
**Webcam use in online synchronous learning: a
case study of students from disadvantaged
backgrounds in the UK.**

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Abstract

This study addresses the considerable challenge of enhancing online learning in socioeconomically disadvantaged settings, focusing specifically on the role of webcams in fostering a Community of Inquiry (COI). The research is driven by the need to understand how technological tools can support more inclusive and engaging online education, particularly for students who face additional barriers due to their socioeconomic status. Set within the context of Blackpool and The Fylde College, the study draws on the experiences of eight participants, utilising a qualitative approach that combines semi-structured interviews and storytelling. The methodology is underpinned by a comprehensive framework for examining the multifaceted dynamics of webcam use.

The findings reveal that webcams can significantly contribute to creating a more inclusive and engaging learning environment by facilitating real-time interaction and a sense of community. However, the findings also highlight several limitations, including technical issues such as poor connectivity and inadequate hardware, as well as social challenges like fear of judgement and concerns about privacy. These factors critically influence students' willingness to engage and participate via webcam, underscoring the need for careful consideration and strategic implementation of technology in online learning.

The relevance of this work extends to scholars and researchers interested in the intersection of technology, education, and socioeconomic factors. It contributes to the ongoing discourse on optimising digital learning tools to create more equitable and effective online learning experiences. The study also identifies potential areas for further research, particularly in exploring how socio-material approaches and practice architectures can provide deeper insights into the complex interaction between technology, users, and context in online learning environments.

In conclusion, the study recognises the potential of webcams to enhance the qualitative meaning of the technology-mediated activities of COI in online

learning but emphasises the necessity of addressing the accompanying technical, psychological, and pedagogical challenges. It advocates for continued exploration into the nuanced ways that technology mediates learning and how these insights can inform the design and implementation of more inclusive, engaging, and effective online educational practices.

Keywords: Community of Inquiry, Online Learning, Webcam Use, Socioeconomic Disadvantages, Digital Learning Environments.

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This thesis was completed as part of the Doctoral Programme in e Research & Technology Enhanced Learning.

This thesis results entirely from my own work and has not been offered previously for any other degree or diploma.

I declare that the word length of this thesis 48,771 words conforms to the permitted maximum.

Signature

A handwritten signature in black ink that reads "Colette Mazzola-Randles". The signature is written in a cursive style with a horizontal line underneath the name.

Publications derived from work on Doctoral Programme

November (2023), Keynote Speech, 25th Anniversary Higher Education Conference OLC, Oldham Campus, Unit 450, Chambers Business Centre, Chapel Road, Oldham, OL8 4QQ

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Chapter 1: Introduction

In this chapter, I showcase the narrative of my research. I begin by presenting my research site as more than just a setting; it becomes a vivid story, rich in context and implications. I delve into the background and context of my study, illuminating the pivotal factors that make this research timely and relevant. The primary aim is presented, revealing the overarching goal that propels my inquiry. I also consider the critical aspect of positionality, recognising how my unique perspective as a researcher influences the way I approach this study. Furthermore, I candidly explore my personal motivations, offering insight into the driving forces behind this research. To complete this chapter, I dive into the theoretical and methodological considerations that underpin my approach. Finally, I provide the significant contributions this research seeks to make to the wider academic discourse.

1.1 Research Site: The case as a story

In the bustling coastal town of Blackpool, an area known for its vibrant attractions and rich history, but also struggling with socioeconomic challenges and deprivation, a group of undergraduate local students embarked on a new academic adventure at Blackpool and The Fylde College. These determined young students, many of whom hailed from disadvantaged backgrounds, were eager to overcome the odds and pursue their dreams in various fields, comprising from Computing, Marine Engineering and English.

Blackpool and The Fylde College, a prestigious institution with a strong commitment to social mobility, stood as a symbol of hope and opportunity in a town grappling with disparities in income, education, and employment. Located near the town's iconic attractions like the Blackpool Tower and surrounded by a mix of modest residential areas and struggling businesses, the college sought to provide a path to a brighter future for its diverse student body.

As they began their studies, the SARS-CoV-2 virus responsible for COVID-19 pandemic, compelled them to adapt to a novel way of learning: remote synchronous education.

One teacher who teaches computing and digital media, a local from the small coastal town, had persevered and climbed the ranks of the educational system. This dedicated educator was particularly eager to delve into the experiences of students at the college, seeking to understand their reasons for choosing to use or not use webcams during online synchronous learning, and exploring the challenges and opportunities they encountered along the way. To gain a well-rounded perspective, she interviewed students from diverse fields of study, including Computing, Marine Engineering, and English, all of whom had been exposed to working online and participating in synchronous learning. Through these interviews, the teacher identified several themes that shed light on the barriers and challenges faced by the students, providing valuable insights to help address and overcome these obstacles in their online learning journey.

The college embraced Microsoft Teams for its online classes, students ventured into the unknown, navigating the virtual corridors of this new learning environment. Like explorers in a foreign land, they cautiously traversed the digital landscape. Meanwhile, the resourceful teachers, akin to pioneering inventors, devised innovative methods to deliver captivating lessons in this brave new world. The students, filled with curiosity, eagerly delved into the platform's features, uncovering the treasures and secrets that lay hidden within the space of Microsoft Teams. Together, they embarked on a journey of discovery, adapting to the challenges and opportunities that awaited them in this unfamiliar yet fascinating virtual world.

In this space of synchronous learning, both students and teachers found solace in maintaining a sense of routine and structure, attending virtual classes as if they were gathering at their usual lesson times. Amidst this newfound order, challenges of engagement and motivation began to surface. The students soon realised that their real time interactions with teachers and peers made a significant difference in their learning journey.

To develop up a more interactive and immersive learning environment, the teachers encouraged the students to use their web cameras. Many students eagerly embraced this opportunity to connect visually with their peers, forging new bonds and alliances.

As the tale unfolded, the students and teachers continued to explore the vast expanse of their virtual world, nurturing connections, and overcoming obstacles that lay in their path, all in the name of knowledge and camaraderie.

Despite the occasional sluggish internet connections and software glitches, the students and teachers banded together, finding ways to collaborate effectively. Teachers, like skilled navigators, steered their students through the labyrinthine virtual corridors of Microsoft Teams, revealing hidden chambers of breakout rooms and chat features. These newfound pearls enabled the students to work in harmony and provide support to one another on their quest for knowledge.

As the students and teachers delved deeper into the spaces of this digital world, they continued to strengthen their bonds and collaborate more seamlessly, overcoming every obstacle that tried to hinder their progress. Through unity and determination, they thrived within their virtual haven, taking one step closer to unlocking the secrets of the ever-evolving landscape of online learning.

In the midst of their academic odyssey, some students found themselves grappling with the siren song of distractions that filled their home environments. They yearned for the tranquil sanctuaries of the college library and the comforting camaraderie of their classmates in the flesh. Undeterred, these valiant students summoned their inner resilience, forging ahead to carve out serene learning havens within their homes.

With unyielding spirit, they transformed the challenges of their surroundings into opportunities for growth, adapting and evolving with each new lesson. As they continued on their journey, the bonds forged through shared experiences and triumphs over adversity strengthened, and the students discovered that, no matter the distance, their connections with one another remained unbreakable.

As the students and teachers ventured deeper into the space of remote learning, they discovered that various teaching styles and academic subjects played a crucial role in shaping their experiences. With the passage of time, they began to recognise and appreciate the unique possibilities offered by remote synchronous learning. Determined to confront the challenges head on, they continuously sought innovative ways to enrich their virtual educational journey.

Through unwavering dedication, adaptability, and collaboration, the intrepid students and teachers of Blackpool and The Fylde College charted a course through the unexplored waters of remote education. They showcased the vast potential of remote synchronous learning, even when faced with the most daunting of adversities.

In the midst of their extraordinary quest, the students forged lasting friendships, triumphed over seemingly insurmountable obstacles, and unearthed the true essence of resilience and adaptability.

And so, the story of the students and teachers of Blackpool and The Fylde College serves as both an inspiration and a call to action for future academic explorers. Though they faced many challenges and overcame great obstacles, their journey revealed that there are still mysteries to be unravelled and questions to be answered. By confronting these remaining challenges, the next generation of students and educators can ensure that the tale of remote synchronous learning continues to evolve, weaving a richer and more inclusive tapestry of education for all who follow in their footsteps.

1.2 Research Background

The rapid development of digital technology has dramatically changed the landscape of higher education, with online learning emerging as a popular mode of instruction (Borup et al., 2012). Online synchronous learning, in particular, has gained attention due to its potential to foster greater student engagement, collaboration, and a sense of community among participants

through real time interactions and the use of webcams (Borup et al., 2012; Blankson et al., 2010; Bower et al., 2015; Hantula et al., 2011; Glassman & Burbidge, 2014).

Several studies have highlighted the need for more in-depth research to understand the effects of webcam use on student learning and teacher immediacy in online learning environments (Bower et al., 2015; Martin et al., 2012; Hantula et al. 2011; Glassman & Burbidge 2014). These studies suggest that further investigation into the specific ways in which webcams affect student learning, engagement, and teacher immediacy can help educators develop effective strategies for integrating webcams into online learning experiences. “Should allow for, and encourage, student co-design and/or co-configuration of learning activities and environments” (Rapanta et al., 2021).

However, despite the benefits of online synchronous learning, challenges persist, particularly in relation to the digital divide, which can create disparities in access to and usage of digital technologies based on students' socioeconomic backgrounds (Selwyn & Facer, 2013; Anderson & Simpson, 2007). Addressing the digital divide in the context of online synchronous learning is crucial, as it has implications for the equitable provision of online learning experiences and the effectiveness of webcam use for students from disadvantaged backgrounds.

Trust and Whalen (2020) argue that more in depth research is needed to understand and “reflect upon and adapt priorities, practices, and identity, how to engage in social knowledge construction in the same way the global pandemic did online” (Trust & Whalen 2020, p. 158).

Sederevičiūtė-Paciauskien et al., (2022) stress the need to investigate the role of webcams in enhancing student learning experiences and outcomes, as well as teacher immediacy in online learning settings, “*one such challenge is not being able to see students during synchronous class meetings held via videoconferencing software because students do not have their video cameras turned on*” (Sederevičiūtė-Paciauskien et al., 2022, p. 2).

Furthermore, the imperative of addressing the digital divide within online synchronous learning cannot be overstated. Students from socioeconomically disadvantaged backgrounds encounter distinctive challenges and formidable barriers when it comes to harnessing digital tools, such as webcams as integral components of their learning experiences. This multifaceted issue encompasses disparities in access to technology, variations in digital literacy, and disparities in the availability of essential resources. As we progress in this study, we will delve deeper into the nuanced facets of these challenges, drawing insights from seminal works by Selwyn and Facer (2013) and Anderson and Simpson (2007). Our exploration will unveil a comprehensive understanding of the digital divide's intricate dimensions, shedding light on the specific hurdles faced by students, and offering potential solutions to bridge this persistent educational gap.

Martin et al., (2012) suggests “the importance of students’ ability to receive immediate feedback and their experience as presenters was highlighted across the various kinds of interaction.” Martin et al., (2012) while the use of webcams in online learning has been shown to improve feedback and teacher immediacy, there remains a need for more research exploring the potential challenges and barriers that may hinder students from socioeconomically disadvantaged backgrounds from fully benefiting from webcam use in online learning environments. Teichert et al., (2023) argue that understanding the unique needs and challenges faced by disadvantaged students is essential when designing and implementing online learning experiences and “when families do not embrace digital technology, their children could be significantly disadvantaged” (Teichert et al., (2023)

The term "student engagement" is multifaceted and can be understood in various ways depending on the educational context. Generally, it refers to the degree to which students are actively involved in learning activities and are invested in their own educational outcomes (Fredricks et al., 2004). While the notion of progressing through one established canon of TEL theory is an

oversimplification (Crook & Sutherland., 2017), the current study will examine webcam use and engagement, but more importantly the constructivist aspects.

In the context of this study, student engagement refers specifically to the extent to which students actively participate and invest themselves in online synchronous learning activities, and how webcam use might influence this engagement.

Teacher immediacy is a concept that originated in the field of communication studies and refers to verbal and nonverbal behaviours that teachers use to foster a sense of closeness and approachability with students (Mehrabian, 1969). These behaviours can include varied vocal tone, eye contact, and open body language in a physical classroom. In a virtual learning environment, immediacy might manifest through timely feedback, active participation in online discussions, and the use of inclusive language. The term is particularly relevant to this study as it explores how the use of webcams in online synchronous learning might affect the perceived immediacy between teachers and students, and in turn, influence student engagement (Castelli, 2021; Bedenlier, 2021; Trust & Goodman, 2023).

Anderson & Kim, (2022) call for further research on the digital divide and its implications for online synchronous learning, particularly in relation to the use of webcams and other digital tools, in order to develop effective strategies that support equitable learning opportunities for all students.

This research seeks to investigate the influence of webcam utilisation on the levels of engagement and participation in students from areas marked by socioeconomic deprivation, within the context of online synchronous education. Studies by (Castelli, 2021; Bedenlier, 2021; Trust & Goodman, 2023) underscore the necessity for a more detailed exploration into the subtle impacts of webcam use on both student learning and teacher immediacy. Furthermore, these prior works indicate an unmet need to scrutinise the ramifications of the digital divide on the effectiveness of online synchronous learning. By investigating the factors that influence these students' decisions to use or not

use webcams, as well as the challenges and opportunities they encounter, this research seeks to contribute to the development of strategies and recommendations that address the digital divide and promote more equitable online learning experiences. Trust and Goodman (2023) found that “students turn their cameras off when using video conferencing technology in educational settings due to concerns about personal appearance, physical surroundings, social norms, feelings of distraction and level of engagement (Castelli & Sarvary, 2021) and they turn their cameras on for cooperation, social presence, rapport-building and self-control (Sederevičiūtė-Paciauskien et al., 2022).”

