Preston, Somewhere else
Confident right course	Strongly Agree, Agree, Disagree, Strongly Disagree
Friendship	wide circle, small circle, one, no good friends

Appendix E: Interview Schedules

Interview 1 Schedule, conducted in October

Introduction:

Set participant at ease, thank for agreeing to participate, ask to complete consent form

- Explain purpose of the interview:
    - Explore issues and problems faced by first year students
    - Explore feelings about problems and issues, and coping strategies that are used
- Set time constraints

Interview Questions:

- Explore feelings about the course, the university
- Explore fears about the course and university (using the 5Fs – fears of failure, financial, family, friendships, future)
- Anything else?

Wrapping up:

- Thank for participation
- Ensure collected consent form
- Reassure anonymity
- Inform date of next meeting

Interview 2 Schedule, conducted in December

Introduction:

- Greet participant, make sure at ease, thank for agreeing to continue participation
- Reiterate purpose of the interviews
    - Explore issues and problems faced by first year students
    - Explore feelings about problems and issues, and coping strategies that are used
- Set time constraints

Interview Questions:

- Explore changes to:
    - Feelings about the course, the university since interview 1
    - Adjustment to university life
- Which word best sums up how you are feeling:
    - Achieving * Bored * Comfortable * Coping * Drowning * Stressed * Surfing * Surviving * Thriving * Worrying
- Pick from the following the one(s) that resonate with you the most
    - Being accepted for who you are
    - Being respected by peers/tutors
    - Being successful
    - Being the best
    - Enjoying student life
    - Getting the student loan
    - Getting to the end of the course
    - Having a successful career
    - Having friends at home
    - Just being a student
    - Making parents proud
    - Making/having friends at university
    - Making/having friends on the course
- Why did you choose UCLan?
- Anything else?

Wrapping up:

- Thank for participation
- Reassure anonymity
- Inform date of next meeting

Interview 3 Schedule, conducted in February

Introduction:

- Greet participant, make sure at ease, thank for agreeing to continue participation
- Reiterate purpose of the interviews
    - Explore issues and problems faced by first year students
    - Explore feelings about problems and issues, and coping strategies that are used
- Set time constraints

Interview Questions:

- Explore changes since last meeting
- What groups do you feel part of (friendship, clubs and societies, etc.)
- Which word best sums up how you are feeling:
    - Achieving * Bored * Comfortable * Coping * Drowning * Stressed * Surfing * Surviving * Thriving * Worrying
- Anything else?

Wrapping up:

- Thank for participation
- Reassure anonymity
- Inform date of next meeting

Interview 4 Schedule, conducted in March

Introduction:

- Greet participant, make sure at ease, thank for agreeing to continue participation
- Reiterate purpose of the interviews
    - Explore issues and problems faced by first year students
    - Explore feelings about problems and issues, and coping strategies that are used
- Set time constraints

Interview Questions:

- Explore changes since last meeting
- Did college prepare you for university?
- How could we have prepared you better when you arrived?
- Which word best sums up how you are feeling:
    - Achieving * Bored * Comfortable * Coping * Drowning * Stressed * Surfing * Surviving * Thriving * Worrying
- Anything else?

Wrapping up:

- Thank for participation
- Reassure anonymity
- Inform date of next meeting

Interview 5 Schedule, conducted in April

This is the last interview, conducted

Introduction:

- Greet participant, make sure at ease, thank for agreeing to continue participation
- Reiterate purpose of the interviews
    - Explore issues and problems faced by first year students
    - Explore feelings about problems and issues, and coping strategies that are used
- Set time constraints

Interview Questions:

- Explore changes since last meeting
- Now nearly at the end of the year; what tips and tricks helped you get to this point
- Which word best sums up how you are feeling:
    - Achieving * Bored * Comfortable * Coping * Drowning * Stressed * Surfing * Surviving * Thriving * Worrying
- If you could go back to earlier this year and could change one thing, what would it be?
- Anything else?

Wrapping up:

- Thank for participation throughout
- Reassure anonymity

Interview 6 Schedule, conducted in April of graduating year

Introduction:

- Greet participant, make sure at ease, thank for agreeing to continue participation
- Reiterate purpose of the interviews
    - Reflect on issues and problems faced during studies
    - Reflect on problems and issues, and coping strategies that are used
- Set time constraints

Interview Questions:

- Looking back, which of these do you feel were the most important:
    - Being accepted for who you are
    - Being respected by peers/tutors
    - Being successful
    - Being the best
    - Enjoying student life
    - Getting the student loan
    - Getting to the end of the course
    - Having a successful career
    - Having friends at home
    - Just being a student
    - Making parents proud
    - Making/having friends at university
    - Making/having friends on the course
    - Something else?
- How are you feeling now about the course
- Which word best sums up how you are feeling:
    - Achieving * Bored * Comfortable * Coping * Drowning * Stressed * Surfing * Surviving * Thriving * Worrying
- What are the high and low points throughout your study
- What helped and/or hindered you throughout your studies
- What advice would you offer to new students
- What advice would you offer to staff supporting students
- Back to the 5Fs (failure, financial, family, friendships, future) how did they impact/effect your studies/life
- What now – what plans do you have?
- Have you ever seriously thought about leaving? If so, what stopped you
- Anything else?

Wrapping up:

- Thank for participation throughout
- Reassure anonymity