Building on the findings of Razvi et al., (2019) found that “online learning is presumably more inclusive as it allows participants of all ages, genders, and education levels to participate in online learning activities, even those whose performance may be “restricted” by accessibility needs. Online learning also embraces learners from diverse cultural and regional backgrounds, enabling them to participate and excel in any course from any discipline.

This study seeks to provide further insights into the ways in which webcam use influences the engagement and participation of students from disadvantaged backgrounds in online synchronous learning. By addressing the research questions outlined below, the study aims to contribute to a more comprehensive understanding of the role of webcams in online learning, as well as the development of strategies to address the digital divide and promote equitable learning experiences for all students.

1.3 Research Context

In April 2020, higher education (HE) institutions across 185 countries were forced to close their doors due to the rapid spread of the outbreak of severe acute respiratory syndrome coronavirus 2 (SARS CoV 2) leading to the global pandemic of Coronavirus disease in 2019, known as COVID, impacting over 1.5 billion learners worldwide (Marinoni et al., 2020). Prior to the pandemic, educational technology had already been experiencing significant growth, with global investments reaching £18.66 billion in 2019 (Li & Lalani, 2020). However,

the adoption and integration of online learning within traditional HE settings remained largely an individual choice, with the majority of faculty members continuing to rely on face-to-face teaching as their primary mode of instruction (Graham et al., 2013; Wieland & Kollias, 2020).

The rapid shift to online learning during the pandemic exposed the disparities in technological infrastructure and preparedness between different institutions and countries (Crawford et al., 2020, Rapanta et al., 2020). Teachers who were previously unfamiliar with online teaching methodologies were required to quickly adapt their teaching practices, often without adequate support and training (Rapanta et al., 2020). “Teaching staff of all backgrounds and ages have had to prepare and deliver their classes from home, with all the practical and technical challenges this entails, and often without proper technical support (Rapanta et al., 2020).”

This sudden transition highlighted the need for greater investment in educational technology and professional development to ensure educators could deliver high quality online learning experiences (Hodges et al., 2020).

“The Covid-19 crisis has brought forth a plethora of advice aimed at teachers. Much of this advice focuses on tools and materials that teachers can use to replace their face-to-face classes. In addition, teachers have been offered hundreds of ‘tips and tricks’, mostly without the contextualising knowledge needed to judge which teaching tactic is likely to work here” (Rapanta et al., 2020).

Additionally, the move to online learning underscored the importance of addressing the digital divide, as students from socioeconomically disadvantaged backgrounds faced greater barriers to accessing digital resources and technology, potentially exacerbating existing educational inequalities (Reich et al., 2020). Research by Czerniewicz et al in (2019) indicates that both faculty and students require appropriate support structures and resources to fully harness the potential of online learning.

This investigation seeks to examine the impact of webcam utilisation on engagement and participation among undergraduate students from Blackpool and The Fylde College. The institution is situated in a region of the United Kingdom that is categorised as socioeconomically deprived, according to indices such as the Index of Multiple Deprivation (IMD), which considers various factors like income, employment, education, and access to housing and services. This geographical and socio-economic context serves as a crucial backdrop for understanding the unique challenges and opportunities that students in this area may encounter in the space of online synchronous learning. The importance of this study is underpinned by previous research on the role of video and webcams in enhancing online social presence and their impact on student engagement and learning outcomes (Borup et al., 2012). Furthermore, the digital divide and digital inclusion are critical factors to consider, as they influence technology access and usage among students from diverse socio-economic backgrounds (Selwyn & Facer, 2007).

1.4 Research Aim

This study aims to investigate the impact of webcam use on the engagement and participation of undergraduate students from Blackpool and The Fylde College, which is located in an area of the United Kingdom with low socioeconomic status.

My core argument is that a COI comprising students, from an area of socioeconomic disadvantage, which consists of students from a socioeconomically disadvantaged background, can be successfully facilitated and supported through the use of webcams in their activities or efforts related to inclusive learning and teaching (Razvi et al., 2019), comfortable working environment (Bran et al., 2020), and active learning opportunities to enhance engagement (Bedenlier, 2021). However, for this approach to be effective, certain limitations denoted as nonvisible cues (Themeli & Bougia, 2016), feelings of distraction and isolation (Bozkurta et al., 2020), and levels of engagement need to be addressed and reduced (Castelli & Sarvary, 2021).

By focusing on students from a disadvantaged background, the study seeks to address the complex issues and potential barriers to effective online learning that may be faced by students from diverse backgrounds. The findings of the study will be used to develop recommendations and strategies to support students and practitioners in promoting effective webcam use and improving the online learning experience for all students.

1.5 Researcher Positionality

As the researcher who engaged in this study, it is crucial to acknowledge my positionality and its potential impact on the research process and findings. Positionality refers to the unique set of personal characteristics, experiences, and beliefs that shape a researcher's worldview and their approach to research (Creswell et al., 2018). In this statement, I outline my positionality and discussed how I maintained reflexivity throughout the study.

I am an academic with a background in education, and my experiences informed my understanding of the challenges and opportunities in online learning. Having completed my undergraduate studies at a university in the United Kingdom, I was familiar with the British higher education system and the socio-economic context in which this study was situated. My interest in the impact of webcams on online synchronous learning, particularly for students from disadvantaged backgrounds, stemmed from both my academic background and my commitment to promoting equity and inclusivity in education.

As a researcher, I recognised that my positionality could have influenced the way I interpreted and presented the data collected during the study. To mitigate potential biases, I strove to maintain reflexivity throughout the research process. Reflexivity involves critically examining one's assumptions, values, and beliefs, and considering how they may affect interactions with participants, data collection, and data analysis (Creswell et al., 2018).

To ensure reflexivity, several strategies were employed. Firstly, I maintained a reflective journal, in which I recorded my thoughts, feelings, and observations during the research process. This journal served as a tool for identifying and addressing any potential biases or preconceptions that arose. Secondly, I actively sought feedback from peers and colleagues, who provided alternative perspectives and challenged my interpretations of the data. Finally, I was transparent in the research report, discussing the potential influence of my positionality on the study's findings and acknowledging any limitations that arose as a result.

By being mindful of my positionality and maintaining reflexivity, I aimed to conduct a rigorous and trustworthy study that contributed valuable insights into the impact of webcam use in online synchronous learning for students from areas of socioeconomic disadvantage.

1.6 Personal Motivation

In 2018, I encountered a unique challenge with a student who was diagnosed with cancer. He was determined to continue attending classes and pursuing his studies, prompting me to explore the use of Microsoft Teams as a means of ensuring his visibility and presence in the sessions while he underwent chemotherapy. The success of this intervention sparked my interest in the use of webcams in online learning, which later became particularly relevant when the world went into lockdown due to the COVID 19 pandemic.

During the onset of the pandemic, I found myself navigating the challenges and opportunities presented by the sudden shift to online learning. As an academic with a strong commitment to educational equity and inclusivity, I sought to adapt my teaching methods and strategies to ensure the best possible learning experience for my students, including those facing health challenges like the aforementioned student.

My personal motivation for this study stems from my own experiences as an educator during this unprecedented period. I had to quickly adjust my teaching

approach by redesigning my course content to suit an online environment; recording video lectures and posting them on the learning management system; providing clear guidance and instructions for students to follow; and offering virtual office hours and support sessions using video conferencing platforms like Microsoft Teams.

In the early stages of the pandemic, I felt a sense of fulfilment in helping my students and colleagues adapt to online learning. However, as the semester progressed, I realised that maintaining high levels of engagement and motivation in an online setting required a significant amount of preparation, effort, and ongoing assessment.

The challenges I faced as an educator during this time prompted me to reflect on the broader implications of online learning, particularly for students from socioeconomically disadvantaged backgrounds. I became increasingly interested in understanding the factors that influence student engagement and success in online synchronous learning environments, as well as the barriers and opportunities presented by the use of webcams.

My desire to investigate these issues is driven by a genuine concern for the wellbeing and success of students from diverse backgrounds, as well as a commitment to improving the overall quality of online education. By exploring the experiences of students from disadvantaged backgrounds in the UK, I hope to gain valuable insights that will inform the development of strategies and interventions to support equitable and inclusive online learning experiences for all.

Furthermore, I am eager to learn from the experiences of students, who have faced similar challenges in adapting to online teaching. By understanding how webcam use impact the engagement and participation, I aim to contribute to a growing body of knowledge that will help to shape the future of online learning in higher education, ensuring that it is accessible, engaging, and effective for students from all walks of life.

1.7 Theoretical and Methodological Considerations

The theoretical arrangements for the design, conduct, and analysis of my empirical research calls upon a COI framework. The notion of a COI was proposed by Matthew Lipman in the 1980s and developed by Garrison et al., (1999) who built on the work on social interactions of inquiry by educational reform John Dewey, and psychologists Lev Vygotsky, and Jean Piaget. Garrison's intent in developing a COI framework was to counter the prevalent focus of the information era on the growth of technological artefacts, with COI as a means for "a collaborative approach to inquiry that fuses personal reflection and shared discourse for a deep and meaningful learning experience" (Garrison et al., 2015, p. 54). In recent years COI theoretical frameworks have been increasingly established in cognate studies of online learning, across diverse educational settings, and in disparate technology-mediated contexts: researching how "synchronous online learning settings have distinct pedagogical demands owing to the nature of interactivity" (Cakiroğlu, 2019, p. 246)

Utilising the COI as a theoretical framework this study aimed to investigate the factors that influenced students' decisions to use or not use webcams during online synchronous learning at Blackpool and The Fylde College. The institution is situated in a socioeconomically deprived region, and the study sought to address the unique challenges and opportunities that students from such backgrounds may encounter. A qualitative case study approach was employed to delve into these issues.

Although the study was limited by a small number of semi structured interviews (N=8), the data collected was rich and enabled the construction of a narrative around why students chose to use or avoid webcams in their online learning environment. The COI framework provided a useful structure for data analysis, allowing for meaningful connections with existing literature and contributing to ongoing academic discussions.

The COI theory underscores the significance of three interconnected elements for a fruitful online learning experience: social presence, cognitive presence, and teaching presence. By utilising the presences, the study sought to comprehend how decisions around webcam usage impacted students' broader learning experiences and interactions with these three elements.

The research explored various potential reasons behind students' choices about webcam usage, ranging from privacy concerns and technological challenges to perceptions about how webcam use could affect social and cognitive presence. Challenges faced by students, such as technical difficulties or feelings of vulnerability, were also examined, along with opportunities that webcam usage could offer, such as enhanced engagement and a stronger sense of community.

By scrutinising these facets through the COI framework, the study aimed to furnish valuable insights into the role of webcams in online learning experiences. These insights are intended to inform educators and institutions about how to support students more effectively in online synchronous learning settings, particularly those from disadvantaged backgrounds.

1.8 Research Contribution

While research in the domain of online learning has been prolific since around 1996, studies specifically focusing on webcam visibility in online synchronous learning are comparatively nascent. Existing research, such as that by Castelli and Sarvary (2020), has begun to underscore the significance of webcam visibility in such educational settings. However, a distinct gap exists: no study has thus far investigated the preferences surrounding webcam visibility among students from disadvantaged backgrounds in the context of online synchronous learning. The concept of "preference" in the space of webcam visibility during online synchronous learning is a multifaceted issue that warrants meticulous scrutiny, particularly when focusing on students from disadvantaged backgrounds. One of the primary reasons for the significance of "preference" lies in its direct impact on the user experience in a virtual classroom (Li et al., 2023). For some students, having webcams turned on fosters a greater sense

of engagement and accountability (Hosszu et al., 2022). Conversely, others may find the constant visibility to be a source of distraction or self-consciousness, which can ultimately detract from the learning experience (Wieland & Kollias, 2020).

Socioeconomic deprivation often correlates with limited access to high quality technology, including webcams and stable internet connections (Alegría et al., 2018). An exploration of "preference" in this context can reveal whether these technological disparities exacerbate educational inequalities. The wellbeing dimensions are equally crucial, as factors such as anxiety or self-esteem could affect a student's willingness to be visible in a virtual classroom (Ladejo, 2021). These aspects may be even more pronounced among students from deprived areas, thus accentuating the importance of understanding their preferences.

Investigating the "preference" of webcam visibility among students from disadvantaged backgrounds not only fills an existing research gap but also has far reaching implications for educational equity, wellbeing, and instructional effectiveness. While this study aims to contribute to this underexplored area, it is important to acknowledge its limitations and to call for further research that might employ different methodologies or focus on other underrepresented demographics (Ellard-Gray et al., 2023).

This study aimed to contribute this lacuna by conducting an in-depth examination of both existing online learning research and the primary data collected for this specific inquiry.

The primary pedagogical contribution of this study is to offer valuable insights into the experiences of students from disadvantaged backgrounds, and to provide evidence-based recommendations to enhance the use of web cameras in online synchronous learning. By exploring the reasons and experiences of students in socioeconomically disadvantaged backgrounds with online synchronous learning, this study will contribute to future research, and the recommendations provided will be based on the actual experiences of these students. The results of this study will thus have practical implications for

enhancing online synchronous learning experiences for students from diverse socioeconomic backgrounds.

The findings of this study will have broader implications beyond Blackpool and The Fylde Colleges and will be relevant to other institutions facing similar challenges in promoting effective online learning for students from disadvantaged areas. The recommendations and strategies developed as a result of this study will support practitioners and researchers in enhancing the use of webcams in online synchronous learning and promoting engagement and participation among all students, regardless of their socioeconomic background. Additionally, the study may contribute to the broader understanding of the impact of webcams on engagement and participation in online learning, particularly in the context of diverse student populations.

Leading to the research questions set out below:

RQ1. What were the experiences of these students in regards with webcam use during online synchronous learning?

RQ 1.1. How do these students use the webcam during online synchronous sessions?

RQ 1.2. What were the factors that influence whether these students use webcams during online synchronous learning sessions?

RQ 1.3. What challenges and barriers do these students face in using webcams during online synchronous learning?

RQ 1.4. How did the use of webcams during online synchronous learning impact these students' engagement during the session?

RQ 1.5. How did the use of webcams and engagement during online synchronous learning impact these students' participation and learning outcomes?

In order to respond to these research questions, the subsequent section first sets out the backdrop of current scholarship and specific limitations that the use of web cameras in online synchronous learning embodies.

Chapter 2: Literature Review

This chapter seeks to provide a comprehensive exploration of the intersections between online synchronous learning, disadvantaged populations, and Technology Enhanced Learning (TEL) strategies, particularly focusing on the use of webcams in educational settings. The overarching aim is to identify and understand the specific challenges, opportunities, and outcomes associated with these intersections, and how they impact the engagement and participation of disadvantaged students in higher education. The intent is to contribute to the existing body of knowledge by presenting new empirical insights from a study involving undergraduate students from Blackpool and The Fylde College, a demographic significantly underrepresented in the current literature.

The chapter is structured to systematically guide the reader through various layers of this complex landscape. It will begin by setting the context, outlining the importance of online synchronous learning, and the specific challenges and opportunities it presents. This will involve a discussion on the evolution of online learning, the shift towards synchronous modalities, and the theoretical underpinnings that have shaped our understanding of these environments.

Following this, we will delve into the attitudes and perceptions towards online synchronous learning, discussing how these views shape the learning experience for both students and educators. This section will synthesise research findings on how synchronous learning is perceived in comparison to asynchronous and traditional methods, highlighting the factors that influence these attitudes, such as engagement levels, technological reliability, home learning environments, and socio-economic disparities.

The next section will explore the practical experiences of students and educators engaged in synchronous learning, drawing on qualitative and

quantitative studies to provide a nuanced understanding of the lived experiences in these settings. This will include an examination of how pedagogical approaches, technology use, student engagement, and socioemotional factors interplay to shape the learning experience.

Special attention will then be given to the contextual changes brought about by the COVID 19 pandemic, underscoring how the crisis has served as both a disruptor and an accelerator for online synchronous learning. This section will evaluate how the pandemic has influenced pedagogical strategies, technology adoption, and student engagement, providing a contemporary lens to understand the challenges and innovations in this field.

The subsequent section will narrow the focus to disadvantaged populations in synchronous online learning, critically examining how socio-economic disparities affect access, participation, and outcomes. It will explore the role of TEL strategies, particularly webcam use, in mitigating or exacerbating these disparities. The discussion will be anchored on empirical data from the study conducted at Blackpool and The Fylde College, offering fresh insights into the nuanced ways in which disadvantaged students interact with synchronous online learning environments.

The chapter will then highlight the claimed benefits and challenges of online synchronous learning for disadvantaged populations, balancing the optimistic potential with a realistic account of persistent obstacles. It will discuss how distance education—and notably online education—can be a lever for equity, yet also how it might inadvertently sustain or deepen divides without careful, targeted interventions.

In the penultimate section, the focus will be on the use of web cameras in synchronous online learning, a topic of significant relevance given the privacy and engagement issues it raises. This will involve a discussion on the balance between the benefits of enhanced communication and the challenges related to privacy, distraction, and equity.

Finally, the chapter will conclude by synthesising the findings from each section, articulating the identified gap in the literature at the intersection of online synchronous learning, disadvantaged populations, and TEL. It will outline the contribution of the current study to this gap, setting the stage for discussions and recommendations that aim to enhance the effectiveness and inclusivity of online synchronous learning. Through this structured exploration, the chapter intends to provide not only a comprehensive understanding of the current landscape but also a critical analysis and actionable insights that can inform future research, practice, and policy in the realm of online higher education.

The search was conducted on several academic databases, including JSTOR, ERIC, and Google Scholar, among others. The focus was on studies that explicitly discussed online synchronous learning, disadvantaged populations, and TEL. Abstracts were first screened for evidence of these themes (online synchronous learning, disadvantaged populations in online learning, and COI, which resulted in a significant reduction of the initial pool of papers. A total of 60 papers were reviewed in the initial sift, and 20 met some of the criteria for a full review based on their abstracts (Jensson, 2011).

The remaining papers allowed for a more detailed understanding of each field and their interconnections. It became increasingly clear that while there is a substantial body of research on each of the individual themes, there is a dearth of empirical research at their juncture. This illustrates an opportunity for my thesis to contribute to a burgeoning but important field of TEL research.

The review considered studies comparing the effectiveness and outcomes of synchronous learning to asynchronous learning. This broadened the understanding of the unique benefits and challenges associated with synchronous learning and how it may differ from asynchronous learning in terms of accessibility, flexibility, support, and engagement for disadvantaged populations.

In addition to filtering for synchronous learning, the research paid close attention to various contexts in which synchronous learning is employed. This

enabled the identification of trends and patterns in the use of synchronous learning for disadvantaged populations across various educational levels and domains.

The subsequent sections of this review will delve deeper into each field of literature, unravelling their complexities. **Exploring Online Synchronous Learning:** In this section, the focus is on providing an in-depth exploration of the concept of online synchronous learning. It aims to establish a foundational understanding of what online synchronous learning entails, including its key features, benefits, and challenges. This section serves as the groundwork for the subsequent discussions (Themeli & Bougia 2016; Guo et al., 2020; Lowenthal et al., 2020., Park & Bonk, 2007; Lee, 2019; Bedenlier et al., 2020; Baxter & Hainey, 2022).

Attitude/Perceptions About Synchronous Learning: This section delves into the attitudes and perceptions that students and educators hold regarding synchronous learning. It seeks to uncover how individuals view and respond to this mode of learning, shedding light on their motivations, concerns, and expectations. Understanding these perspectives is essential for addressing potential barriers and optimising the learning experience.

Experiences About Synchronous Learning: Here, the focus shifts to the practical experiences of students and educators engaged in synchronous learning. It explores real-world scenarios, case studies, or personal narratives that provide insights into the lived experiences of participants. This section offers a qualitative dimension to the review, enriching the understanding of synchronous learning's impact.

Synchronous Learning During COVID19: This section contextualises synchronous learning within the unique circumstances of the COVID 19 pandemic. It explores how the pandemic has shaped the landscape of synchronous online education, considering both its challenges and opportunities. Examining this period allows for a timely analysis of the role of synchronous learning during a global crisis.

Disadvantaged Backgrounds in Synchronous Online Learning: This section narrows the focus to students from disadvantaged backgrounds who engage in synchronous online learning. It seeks to identify and understand the specific challenges and barriers faced by this demographic, including issues related to access, digital literacy, and socioeconomic disparities.

Claimed Benefits of Disadvantaged Backgrounds in Synchronous Online Learning: Building on the previous section, this part investigates the potential benefits that disadvantaged students may derive from synchronous online learning. It explores how this mode of education might mitigate some of the challenges faced by these students and create opportunities for equitable learning.

Claimed Challenges of Disadvantaged Backgrounds in Synchronous Online Learning: Complementing the previous section, this part delves into the challenges that persist for disadvantaged students in synchronous online learning. It scrutinises issues that may not be adequately addressed by this mode of education and discusses the need for targeted support.

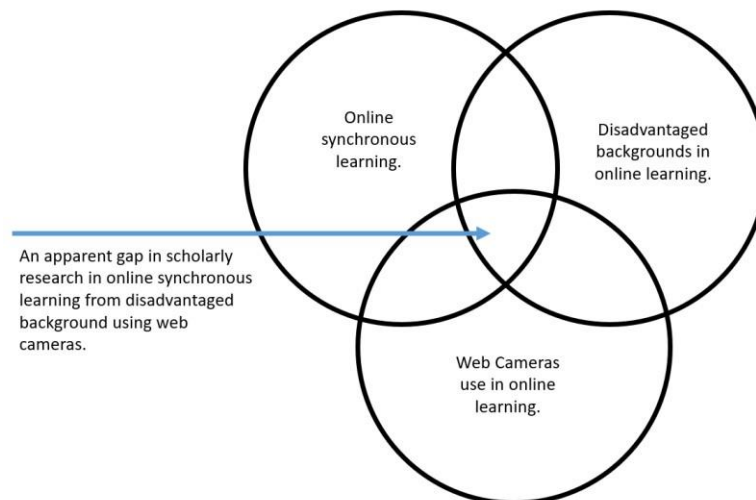
Web Cameras Use in Synchronous Online Learning: Finally, this section zooms in on the role of web cameras in synchronous online learning. It examines how the use of web cameras can impact engagement, participation, and the overall learning experience. This section helps evaluate a specific technology's effectiveness within the broader context of synchronous learning.

The structure of these sections is designed to progressively delve deeper into various facets of synchronous online learning, providing a comprehensive overview of the topic while addressing the specific challenges and opportunities faced by disadvantaged students. This structured approach enhances the organisation and clarity of your review, allowing readers to follow the logical flow of information.

This will serve to further underline the core argument of this paper and clarify how this study contributes to the broader scholarly conversation. By situating the current paper within this backdrop of existing scholarship it is hoped that

this exploration will yield new insights and understanding about the integration of TEL in synchronous learning for disadvantaged populations.

2.1 Gap in Literature



While the field of online synchronous learning had been investigated, a significant gap remained in understanding its application for socioeconomically disadvantaged populations. Furthermore, the role of Technology Enhanced Learning (TEL) strategies, particularly the use of webcams, had been under explored in this context. This was especially true for practice-based settings, where evidence-based strategies were sparse.

In light of this, the aim of the study was to investigate the impact of webcam use on the engagement and participation of undergraduate students from Blackpool and The Fylde College, located in an area of the United Kingdom with low socio-economic status. The study sought to delve into the specific reasons why students from this institution chose to use or not use webcams during online synchronous learning sessions. It further aimed to explore the unique challenges and opportunities these students encountered in the process.

By focusing on a student population from disadvantaged backgrounds, the study aimed to address the intricate issues and potential barriers to effective online learning that could be faced by students from diverse backgrounds. The

ultimate objective was to utilise the findings to develop targeted recommendations and strategies. These would serve to support both students and practitioners in promoting effective webcam use, thereby improving the online learning experience for a broader student demographic.

2.2 Online synchronous learning

In the exploration of online synchronous learning within higher education, a noteworthy addition to the existing body of literature is Themeli and Bougia's (2016) concept of Tele-proximity. This theory, emerging from the increasing use of video technology in education, particularly synchronous video communication (SVC) in distance learning, offers a novel perspective on the digital learning experience. Themeli and Bougia's research suggests that Tele proximity, which aims to bridge the transactional distance in online courses, is instrumental in enhancing embodied interactions through SVC. This aligns with the growing prominence of real time communication in online learning, as emphasised by Guo et al., (2020) and underscores the importance of such technologies in fostering engagement and in-depth academic discussions (Lowenthal et al., 2020).

Themeli and Bougia's (2016) critique of the COI model, particularly its lack of focus on emotional aspects in online learning, is pivotal. They argue for the integration of emotional aspects alongside spatial, social, and cognitive presence, a viewpoint that enriches our understanding of student engagement in online environments. This critique complements the concerns raised in the studies by Park & Bonk (2007) about the challenges in maintaining engagement and managing stress in online synchronous learning environments.

Methodologically, Themeli and Bougia's (2016) approach, grounded in interpretivist paradigms and employing Informed Grounded Theory, provides a robust framework for examining the nuances of online synchronous learning. This contrasts with and complements other methodological approaches cited reviews such as those by Lee (2019) and offering a richer tapestry of research methodologies in this field.

The practical implications of SVC, as highlighted in Themeli and Bougia's (2016) study, are significant. They demonstrate how SVC can be used effectively for activities like conflict resolution, mentoring, and providing personalised feedback, thus enhancing teacher presence and cognitive engagement in online learning. These insights offer practical solutions to the challenges of maintaining engagement and addressing socioeconomic factors in online learning environments, as identified by Bedenlier et al., (2020) and Baxter & Hainey (2022).

Furthermore, the potential of SVC in mitigating socioeconomic disparities in online learning, as suggested by Themeli and Bougia (2016), resonates with the concerns around accessibility and student participation raised by Lee (2019). This underscores the importance of effectively utilising SVC to foster inclusivity in online learning environments.

Themeli and Bougia's (2016) call for further research into the effects of SVC on educational objectives, and the exploration of new synchronous technologies, charts a course for future investigations. This aligns with the identified research gaps in your review, pointing towards the potential for SVC to revolutionise student engagement and reduce dropout rates in online education. In conclusion, Themeli and Bougia's (2016) research on Tele proximity significantly enriches the discourse on online synchronous learning. By highlighting the impact of SVC in creating powerful educational experiences, it emphasises the need for a nuanced understanding of how digital tools like SVC can be leveraged to enhance student engagement, foster inclusivity, and address the challenges inherent in online learning. This integration of Tele proximity into the thematic analysis of your literature review not only broadens the scope of the discussion but also deepens the understanding of the dynamics at play in online synchronous learning environments.

2.2.1 Attitude/perceptions about synchronous learning

To systematically explore the attitudes and perceptions towards online synchronous learning within the sphere of higher education, the inquiry must

adhere to specific inclusion criteria. These criteria necessitate the examination of studies that address real time interaction and the cultivation of social presence within online learning environments, thereby acknowledging the unique dynamics of virtual spaces. Equally, the analysis must consider student engagement levels and compare these in synchronous online settings to traditional, face to face classroom environments, thus recognising the nuances and complexities of engagement in differing educational contexts.

Furthermore, an understanding of the technical challenges, encompassing issues of internet connectivity and software reliability, is essential; such challenges are often pivotal in shaping students' experiences and perceptions of online learning. The home environment's impact on learning also requires scrutiny, as distractions and privacy concerns within personal spaces can significantly influence a student's ability to engage fully in online synchronous education. Lastly, the inclusion criteria must recognise the socio-economic disparities that affect access to technology and digital resources, acknowledging that such inequities may alter the educational landscape for numerous learners.

Conversely, the research parameters must also establish clear exclusion criteria. These criteria exclude studies that do not distinguish between synchronous and asynchronous online learning modes, as the distinctions between these two approaches are critical to understanding the specific challenges and benefits associated with real time virtual education. Additionally, research that fails to address the technical facets of online synchronous learning, or analyses that overlook the influence of the home environment on student engagement, will not be included. Lastly, literature that does not account for the socio-economic factors that shape perceptions and accessibility of online learning will be set aside, as these elements are integral to a comprehensive understanding of the field.

Within the context of attitudes and perceptions, they are integral in moulding the educational experiences of students and educators alike. The proliferation of online learning, accelerated by the COVID 19 pandemic, has prompted a surge

of scholarly attention on this topic (Guo, 2020; McArthur, 2021). Engagement levels are frequently cited as a key influence on attitudes, with synchronous learning sometimes falling short of the engagement found in face-to-face interactions, leading to a preference among some students for the latter when circumstances permit (Fabriz et al., 2021; Serhan, 2020; Baxter & Hainey, 2022). Technical difficulties, from unreliable internet connections to problematic software, also play a significant role in shaping these attitudes, often leading to frustration and a diminished learning experience (Bedenlier et al., 2020). The home environment, too, holds sway over attitudes towards synchronous learning, with distractions and concerns over privacy impacting the capacity to engage. Moreover, socioeconomic factors such as the digital divide contribute to a divergence in the experiences and perceptions of students engaging with online learning (Lee, 2019).

In understanding these attitudes and perceptions, educators and policymakers are presented with the opportunity to develop strategies that not only confront the inherent challenges of online synchronous learning but also harness its potential advantages. Such strategies could lead to enhanced flexibility, bolstered collaboration, and connections among students spanning diverse geographies (Martin et al., 2012; Lowenthal et al., 2020). This knowledge provides fertile ground for projects seeking to explore innovative pedagogical approaches and technological advancements aimed at maximising the efficacy of online synchronous learning (Czerniewicz et al., 2019).

In addressing the significance of attitudes and perceptions towards online synchronous learning within higher education, it is crucial to critically evaluate and contextualise the existing literature, particularly in light of the transformations brought about by the COVID 19 pandemic. While studies such as those by Guo (2020) and McArthur (2021) contribute valuable insights, their focus on specific aspects like Problem Based Learning (PBL) and authenticity may not directly align with the broader theme of attitudes and perceptions. Therefore, this section will undertake a more nuanced examination of the literature to explore this key area.

To provide a comprehensive understanding of attitudes and perceptions, the inclusion criteria for this section will focus on studies that explicitly investigate these elements in the context of online synchronous learning. This involves examining research that delves into the subjective experiences, beliefs, and attitudes of both students and educators towards this mode of learning. The criteria will also encompass studies that explore how these attitudes influence engagement, learning outcomes, and overall satisfaction with online synchronous learning.

Conversely, the exclusion criteria will set aside studies that, while valuable in their own right, do not centrally address attitudes and perceptions towards online synchronous learning. This includes research primarily focused on specific pedagogical approaches, such as PBL, or on aspects like authenticity in online learning, as explored by Guo (2020) and McArthur (2021), respectively. While these studies contribute to the broader understanding of online learning, they may not directly inform the discussion on attitudes and perceptions.

In critically analysing the literature, this section will adopt a thematic approach, exploring various dimensions of attitudes and perceptions. For instance, one theme may involve investigating how the rapid shift to online learning during the pandemic influenced students' and educators' perceptions of its efficacy and appropriateness. Another theme might explore the emotional and wellbeing impacts of online learning, considering factors such as the sense of isolation or the challenges in building a learning community in a virtual environment.

This analysis will allow for a synthesis of the literature, providing a cohesive narrative that not only presents the findings but also critically examines how these findings were reached and their broader implications. The aim is to draw together these analyses to offer a nuanced understanding of attitudes and perceptions towards online synchronous learning, shedding light on how these factors shape the experiences of students and educators. The synthesis will also highlight areas where further research is needed, particularly in understanding the long-term implications of these attitudes and perceptions on

the evolution of online synchronous learning in higher education. A key factor influencing attitudes towards online synchronous learning is the level of engagement experienced by students. Studies have found that although synchronous learning can foster real time interaction and social presence, engagement levels are often lower compared to face-to-face learning (Fabriz et al., 2021; Serhan, 2020;). This has led some students to express a preference for in person learning if given the choice (Baxter & Hainey, 2022).

Technical difficulties, such as unreliable internet connections and software issues, also contribute to students' and educators' attitudes towards online synchronous learning (Bedenlier et al., 2020). These challenges can lead to frustration and negatively impact the overall learning experience (Bower et al., 2015).

Moreover, the home environment can influence attitudes towards synchronous learning, as distractions and privacy concerns may impede students' ability to fully engage in virtual classrooms. Additionally, socioeconomic factors, such as the digital divide and access to suitable devices, can contribute to varying perceptions of online synchronous learning (Lee, 2019).

Despite these challenges, online synchronous learning has been acknowledged for its potential benefits, such as increased flexibility, enhanced collaboration, and the opportunity to connect with geographically dispersed peers (Martin et al., 2018; Lowenthal et al., 2020). As a result, some educators have adopted a positive attitude towards synchronous learning, exploring innovative pedagogical approaches to maximise its potential (Czerniewicz et al., 2019).

Understanding these attitudes and perceptions is instrumental in guiding educators and policymakers to develop strategies that address the inherent challenges while leveraging the potential benefits of online synchronous learning. This understanding opens the door to enhancing flexibility, fostering collaboration, and connecting students across geographies (Martin et al., 2018; Lowenthal et al., 2020). These insights present opportunities to explore

innovative pedagogical approaches and technological solutions to maximise the effectiveness of online synchronous learning (Czerniewicz et al., 2019).

Attitudes and perceptions towards online synchronous learning are complex, informed by diverse and interrelated factors. These include engagement levels, technical barriers, environmental distractions, privacy concerns, and socioeconomic disparities. Recognising and addressing these aspects are critical for those at the helm of education to foster strategies that enhance the online learning experience and ensure equitable access. The current scholarship yields significant opportunities for projects aimed at evolving online synchronous learning environments to be more inclusive and supportive, thereby contributing to the broader objectives of equity and excellence in higher education (Bozkurt & Sharma, 2020).

2.2.2 Experiences about synchronous learning.

The impact of online synchronous learning environments on the experiences of students and educators necessitates a rigorous approach to research, one that clearly defines the inclusion and exclusion criteria for relevant studies. This systematic approach ensures that the analysis is both robust and targeted, focusing on the most pertinent evidence available.

For the purpose of this research project, studies will be included if they meet the following criteria: they must be peer reviewed articles or conference papers published in English from 2015 onwards, ensuring that the research is current and considers recent technological advancements. They must specifically address experiences in online synchronous learning environments, with a clear focus on pedagogical approaches, student engagement, technology, and socio emotional aspects. The studies should involve participants who are engaged in higher education or vocational training contexts, as these environments most closely align with our project's focus. Quantitative, qualitative, and mixed methods studies will be included to provide a comprehensive understanding of the phenomena.

Conversely, studies will be excluded if they focus solely on asynchronous online learning environments, as the dynamics of engagement and interaction differ significantly from synchronous settings. Articles that are not peer reviewed, such as opinion pieces or editorials, will also be excluded to maintain a high standard of academic. Studies published before 2015 will be omitted to ensure that the research is relevant to the current technological and pedagogical context. Research that does not directly address the core elements of student or educator experiences in online synchronous environments will also be excluded.

Opening the pedagogical approaches section with these criteria in mind, one can readily identify opportunities to enhance the instructional design of online synchronous learning. The current scholarship suggests that incorporating collaborative and student-centred methods can significantly benefit engagement and learning outcomes (Bedenlier et al., 2020). This insight presents an opportunity to reevaluate and innovate the curriculum delivery in synchronous online modules, potentially embedding more active and participatory learning strategies that align with these findings (Gray et al., 2015).

In the space of student engagement, the studies adhering to the inclusion criteria highlight the complex challenge of fostering connection and involvement in a virtual space (Lowenthal et al., 2020). There is a valuable opportunity here to develop new engagement techniques that are responsive to the unique dynamics of synchronous online learning. Tailoring engagement strategies to this modality can potentially mitigate the barriers to engagement, such as distraction and technical issues (Mullenburg & Berge, 2005).

Regarding technology, the scholarship underscores the importance of reliable and user-friendly digital tools (Lee, 2019). Finally, addressing the socio-emotional aspects, the research provides an understanding of the nuanced emotional landscape of online learning (Clever & Miller 2019). It affords the project the opportunity to design support systems that can reduce feelings of

isolation and stress (Owens & Sirois, 2019), while fostering a sense of community and belonging among students (O'Connor & James, 2020).

Incorporating the research by Hantula et al., (2011) into the existing discussion on online synchronous learning environments enriches our understanding of the adaptation and interaction dynamics within these settings. The Media Compensation Theory, as proposed in their study, offers valuable insights into how students and educators navigate and adapt to the unique constraints and possibilities of online communication and collaboration. Further supported by studies on adapting to virtual learning environments communication dynamics in digital classrooms and collaboration in online learning. Additionally, the integration of technology in education (Nguyen et al, 2014), the wellbeing aspects of online learning (Irawan et al., 2020), and effective online teaching practices provide a comprehensive context for the application of Media Compensation Theory in real world settings.

Applying the Media Compensation Theory to pedagogical approaches in online synchronous learning, one can infer that educators and students compensate for the lack of face-to-face interaction by utilising various online tools and methods (Lee, 2019). This theory aligns with the findings of Bower et al., (2015) and Martin et al., (2012) in emphasising the need for collaborative, student centred approaches in online environments (Glassman & Burbidge, 2014). The Media Compensation Theory suggests that such approaches might be adaptations to the perceived as 'unnaturalness' of online interactions compared to face-to-face communication (Serhan, 2020), thus reinforcing the need for more engaging and interactive pedagogical strategies.

In the context of student engagement, the Media Compensation Theory adds a layer of understanding to the challenges and strategies identified by Fabriz et al., (2021) and Serhan (2020). It posits that students and educators actively adapt their communication behaviours in response to the limitations of online media (Wieland & Kollias, 2020). This perspective can explain the emphasis on interactive methodologies like quizzes and breakout rooms as compensatory mechanisms to foster a sense of community and connectedness that might be

more effortlessly achieved in physical classrooms (Sederevičiūtė-Paciauskien et al., 2022).

Regarding technology, the principles laid out in the Media Compensation Theory can be seen as underpinning the necessity for reliable and effective technological tools in online synchronous learning. As noted by Bower et al., (2015) and Bedenlier et al., (2020), the smooth functioning of technology is critical in these environments. From the perspective of Media Compensation Theory, effective technology is not just a facilitator of learning but also a crucial component in compensating for the lack of naturalness in online interactions, thereby reducing the cognitive and communicative effort required by participants (Sederevičiūtė-Paciauskien et al., 2022).

Finally, the socio emotional aspects highlighted by Clever & Miller, (2019) can be further elucidated through the lens of media compensation theory. The feelings of isolation or stress experienced by some students in online environments might be viewed as a response to the reduced human elements of communication in these settings (Owens & Sirois, 2019). The theory suggests that creating supportive and inclusive environments online involves not just addressing these emotional needs but also adapting communication strategies to compensate for the lack of physical presence and nonverbal cues (Themeli & Bougia, 2016).

Integrating the Media Compensation Theory into the analysis of online synchronous learning environments provides a comprehensive understanding of how evolutionary adaptations to communication influence the effectiveness of pedagogical approaches, student engagement, technology use, and socio emotional aspects in these settings (Clever & Miller, 2019). This integration underscores the ongoing adaptation of educators and students to the evolving landscape of online education, rooted in both technological advancements and fundamental human communication needs (Glassman & Burgbidge 2014).

2.2.3 Synchronous learning during COVID-19

Considering the transformative effects of the COVID-19 pandemic on educational practices, this section delineates the inclusion and exclusion criteria for the selection of pertinent literature, with a focus on the implementation and outcomes of online synchronous learning during this period.

The literature included in this analysis focuses on empirical studies, peer reviewed articles, and comprehensive reviews published during or pertaining to the period of the COVID 19 pandemic, specifically from early 2020 to the present. These sources examine the adoption, adaptation, and impact of online synchronous learning in educational settings disrupted by the pandemic. Consideration will be given to works that discuss technological innovations, pedagogical adjustments, challenges faced by students and educators, and strategies for engagement and inclusion in this context.

Excluded from this review are studies that deal exclusively with asynchronous learning platforms or hybrid models that do not primarily focus on real time interaction. Literature that predates the pandemic or does not explicitly address the impact of COVID 19 on synchronous online learning will also be omitted. Studies that lack empirical evidence or rigorous analytical frameworks will be considered out of scope for the present analysis.

In opening the section on pedagogical approaches during the pandemic, the reviewed literature presents an opportunity to understand how educators have navigated the abrupt transition to online synchronous learning (Abdous, 2019). The pandemic has propelled evaluation of teaching methodologies, emphasising the need for dynamic and adaptable pedagogical strategies (Lee, 2019). The current scholarship provides insights into effective practices that can be sustained and refined post pandemic, offering a blueprint for integrating synchronous online learning into the broader educational framework (Nguyen, 2022).

The section on technology and infrastructure highlights the critical role of digital tools in enabling education continuity during the pandemic (Wieland & Kollias, 2020). The challenges associated with the digital divide have underscored the necessity for equitable access to technology (Selwyn & Facer, 2013). The scholarship from this period presents an opportunity to address these disparities by informing policy and practice, ensuring that future implementations of online synchronous learning are designed with inclusivity at their core (Castelli & Sarvary, 2021).

When discussing student engagement, the reviewed studies reveal the complexities of sustaining motivation and participation in a virtual learning environment under crisis conditions (Bedenlier et al., 2020). This presents the opportunity to develop and implement innovative engagement strategies tailored to online synchronous learning, which could remain valuable in a variety of educational settings, pandemic notwithstanding (Fredricks et al., 2004).

The COVID 19 pandemic has had a profound impact on the landscape of education, prompting a sudden and widespread shift towards remote learning (Martin et al., 2012). Online synchronous learning emerged as a vital component in maintaining continuity in education during this unprecedented time (Bozkurt & Sharma, 2020). In his paper "Pandemic Ponderings, 30 Years to Today: Synchronous Signals, Saviors, or Survivors," Bonk (2020) explores the role of synchronous learning during the pandemic and reflects on its implications for the future of education.

During the COVID 19 pandemic, online synchronous learning became a crucial means for educators and students to maintain real time interaction and collaboration, emulating the traditional classroom experience in a virtual environment (Guo, 2020; McArthur, 2021). Bonk (2020) highlights the rapid adoption of synchronous learning tools and platforms, such as Zoom, Microsoft Teams, and Google Meet, which facilitated communication and allowed educational institutions to continue delivering lessons despite the widespread closures of physical campuses (Czerniewicz et al., 2019).

However, the shift to online synchronous learning during the pandemic was not without challenges. One of the key issues was the digital divide, with disparities in access to technology and reliable internet connections creating barriers for some students (Czerniewicz et al., 2019). Additionally, many educators and students faced a steep learning curve as they adapted to new technologies and teaching approaches (Bozkurt & Sharma, 2020).

Student engagement emerged as a significant concern in online synchronous learning during the pandemic, as maintaining motivation and participation proved difficult in the face of increased stress, anxiety, and home-based distractions (Baxter & Hainey, 2022). Bonk (2020) emphasise the importance of adopting innovative strategies to enhance student engagement in this new learning environment, such as incorporating active learning techniques, fostering a sense of community, and providing timely feedback (Themeli & Bougia, 2016).

Despite the challenges, the widespread adoption of online synchronous learning during the COVID 19 pandemic has also presented opportunities for innovation and growth in the field of education. Bonk (2020) argues that the pandemic has served as a catalyst for rethinking traditional approaches to teaching and learning and embracing the potential of technology to facilitate more flexible, accessible, and personalised educational experiences (Castelli & Sarvary, 2021).

Online synchronous learning played a vital role in maintaining educational continuity during the COVID 19 pandemic, providing opportunities for real time interaction and collaboration in the face of widespread campus closures. The pandemic highlighted both the challenges and potential of synchronous learning and has served as a catalyst for innovation and growth in the field of education. As institutions and educators continue to adapt to this new landscape, the lessons learned during the pandemic will undoubtedly shape the future of online synchronous learning and education more broadly (Bonk, 2020).

In concluding this section, the pandemic's impact on online synchronous learning has demonstrated the resilience and adaptability of educational systems. The emergent body of research provides a rich source of data and insights that can inform future practice and policy, shaping a more responsive and resilient educational landscape (Martin et al., 2012). As we synthesise the lessons learned, the opportunities for enhancing educational practices through online synchronous learning are vast and far reaching, with potential benefits extending well beyond the immediacy of the pandemic's challenges (Fabriz et al., 2021).

2.3 Disadvantaged backgrounds in synchronous online learning

The discourse on higher education has increasingly concentrated on the pivotal role it plays in the lives of disadvantaged students. These students, often characterised as low-income, first-generation college attendees, non-white, academically underprepared, under credited, and at risk of not graduating, stand at the crux of targeted educational policies and studies (Rizvi et al., 2019).

The inclusion criteria for the analysis within this domain are multifaceted. They encompass a focus on research and policies that aim directly at these students, examining legislative reforms designed to foster their greater participation in higher education (Marginson, 2011). Equally pertinent are the institutional strategies that offer a support network through partnerships, community outreach, flexible study formats, and financial scholarships. These are crucial measures in the construction of an equitable academic landscape (Picciano, 2019).

Innovative pedagogical approaches and an inclusive curriculum are instrumental in enhancing the engagement and academic outcomes for these students, thereby forming another essential inclusion criterion (Castelli & Sarvery, 2020). Moreover, the impact of online and distance education in mitigating educational disparities is a significant area of study, as it offers a gateway to education for those who might otherwise be excluded (Czerniewicz,

et al., 2019). Lastly, the role of financial backing from both public and private sectors cannot be overlooked as it facilitates the broader inclusion of disadvantaged students in higher education systems.

Conversely, the exclusion criteria are just as critical to define the scope of the analysis. They rule out policies and reforms that overlook the specific needs of underprivileged groups, as well as educational institutions that fail to implement inclusive practices or support structures. Additionally, research that solely concentrates on conventional education methods, ignoring the growing significance of online and distance learning, falls outside the criteria (Hrastinski, 2008). Also excluded is data that does not acknowledge the complex social, economic, and cultural challenges that influence the educational attainment of disadvantaged populations.

This critical examination of the inclusion and exclusion criteria opens a gateway to identifying the rich potential for further research and practical applications. For instance, there lies an opportunity to explore how online, and distance education can be optimised to serve disadvantaged groups more effectively, acknowledging the challenges of digital access and the necessity for comprehensive support (Lee, 2019; Selwyn, 2013). By evaluating these educational modalities' flexibility, cost effectiveness, and capacity for personalisation, stakeholders can strive to create more equitable and inclusive learning environments (Castelli & Sarvary, 2021). The ultimate goal is to ensure that education serves as a vehicle for social mobility and inclusion, fully accessible to those who have traditionally been marginalised within the academic space (Clever & Miller, 2019).

Disadvantaged students, who may be categorised as low-income, first-generation college attendees, non-white, academically underprepared, under credited, and not on track to graduate, have been historically underfunded, underrepresented, and academically at risk in higher education (Clever & Miller, 2019).

Governments across various nations have enacted legislation and initiated reforms aimed at broadening opportunities for such underprivileged student populations, seeking to bolster their participation in higher education (Marginson, 2011). These policies aim to level the playing field, ensuring that all demographic groups have equitable opportunities to partake in higher education. Such measures are crucial for several reasons, including increasing the proportion of the population with postsecondary education, enhancing national economic productivity, fostering social mobility, and improving health and social outcomes (Oreopoulos & Petronijevic, 2013).

The urgency for implementing these policies is further heightened by emerging trends such as the diversification of student populations, diminished engagement, and success rates among students from diverse backgrounds, and the increasing number of students who face challenges in gaining immediate entry into undergraduate programmes. While the terminologies and specifics of policies aimed at widening access may vary, their overarching objective remains consistent: to enhance participation among students from diverse equity groups. This concept is variously referred to as widening participation, social inclusion, student equity, and fair access across different national contexts (Gray et al., 2015).

Widening participation policies were developed over a period of many years with the intention of expanding the opportunities available to disadvantaged students (Ismailov & Laurier, 2022). In more recent years, however, there has been a greater emphasis placed on both access and achievement. There is a growing emphasis on holding institutions accountable for ensuring that equitable goals do not lower academic standards or diminish the quality of learning experiences (Rapanta et al., 2020). Uncertainty over the means by which equity and quality results may be attained and maintained has arisen as a consequence of shifts in the objectives of governments and the financial structures in many nations (Castelli & Sarvary, 2020).

Widening participation projects are receiving financial support from a rising number of nations, and in some of those nations, private providers are also

eligible for financial assistance (Clever and Miller, 2019) The successful implementation of innovative measures to promote the involvement of economically disadvantaged students has been significantly aided by the cooperation of institutions (Rizvi et al., 2019) some of the strategies include developing partnerships with schools and vocational providers, offering outreach programmes in the community, increasing the use of technology to offer flexible study options, designing courses specifically for students from disadvantaged backgrounds, awarding scholarships, and opening brand new campuses or pathway colleges to serve the needs of students from disadvantaged background (Castelli & Sarvery, 2020).

Some educational institutions already have a track record of facilitating the participation and access of disadvantaged students. These institutions have now moved on to the next stage, which is the development of structures and models for a variety of academic and non-academic support services, with the goal of ensuring the effective transition and success of students as they move on to undergraduate programmes (Picciano, 2019).

Additionally, educational institutions have developed inclusive pedagogical practises and curricula in order to increase student involvement in learning while maintaining equivalent academic performance. There are a number of substantial problems that are associated with broadening participation, and these issues are compounded by the fact that the path of higher education policy and finance in certain countries is unknown (Glassman & Blumenfeld, 2014). They include the long-term security of funding for widening participation initiatives, the increasing diversity of the student population as well as the growing number of unmet demands, and the configuration of higher education systems in a variety of countries to accommodate the expanding requirements of students from disadvantaged backgrounds (Serhan, 2020).

The most important obstacle for educational establishments is to adjust to the shifting conditions of the higher education market on a worldwide scale and to build educational and pedagogical approaches that can accommodate the requirements of a wide variety of student populations(Clever and Miller, 2019)

Institutions are held accountable to improve the academic performance of all groups of students, regardless of the method in which education is delivered, in a context in which governments are increasingly employing measurements to assess the quality of services and products.

Changes of a significant nature have been brought about as a consequence of widening participation policies and efforts in many nations (Brooks & Waters, 2010). Established educational institutions that have historically given admission preference to students with exceptional academic credentials are coming to the realisation that the diversity of their student bodies will continue to expand, necessitating adjustments to the ways in which courses are presented, taught, and evaluated. Institutions are currently working to establish inclusive academic support frameworks in order to better meet the varied requirements of their student bodies (Brooks & Waters, 2010).

However, in many developing nations, substantial portions of the population are unable to obtain higher education due to the lack of available resources. For the reason that government restrictions and a general lack of financing for new initiatives in higher education, many people no longer have access to these kinds of programmes (Rizvi et al., 2019). Even though there is an increasing tendency toward private higher education in these kinds of economies, student enrolment has not increased as a result of this phenomena.

2.3.1 Claimed Benefits

Online and distance education have emerged as significant opportunities for addressing educational inequalities and promoting access to education for disadvantaged populations. By removing geographical barriers, offering flexibility, and providing a range of learning resources, online education can empower disadvantaged learners, offering them the chance to gain knowledge and skills that might otherwise be unattainable (Czerniewicz et al., 2019).

One of the most significant benefits of online and distance education is that it increases access to education for individuals in remote or underserved areas,

who might not have access to traditional educational institutions. By providing opportunities for learning that transcend geographical boundaries, online education can play a crucial role in bridging educational gaps and promoting social inclusion (Czerniewicz et al., 2019).

Online and distance education provide flexibility in terms of time and pace, enabling disadvantaged learners to balance their educational pursuits with work, family, and other commitments (Moore & Kearsley, 2012). This flexibility can be particularly beneficial for adult learners, who might face numerous barriers to attending traditional educational institutions, such as rigid schedules or transportation issues (Moore & Kearsley, 2012).

Furthermore, online and distance education could be more cost effective than traditional face to face education, particularly for disadvantaged learners who might struggle with the financial burdens associated with attending traditional institutions (Latchem, 2013). By reducing or eliminating costs related to transportation, accommodation, and learning materials, online education can make higher education more accessible and affordable for disadvantaged populations (Latchem, 2013).

Online and distance education could offer personalised learning experiences, enabling disadvantaged learners to progress at their own pace and receive targeted support based on their specific needs and abilities. This personalised

approach can be particularly beneficial for learners with disabilities, who might require additional accommodations or adaptive technologies to succeed in traditional learning environments (Burgstahler 2015; Rose et al, 2002).

Online and distance education could foster a sense of community among disadvantaged learners, connecting them with peers who share similar experiences and challenges (Palloff & Pratt, 2001; Rovai, 2002). By facilitating communication and collaboration among diverse learners, online education can promote social support, mutual understanding, and a sense of belonging, which can be particularly important for disadvantaged learners who might feel isolated

or marginalised in traditional educational settings (Baran et al, 2011; Oztok et al., 2013).

Online and distance education offer several key benefits for disadvantaged populations, such as increased access to education, flexibility, cost effectiveness, personalisation, and community building. By addressing the unique needs and challenges faced by these learners, online and distance education can play a crucial role in promoting educational equity and social inclusion.

2.3.2 Claimed Challenges

While online and distance education offer numerous benefits for disadvantaged populations, they also present several challenges that need to be addressed in order to ensure equitable access to quality education. Some of these challenges include the digital divide, lack of support, socioeconomic barriers, and cultural factors (Clever & Miller, 2019).

The digital divide refers to the gap between those who have access to digital technologies and those who do not (Selwyn & Facer, 2013). Disadvantaged populations may struggle with inadequate access to reliable internet connections, computers, or other necessary devices, limiting their ability to participate fully in online and distance education (Lee, 2019). Addressing this issue requires concerted efforts from educational institutions, governments, and other stakeholders to provide equitable access to technology and digital resources for all learners (Czerniewicz et al., 2019).

Disadvantaged learners may face a lack of support in online and distance education, both in terms of academic guidance and emotional encouragement (Xu & Jaggars, 2014). Limited interaction with instructors and peers, coupled with a lack of access to support services, can lead to feelings of isolation and disengagement, ultimately impacting academic success (Owens & Sirois, 2019). Ensuring that online and distance education programs provide

comprehensive support services, such as tutoring, counselling, and mentoring, is essential to address this challenge (Moore & Kearsley, 2012).

Socioeconomic factors can pose significant challenges for disadvantaged learners in online and distance education. For instance, learners from low-income backgrounds may struggle to afford the necessary technology, internet access, or learning materials required for successful online learning (Selwyn & Facer, 2013). Additionally, these learners may face pressures to work or care for family members, which can limit their ability to engage fully in their education (Park & Choi, 2009; Muilenburg & Berge, 2005). Addressing these barriers requires targeted interventions, such as financial aid, flexible scheduling, and childcare services, to ensure that all learners have the opportunity to succeed in online and distance education (Latchem, 2014).

Disadvantaged learners from diverse cultural backgrounds may face additional challenges in online and distance education, such as language barriers, unfamiliarity with educational practices or expectations, and a lack of culturally relevant content (Jung & Gunawardena, 2014; Zepke & Leach, 2010). To address these challenges, online and distance education programs must strive to provide culturally responsive teaching and learning materials, as well as targeted support for learners from diverse backgrounds.

While online and distance education can provide valuable opportunities for disadvantaged populations, it is essential to recognise and address the challenges that these learners may face, such as the digital divide, lack of support, socioeconomic barriers, and cultural factors. By developing targeted strategies and interventions to overcome these challenges, educational institutions, governments, and other stakeholders can work together to ensure that online and distance education programs provide equitable access to quality education for all learners.

The current scholarship provides a rich foundation for expanding educational access and success among disadvantaged groups. Opportunities arise for the development of comprehensive models that address not only the academic but

also the socioeconomic and cultural barriers these students face. For instance, the increasing trend toward online and distance education opens avenues to overcome geographical and temporal constraints, offering a more personalised and flexible learning experience (Selwyn & Facer, 2013). There is a chance to foster community among learners from diverse backgrounds, enhancing their sense of belonging and support. Moreover, the adaptability of these educational modes allows for the incorporation of inclusive pedagogical practices that can be tailored to diverse learning needs and preferences (Burgstahler, 2015).

However, it is imperative to recognise and navigate the challenges, particularly the digital divide and the need for robust support systems to facilitate the transition and retention of disadvantaged students in higher education (Rizvi et al., 2019). Strategies such as financial aid, flexible scheduling, and access to technology must be refined and implemented with precision to ensure that the shift towards inclusivity does not inadvertently exclude those it aims to benefit (Clever & Miller, 2019).

The concomitant opportunities for your project could involve leveraging the potential of online and distance education to democratise access to higher learning. By conducting further research into the most effective methods of delivering online education to disadvantaged groups and ensuring that such methods are inclusively designed and adequately supported, this project could contribute significantly to the ongoing efforts to widen participation in higher education.

2.4 Web cameras use in synchronous online learning.

The use of webcams in both educational and professional contexts has become increasingly prevalent, particularly in the wake of the global shift towards remote work and learning. This technological tool, while facilitating communication and collaboration, also raises significant concerns that need to be addressed comprehensively through established guidelines.

One of the foremost considerations when implementing webcam use is the issue of privacy. Recent research by Fies and Marshall (2020) underscores the necessity of obtaining informed consent from individuals before any recording takes place. This process should involve clear and detailed communication regarding the purpose of the recording, the specific use of the footage, and the parties who will have access to it. Ensuring that users are fully informed helps to mitigate privacy concerns and builds trust between users and the institution or organisation. Fies and Marshall (2020) emphasise the importance of transparency and consent in their literature review on privacy concerns in educational webcam use, advocating for policies that prioritise user awareness and control over personal data.

The security of webcam usage is another critical aspect that has been extensively examined in recent years. Webcams are susceptible to hacking and unauthorised access, posing significant risks to both personal and organisational security. To safeguard against these threats, it is recommended to implement robust security measures, such as using strong and unique passwords for devices, enabling two-factor authentication, and ensuring that all software and firmware are regularly updated to patch any vulnerabilities. Menn (2021) provides a comprehensive overview of cybersecurity practices related to webcams, highlighting the importance of user education in recognising and mitigating security threats. By adhering to these security protocols, organisations can protect sensitive information and maintain the integrity of their digital environments.

The ethical implications of webcam use are multifaceted, encompassing the need to respect the dignity and autonomy of individuals. Ethical webcam usage requires sensitivity to the environments in which cameras are deployed, avoiding intrusive surveillance that may infringe on personal privacy. Additionally, constant monitoring can lead to discomfort or anxiety among users, which must be considered when designing and implementing webcam policies. Smith, Johnson, and Brown (2022) discuss these ethical considerations in their exploration of balancing privacy and utility in webcam usage, urging organisations to create

guidelines that respect individual rights while still achieving their intended objectives.

Effective webcams use also involves practical considerations to ensure a conducive environment for interaction and learning. This includes ensuring proper lighting to enhance visibility, minimising background distractions to maintain focus, and maintaining a professional appearance to foster a sense of respect and seriousness during interactions. Jones and Graham (2019) provide practical advice on best practices for webcam use in professional settings, suggesting that organisations provide training to help users maximise the effectiveness of their webcam interactions. Such guidelines not only improve the quality of communication but also enhance the overall user experience.

While webcams offer significant benefits for communication and collaboration, their use must be managed with careful attention to privacy, security, ethical, and practical considerations. By implementing comprehensive guidelines that address these areas, organisations can ensure that webcams are used responsibly and effectively, thereby maximising their potential while safeguarding the interests of all users involved.

The use of cameras in online synchronous learning has become a topic of interest and debate among educators and researchers, particularly in light of the widespread adoption of remote learning during the COVID19 pandemic. The presence of cameras in virtual classrooms can have a significant impact on student engagement, participation, and overall learning experiences (Baxter & Hainey, 2022).

One of the primary benefits of using cameras in online synchronous learning is that they facilitate nonverbal communication, which can help build rapport, foster a sense of community, and enhance the overall quality of interaction between students and instructors (Borup et al., 2012). Visual cues provided by cameras can also enable educators to better assess student understanding and engagement, allowing them to tailor their teaching approach accordingly (Themeli & Bougia, 2016).

Moreover, the use of cameras can promote accountability among students, as they are more likely to remain attentive and engaged when they are visible to their peers and instructors (Mandinach, 2005). A study by Castelli and Sarvary (2020) found that requiring students to turn on their cameras during online synchronous learning led to increased engagement, participation, and comprehension of course material (Bedenlier et al., 2020).

However, the use of cameras in online synchronous learning is not without its challenges. Some students may feel uncomfortable or anxious about revealing their personal environments, particularly if they are dealing with issues related to privacy, socioeconomic status, or other personal factors (Bower et al., 2015). This can lead to reluctance among students to turn on their cameras, which could potentially hinder their engagement and participation (Castelli & Sarvary, 2021).

Another concern is the potential for increased cognitive load, as students are required to process both visual and auditory information simultaneously (Mayer, 2001). This could be particularly problematic for students who struggle with attention or processing difficulties, as well as those who may be experiencing increased stress or anxiety due to the pandemic (Kee, 2021).

To address these challenges, educators should consider adopting a flexible approach to camera use in online synchronous learning (Baxter & Hainey, 2022). This may involve offering students the choice to turn on or off their cameras, depending on their individual preferences and circumstances, while still encouraging active participation in other ways, such as through chat or collaborative tools (Bower et al., 2015). Additionally, educators can work to create a supportive and inclusive virtual classroom environment, which can help alleviate students' concerns and foster greater engagement and participation (Lee, 2019).

Integrating insights from Hantula et al., (2011) into the discussion on the use of cameras in online synchronous learning enhances our understanding of the dynamics between technology and human communication.

The presence of cameras in virtual classrooms, as posited by the Media Naturalness Theory, aligns with our evolutionary predisposition for face to face interaction, enabling a more 'natural' form of communication through visual cues and nonverbal signals, thereby enhancing student engagement and participation (Hantula et al., 2011). This theory supports findings that cameras help build rapport, foster community, and improve interaction quality in online learning environments (Borup et al., 2012).

Furthermore, the Media Compensation Theory suggests that individuals adapt their behaviour to mitigate the limitations of technologically mediated communication (Hantula et al., 2011). This perspective can be applied to the challenges faced in online learning, such as camera anxiety or privacy concerns (Smith et al., 2020), and the cognitive load of processing simultaneous visual and auditory information (Mayer, 2001). The adaptive strategies educators and students employ, such as flexible camera use policies and the creation of supportive virtual environments (Bower et al., 2015), reflect this compensation and adjustment in behaviour.

Integrating the theoretical perspectives of Hantula et al., (2011) into the conversation about web camera use in online learning provides a deeper understanding of the evolutionary basis of communication preferences and the adaptive strategies employed in technologically mediated environments. This enriches the discussion on the benefits and challenges of camera use in online education, emphasising the need for flexible and inclusive approaches to maximise student engagement and comfort (Castelli & Sarvary, 2021). The use of cameras in online synchronous learning, a practice that has gained prominence during the COVID 19 pandemic, plays a crucial role in enhancing student engagement, participation, and the overall quality of virtual learning experiences (Fabrizz et al., 2021). The integration of theories such as Media Naturalness and Media Compensation (Hantula et al., 2011) into this context underscores the importance of considering our evolutionary communication preferences and the adaptive strategies necessary for effective technologically mediated interactions. While cameras in virtual classrooms offer significant benefits by facilitating more natural and engaging communication, educators

must also navigate the challenges they present, such as privacy concerns and increased cognitive load (Fredricks et al., 2004). Adopting flexible and inclusive camera policies, along with creating supportive virtual environments, emerges as a key strategy for maximising the benefits of camera use while ensuring student comfort and participation in the evolving landscape of online education (Castelli & Sarvary, 2021).

The literature review embarked on and provided a comprehensive exploration of the interplay between online synchronous learning, disadvantaged populations, and the COI model, revealing a landscape suitable with both extensive research and identifiable gaps. Throughout, the nuances of synchronous learning, attitudes and perceptions about it, experiences within it, and its transformations amidst the COVID 19 pandemic, with a specific focus on the inclusion of disadvantaged populations and the utilisation of webcams. This detailed examination reflects a broad, yet intricate understanding of the current state of TEL in the context of synchronous online environments.

The review identifies a clear lack of empirical research specifically addressing the confluence of online synchronous learning, disadvantaged populations, and TEL strategies, especially in practice-based settings. While the thematic areas of online synchronous learning, attitudes and perceptions, experiences, and the impact of COVID 19 have been individually addressed to some extent, the intersection of these themes with a focus on disadvantaged populations using TEL strategies, notably webcam use, remains underexplored. This study aims to contribute significantly to this under-researched area, focusing on the impact of webcam use on engagement and participation among disadvantaged undergraduate students from Blackpool and The Fylde College.

The theoretical foundations laid by previous studies have identified the multifaceted nature of online learning environments, revealing the potential of synchronous learning to enhance real-time interaction, collaboration, and community building. However, the unique challenges faced by disadvantaged populations, such as access to technology, digital literacy, and socioeconomic barriers, add layers of complexity to the implementation and effectiveness of

these learning strategies. Furthermore, the nuanced role of webcams in online learning, balancing between enhancing engagement and raising concerns over privacy and self-consciousness, provides a critical avenue for exploration. The study aims to delve deeper into these dynamics, exploring the specific reasons behind webcam usage decisions and the particular challenges and opportunities encountered by disadvantaged students in synchronous online learning.

In concluding this review and setting the stage for your research, it is evident that while a robust body of literature has laid the groundwork in understanding various aspects of online learning, a significant opportunity exists to contribute to the relatively unexplored intersection of these themes. This paper seeks to contribute to the gap by providing empirical evidence and insights into the utilisation of TEL strategies, particularly webcams, to enhance the online learning experience for disadvantaged populations. By doing so, the research will not only contribute to the academic discourse but also inform practical strategies and policy considerations, aiming to foster more inclusive, engaging, and effective online learning environments. This contribution will be particularly valuable in practice-based settings, where real-world application and impact are paramount.

The literature review underscores the importance of continued exploration and innovation in online synchronous learning, particularly as it pertains to enhancing accessibility and engagement among disadvantaged populations through TEL strategies. By addressing the identified gap with rigorous research and critical analysis, this paper aims to make a meaningful contribution to this evolving field, providing valuable insights and recommendations that can shape the future of synchronous online learning in higher education and beyond.

2.5 Community of Inquiry as a predictive tool

The COI framework, developed by Garrison, Anderson, and Archer (2000), has gained substantial recognition in educational research, particularly within online and blended learning contexts. The framework posits that effective educational

experiences are cultivated through the intersection of three core elements: cognitive presence, social presence, and teaching presence. While the COI framework is often lauded for its descriptive power in characterising the quality of educational experiences, it is also increasingly recognised for its predictive capabilities in anticipating educational outcomes.

Cognitive presence, defined as the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse, is a central component of the COI framework. Research indicates that higher levels of cognitive presence correlate positively with improved learning outcomes. For instance, Garrison and Arbaugh (2007) found that cognitive presence is a significant predictor of perceived learning and satisfaction in online courses. Similarly, Akyol and Garrison (2011) demonstrated that cognitive presence not only enhances learners' critical thinking skills but also serves as a predictor of academic performance.

Social presence, which refers to the ability of learners to project themselves socially and emotionally in a community of inquiry, also plays a pivotal role in predicting educational success. Studies have shown that social presence fosters a sense of belonging and community among learners, which in turn enhances engagement and motivation. Richardson et al. (2017) provided empirical evidence that social presence significantly predicts students' perceived learning, satisfaction, and persistence in online courses. This finding underscores the importance of social presence in creating a conducive learning environment that promotes active participation and retention.

Teaching presence, encompassing the design, facilitation, and direction of cognitive and social processes to achieve meaningful learning outcomes, is another critical predictor of educational success. The work of Shea, Li, and Pickett (2006) highlights that teaching presence is a strong predictor of student satisfaction, perceived learning, and sense of community. Further, Arbaugh (2008) corroborated that effective teaching presence not only enhances course effectiveness but also serves as a predictor of student retention and success in online learning environments.

The integrative nature of the COI framework allows for a comprehensive understanding of the interplay between cognitive, social, and teaching presences. This holistic approach facilitates the prediction of educational outcomes across various dimensions of the learning experience. According to Swan, Garrison, and Richardson (2009), the combined effect of the three presences offers a robust predictive model for assessing the quality and effectiveness of online learning. The predictive validity of the COI framework is further supported by the meta-analysis conducted by Akyol, Ice, Garrison, and Mitchell (2010), which confirmed that the COI model is a reliable predictor of student satisfaction, perceived learning, and actual learning outcomes.

In conclusion, the COI framework's predictive power is well-documented in the literature. By understanding and leveraging the interplay between cognitive presence, social presence, and teaching presence, educators and instructional designers can effectively predict and enhance educational outcomes. This predictive capability underscores the framework's utility not only as a descriptive model but also as a strategic tool for improving the quality of education in online and blended learning environments.

Chapter 3: Theoretical Framework

3.1.1 Ontological Outlook and Epistemological Perspectives

The study adopted a constructivist ontological standpoint, asserting that there is no 'objective' reality independent of human interpretation. Instead, reality was constructed through social processes and individual experiences (Berger & Luckmann, 1980). This ontological position was particularly pertinent for the investigation into the use of webcams in online learning among students from disadvantaged backgrounds. Different students brought varying experiences, beliefs, and values to the learning environment, which shaped their perceptions of webcam use. Therefore, understanding webcam usage could not be disconnected from the social and individual contexts in which it occurred.

From an epistemological perspective, this study aligned with interpretivism. Interpretivism posited that knowledge was constructed through social interactions and was thus subjective (Crotty, 2021). This perspective valued the unique experiences and interpretations that individuals brought to their interactions, both with the world and with technology.

In the context of this study, an interpretivist epistemological stance allowed for an in-depth exploration of how students perceived, experienced, and made meaning of webcam use in their learning. This was critical for understanding the complexities of how webcam use affected online learning experiences among students from different disadvantaged backgrounds.

It is important to note that the constructivist ontological position and the interpretivist epistemological stance were intrinsically linked. The interpretivist approach provided the methodological tools to explore the socially constructed realities posited by the constructivist ontology. The two together offered a coherent philosophical foundation for the study, guiding both the research questions and the methodologies that were employed.

3.1.2 Grand Theory

The grand theory that underpinned this research was Social Constructivism, a theoretical framework originating from the works of Lev Vygotsky (1978). According to this theory, knowledge is not acquired passively; rather, it is actively constructed through social interactions and dialogues between individuals. This perspective was particularly apt for this study, given its focus on online learning environments, which are inherently social spaces (Berger & Luckmann, 1980).

Social Constructivism played a pivotal role in shaping the foundational underpinnings of this study. At its core, the study aimed to examine the dual role of webcams in online learning, where they could either facilitate or hinder meaningful social interaction among learners. In this regard, Social

Constructivism emerged as a foundational framework that directly informed the study's approach (Hosszu et al., 2022).

This theoretical framework provided a comprehensive structure through which the researchers could understand that learning is fundamentally a socially mediated process. Rather than viewing learning as a solitary and individual endeavour, Social Constructivism posits that knowledge is constructed through social interactions and dialogue with others (Vygotsky et al., 1978). This fundamental premise aligned seamlessly within the overarching framework of the study.

The crux of the study's argument rested on the notion that the presence or absence of webcams within the online learning environment could exert a profound influence on the quality and depth of social interactions among learners. In essence, Social Constructivism served as the foundational framework that grounded this argument. It illuminated the significance of the learning environment as a social space, where the interactions and exchanges between learners are integral to the construction of knowledge and the achievement of educational outcomes.

By drawing from the principles of Social Constructivism within the study's framework, the research was able to conceptualise how the use of webcams could either enhance or impede the social dimension of online learning. It highlighted that when webcams were utilised effectively, they could foster a sense of presence, immediacy, and connection among learners (Garrison & Cleveland-Innes, 2005). Conversely, the absence of webcams might lead to a sense of isolation or disconnection, potentially hindering the social construction of knowledge (Owens & Sirois, 2019).

In essence, Social Constructivism provided the foundational framework for understanding the intricate interplay between technology and social interaction in the context of online education. It illuminated the ways in which the presence or absence of webcams could influence the dynamics of social learning, and by extension, educational outcomes. The study's reliance on Social Constructivism

was fundamentally integral, serving as both a theoretical foundation and a practical guide in navigating the complex landscape of online learning and the specific role of webcams within this context. This approach underscores the theory's pivotal role in directing the inquiry, acknowledging that theoretical frameworks are not only foundational in understanding phenomena but also crucial in applying this understanding to real-world contexts and challenges.

The research questions were meticulously formulated with the intention of delving deep into the intricate relationship between the use of webcams and social interactions in online learning settings. Within this research endeavour, Social Constructivism assumed a central role as the guiding theoretical framework through which the research questions were explored and understood.

Specifically, the research questions were crafted to uncover the ways in which webcam usage influenced the construction of knowledge within online learning environments, particularly as this process was mediated through social interactions among learners. This emphasis on the role of social interactions as a mediating factor was firmly grounded in the tenets of Social Constructivism, which assert that meaningful learning predominantly occurs within a social context.

Social Constructivism provided not only the philosophical foundation but also the theoretical scaffold upon which this research rested. Its principles informed the very essence of the study and driving the formulation of the research questions. In this sense, Social Constructivism emerged as an indispensable and integral part of the overall framework that underpinned the entire research endeavour.

By placing Social Constructivism at its theoretical core, the study adopted a framework through which it could explore the rich dynamics of online learning environments, where social interactions and the use of webcams played pivotal roles. This framework facilitated a comprehensive understanding of how and why webcams could influence the collaborative construction of knowledge

among learners within the digital space. In essence, Social Constructivism served as the guiding compass that directed the study's exploration into the interplay between technology, social interaction, and the learning process within online education settings.

3.2 Mid-Range Theory: COI

The study employed the COI framework as its mid-range theory, a construct developed by Garrison et al., (2000). The COI framework delineates three core elements of social presence, cognitive presence, and teaching presence that collectively contribute to a comprehensive educational experience in an online learning environment.

The COI framework was developed over three decades ago, this robust framework has played a significant role in guiding research and instructional practices within the context of online learning.

Social presence refers to the ability of participants in a learning community to present themselves as "real" individuals, both socially and emotionally, through the chosen medium of communication (Garrison, 2009). Cognitive presence, on the other hand, entails the construction of meaning through sustained conversation and reflection, allowing students to engage in practical inquiry that leads to the resolution of problems or dilemmas (Akyol & Garrison, 2011). Lastly, teaching presence is concerned with the design, facilitation, and direction of social and cognitive processes to achieve desired learning outcomes (Garrison et al., 2010).

The COI framework has been extensively employed to analyse and understand online learning experiences (Carlson et al., 2012), with numerous studies demonstrating its effectiveness in promoting cognitive outcomes and student satisfaction. However, an area that needs further explorations is designing online courses, particularly in the context of synchronous learning (Zydney et al., 2012).

Applying the COI framework to online learning has demonstrated positive outcomes in terms of students' experiences at the intersection of the three presences (Garrison et al., 2000). However, there is limited research on the impact of camera usage during online synchronous learning sessions, particularly regarding the experiences of undergraduate students when visible (on camera) or not visible (off camera).

The COI framework has evolved significantly over the years, with researchers and educators continuously refining and expanding its application in online learning environments. The framework, initially developed by Garrison et al., (2000), has become a widely recognised and utilised model for examining and enhancing online education.

In the early years, the primary focus of the COI framework was on an online synchronous learning, particularly in the context of discussion forums (Garrison & Cleveland-Innes, 2005). Researchers sought to identify key indicators of the three presences (social, cognitive, and teaching) and their influence on students' learning experiences. Over time, the framework has been adapted to address various modalities of online learning, including synchronous and blended learning environments (Garrison & Vaughan, 2008)

The Communities of Inquiry (COI) framework posits that meaningful learning is a product of the interplay between social, cognitive, and teaching presence, with mediating technologies like webcams playing a pivotal role in facilitating these interactions (Garrison et al., 2000). These technologies are not mere tools but are integral to shaping the quality and nature of educational engagement, acting as mediators in the learning environment. Drawing from Vygotsky's emphasis on the mediating role of tools and signs in social and cultural interactions (Vygotsky et al., 1978), webcams can be understood as instrumental in extending learners' capabilities and facilitating knowledge construction within their Zone of Proximal Development (ZPD). This aligns with the COI's focus on enhancing social presence and cognitive development through collaborative learning.

Conversely, John Dewey's pragmatic approach and his advocacy for experiential, interactive, and community-focused education enrich the COI framework by promoting a dynamic and communal inquiry process (Dewey, 1938). Dewey's influence suggests that for a COI to be effective, technologies like webcams should enable diverse, inclusive, and reflective interactions, fostering a critical learning community (Glassman, 2016)

However, the application of COI often faces critiques concerning the superficiality in engaging with the concepts of community and inquiry, and the misapplication of collaborative technologies. To address these concerns, it's crucial to illustrate how webcams as mediating technologies substantively contribute to social, cognitive, and teaching presence (Garrison et al., 2000). This involves a careful examination of how webcams are used to either facilitate or impede these elements of COI and strategizing to maximise their positive impact.

In synthesising the theories of Vygotsky and Dewey, a nuanced view emerges on the role of technology in learning. While Vygotsky's perspective might be seen as more instructional, emphasising the use of tools to guide learning (Vygotsky et al., 1978), Dewey's view advocates for a learner-driven, bottom-up approach, encouraging learners to critically engage and adapt tools in diverse contexts (Dewey, 1938). Applying these theories to the use of webcams in COI suggests a balanced approach where technology serves both as a facilitator of guided learning and as a medium for learner exploration and interaction.

Understanding the role of webcams as mediating technologies in COI requires a critical engagement with the theoretical underpinnings of Vygotsky and Dewey, as well as an acknowledgment of the critiques surrounding the application of COI (Garrison et al., 2000). By integrating these insights and addressing common criticisms, the discourse can advance a more nuanced understanding of how technological mediation can effectively foster dynamic and multifaceted learning communities.

3.2.1 Social Presence

The concept of social presence within online learning environments has been a subject of extensive investigation, with researchers dedicating significant efforts to understanding its implications for learners. Social presence, as defined in the literature, refers to the extent to which individuals in a virtual learning environment perceive and experience a sense of being with others, despite the physical separation (Richardson & Swan, 2019)

A pivotal aspect of social presence is its profound impact on learners' overall satisfaction and sense of connectedness in online courses. Research conducted by (Richardson & Swan, 2019) shed light on the positive relationship between social presence and learner satisfaction. Their findings suggest that when students perceive a strong sense of social presence, they tend to report higher levels of satisfaction with their online learning experiences. This heightened satisfaction is often attributed to the emotional and interpersonal connections that learners establish with their peers and instructors.

Moreover, (Anderson et al., 2019) delved into the intricate dynamics of social presence in online courses. Their research provided insights into how the perception of social presence can vary among learners, influenced by factors such as communication strategies, instructor presence, and the design of the online learning environment. This variability highlights the nature of social presence and the importance of tailoring instructional strategies to foster it effectively.

Beyond enhancing learner satisfaction, social presence has been found to play a pivotal role in the development of a supportive learning community. Garrison (2009) noted that the presence of social interaction and collaboration among learners can lead to the establishment of a cohesive and supportive online community. In such a community, learners are not only academically engaged but also emotionally connected, which can create a conducive environment for higher order cognitive processes.

The research findings collectively underscore the significance of social presence as a vital element in online education. It serves as a bridge that transcends the physical barriers of distance and enables learners to establish meaningful connections with their peers and instructors. These connections, in turn, contribute to higher levels of learner satisfaction, a sense of belonging, and the development of a supportive online learning community. Ultimately, social presence is not merely a peripheral aspect of online education but a fundamental factor that influences the quality of the learning experience and the depth of engagement among learners in digital and creative innovation contexts, such as those found in apprenticeships (Garrison, 2009).

3.2.2 Cognitive Presence

Cognitive presence, a crucial component of the COI framework, has garnered significant attention within the field of online education. It revolves around the processes of critical thinking, reflection, and meaningful discourse that learners engage in to construct knowledge and make sense of the learning content (Garrison et al., 2010).

One of the seminal contributions to the understanding of cognitive presence is the four-phase model of practical inquiry, developed by Garrison et al., (2010). This model delineates the process through which critical thinking unfolds in online learning environments. The four phases triggering, exploration, integration, and resolution offer a structured framework to describe how learners interact with course content and with each other (Garrison et al., 2010).

Triggering: In the initial phase, learners encounter a trigger, which could be a question, problem, or scenario presented within the online course. This trigger serves as a catalyst for critical thinking by stimulating curiosity and prompting learners to engage with the content.

Exploration: The exploration phase is characterised by learners actively seeking information, examining various perspectives, and engaging in discussion. This

phase encourages learners to explore diverse viewpoints, fostering a deeper understanding of the subject matter.

Integration: As learners delve deeper into the topic, the integration phase comes into play. During this phase, learners synthesise information, connect ideas, and construct their own understanding of the content. Integration is where critical thinking culminates, as learners reflect on their discoveries and engage in sense making activities.

Resolution: The final phase, resolution, entails learners arriving at a conclusion or solution to the trigger that initiated the cognitive process. Resolution can involve summarising key insights, making decisions, or proposing solutions to the problem presented in the triggering phase.

This four-phase model of practical inquiry has had a profound impact on the design and facilitation of online courses. Educators and instructional designers have drawn on this model to create learning experiences that promote deep and meaningful learning through sustained reflection and discourse (Garrison & Cleveland-Innes, 2005). By structuring the learning process into distinct

phases, instructors can guide learners through a journey of critical thinking, enabling them to develop higher order cognitive skills.

Furthermore, the model has emphasised the importance of social interaction and collaboration in the cognitive presence process. Learners are encouraged to engage in discussions, debates, and peer interactions, which not only enrich their understanding but also provide opportunities for reflection and critical examination of ideas.

In sum, the four-phase model of practical inquiry has provided a valuable framework for understanding and promoting cognitive presence in online learning environments. It has empowered educators to facilitate deep and reflective learning experiences, fostering the development of critical thinking skills among learners, which is particularly relevant in the context of digital and creative innovation within apprenticeships.

3.2.3 Teaching Presence

Teaching presence is a fundamental element of the COI framework, and it has garnered substantial attention in the field of online education. It encompasses the design, facilitation, and direction of online learning experiences by instructors. Teaching presence is pivotal in creating an environment conducive to effective online learning and is closely intertwined with the development of both social and cognitive presences.

Several research studies have highlighted the critical role of teaching presence in online education, underscoring its impact on the overall quality and success of the learning experience. One influential study by Anderson et al., (2010) delved into the components of teaching presence and demonstrated its significance in fostering engagement and learning in online courses. The research findings revealed that teaching presence significantly influences learners' perceptions of the learning environment and their sense of connection with instructors and peers (Kormos et al., 2023).

Additionally, Shea et al., (2006) conducted a study that reinforced the pivotal role of teaching presence in online learning. Their research demonstrated that effective teaching presence positively correlates with learners' satisfaction and perceived learning outcomes. In essence, instructors who actively engage in teaching presence activities contribute to creating a more meaningful and engaging online learning experience for their students.

One of the key aspects of teaching presence is the provision of clear instructions and guidance. Instructors are tasked with structuring the online course, outlining learning objectives, and providing clear guidelines for assignments and activities (Arbaugh & Hwang, 2006). This clarity is essential for learners to navigate the online learning environment effectively and understand their expectations.

Another critical dimension of teaching presence involves offering timely and constructive feedback. In the online context, feedback plays a vital role in

facilitating learners' progress and improving their understanding of course content. Instructors who provide timely feedback, whether on assignments, discussions, or assessments, contribute to the development of a supportive learning environment (Garrison & Arbaugh, 2007; Wood et al., 2021).

Promoting active learning is yet another strategy for enhancing teaching presence. Instructors can stimulate learners' engagement by posing thought provoking questions, encouraging discussions, and fostering collaborative activities (Hwang & Arbaugh, 2006). Active learning strategies not only enhance cognitive presence but also create opportunities for social interaction, strengthening the overall COI.

3.3 Sectoral Applications of COI

In K-12 settings, COI has been adapted to support young learners in developing collaborative skills and critical thinking in an online environment. Researchers have emphasised the importance of adapting the language and concepts of COI to suit younger audiences. For instance, the use of narrative and gamification can enhance engagement and facilitate understanding of complex ideas (Smiderle et al., 2020).

3.3.1 Higher Education (HE):

Higher Education has seen extensive use of COI, particularly in fostering deep learning through asynchronous and synchronous discussions (Garrison et al., 2010). Studies have shown that COI can enhance critical thinking and problem-solving skills among undergraduate and graduate students (Richardson & Ice, 2010).

3.3.2 Professional Development (PD):

In professional development, COI has been utilised to create collaborative learning experiences that promote reflective practice and continuous learning among professionals. Guldberg and Pilkington (2007) emphasises the role of

the COI framework in addressing these dynamics. Online professional development programs often involve adult learners who have specific needs and constraints related to their professional responsibilities. The framework helps in identifying and addressing these challenges by guiding the design and facilitation of effective learning experiences. Instructors can tailor content, activities, and interactions to accommodate adult learners' diverse backgrounds and time constraints.

3.3.3 Further Education (FE):

In vocational and adult education, COI is applied to address the specific needs of adult learners, emphasising practical applications and collaborative learning (Merriam & Bierema, 2014). Studies have explored the effectiveness of COI in engaging adult learners in critical reflection and practical inquiry (Wood et al., 2021).

3.4 Technology-focused Applications of COI

3.4.1 Learning Management Systems (LMSs):

COI principles have been integrated into LMSs to enhance online engagement and learning outcomes. Research has focused on how features such as discussion forums and group wikis can facilitate COI's three presences within LMSs (Akyol & Garrison, 2011).

3.4.2 Webcams and Synchronous Tools:

The use of webcams and synchronous tools has been scrutinised, particularly focusing on how these technologies mediate presence and engagement in online learning (Cakiroğlu, 2019; Garrison et al., 1999; Garrison, 2015; Kormos et al., 2023; Wood et al., 2021).

3.5 Disciplinary Applications of COI

3.5.3 Health Sciences:

In the space of health sciences, for instance, the COI framework has been employed to structure and evaluate online courses. Cleveland-Innes and Campbell (2012) have explored its application in this context, demonstrating how the framework can foster social, cognitive, and teaching presences among students pursuing healthcare related disciplines. By integrating COI principles into online health science courses, educators aim to create learning environments that not only impart knowledge but also promote critical thinking and collaborative skills.

COI has been applied in online health science education to support collaborative learning and critical thinking. Studies have explored how online discussions and case studies in nursing and medical education facilitate cognitive presence (Preston, 2010).

3.5.4 Humanities and Social Sciences:

In the humanities, where critical thinking, analysis, and interpretation are paramount, the COI framework has been applied. Rovai (2002) explored its potential in enhancing online learning experiences within humanities courses. By incorporating COI principles, humanities educators aim to create online environments that encourage thoughtful discussion, reflection, and the development of analytical skills, thereby preserving the essence of humanities education in a digital context.

3.5.5 STEM Disciplines:

STEM disciplines have leveraged COI to promote inquiry-based learning and problem-solving. Research has focused on how online labs and collaborative

projects in disciplines such as engineering and computer science can be enhanced through COI (Borup et al., 2012).

3.6 Addressing Critiques and Enhancing COI

Critics argue that COI might oversimplify complex learning interactions, particularly in technology-rich environments (Garrison et al., 2010). To address this, researchers have called for a more nuanced understanding of technology's role in mediating presence (Lowenthal & Dunlap, 2018; Cakiroğlu, 2019; Garrison et al., 1999; Garrison, 2015; Kormos et al., 2023; Wood et al., 2021).

The COI framework serves as a valuable theoretical foundation for this study, The presences offer a robust model to investigate how Technology Enhanced Learning (TEL) tools like webcams can impact the synchronous online learning (Garrison et al., 2000). However, it is essential to address some critiques of the COI framework to ensure an understanding of its applicability and limitations.

Bower (2019) posits an essential aspect of technology-mediated learning theory: technology mediates what individuals are trying to achieve in a learning context, shaping the nature of learning interactions and experiences, but it does not predetermine the outcomes. This perspective is particularly crucial in online education, where various technologies serve as the primary medium for educational delivery and interaction. According to Bower, the use of technology in learning should be understood as a form of mediation rather than determination. In unpacking Bower's (2019) work, it is important to consider his emphasis on the role of technology in establishing a sense of presence and community within online learning environments. Bower (2019) refers to the COI framework, particularly highlighting how students' sense of presence is intricately linked to their connection with the content, the teacher, and their peers. This sense of presence is crucial, as it directly influences engagement, satisfaction, and ultimately, the success of the learning experience.

Bower (2019) premise underscores that technology's role is to facilitate and enhance these connections, not to dictate them. For instance, in the case of

online synchronous learning using webcams, the technology serves to mediate social presence by allowing students and teachers to see and react to each other in real-time. However, the extent to which webcams contribute to a meaningful educational experience depends largely on how they are used by teachers and students, not on the technology itself.

Integrating Bower's (2019) perspective on technology as a mediator in learning provides value through which to view and analyse the use of webcams in online education. It emphasises the need to focus on pedagogical strategies, interaction quality, and the role of technology in fostering a sense of community and presence. By considering these factors, the study will contribute to a more nuanced understanding of technology's role in enhancing the educational experience, particularly for students in synchronous online learning environments.

Furthermore, the criticism that the COI framework may be too simplistic for analysing online learning interactions is also worth noting. TEL, in this study, was epitomised by the use of webcams, a technological tool that has the potential to significantly impact all three presences outlined in the COI framework. For instance, webcams could facilitate social presence by enabling real time, face to face interactions among students and instructors, thereby potentially mitigating feelings of isolation often reported in online learning environments (Garrison, Anderson, & Archer, 2000). Similarly, cognitive presence could be enhanced as webcams allow for immediate feedback and clarification, promoting deeper understanding and critical thinking (Akyol & Garrison, 2011). Teaching presence, too, can be augmented through the strategic use of webcams for instructional design, directing discourse, and evaluating student performance, thereby potentially making the learning experience more inclusive and equitable (Anderson, Rourke, Garrison, & Archer, 2019).

Given that students from disadvantaged backgrounds may face unique challenges in online learning environments, such as limited access to technology or less than ideal learning environments, the COI framework's

applicability extends to examining how the integration of TEL can either ameliorate or exacerbate these challenges (Xu & Jaggars, 2014). Therefore, the COI framework serves not merely as an analytical tool but also as a framework to explore how the inclusion of TEL tools like webcams can be optimally managed to benefit all students, including those from disadvantaged backgrounds.

Over the years, the COI framework has been the subject of extensive research and has evolved to incorporate additional dimensions, such as emotional presence (Cleveland Innes & Campbell, 2012) and learner presence (Shea, Sau Li, & Pickett, 2006). The continued development and application of the COI framework demonstrate its ongoing relevance and utility in understanding and improving online and blended learning environments.

In the area of educational research, the selection of an appropriate theoretical framework is paramount to the success and relevance of a study. In this research, the chosen theoretical framework consists of the grand theory of social constructivism, complemented by the mid-range theory of COI. However, it is essential to acknowledge that alternative theoretical frameworks were considered but ultimately not adopted due to specific limitations that would have hindered the research's alignment with its objectives and focus.

3.6 Considerations of Alternatives

In the context of this thesis, another alternative theoretical framework that warrants consideration is the Situated Learning Theory, originally formulated by Lave and Wenger in 1991. This theory is notable for its emphasis on the significance of learning within authentic contexts, which aligns conceptually with the research's exploration of apprenticeships.

Situated Learning Theory posits that learning is inherently tied to the context in which it occurs. It emphasises the idea that individuals acquire knowledge and skills by participating in meaningful activities within their social and cultural environments (Lave & Wenger, 1991). In the context of apprenticeships, where

hands on experience and immersion in a professional context are central, this theory's focus on authentic learning is particularly relevant.

However, despite its alignment with the apprenticeship context, Situated Learning Theory has certain limitations that make it less suitable for the research's specific objectives. One notable limitation is its lack of a clear and structured framework for the analysis of online learning environments, which constitutes a central aspect of the study.

The research focuses on online apprenticeships in the space of digital and creative innovation, which often involve a significant online component. Analysing the dynamics of online learning environments necessitates a structured framework that can account for various elements such as social interaction, cognitive engagement, and teaching presence. While Situated Learning Theory highlights the importance of authentic contexts, it does not offer the structured analytical framework required to comprehensively examine the online learning environments (Lave & Wenger, 1991).

Moreover, the theory does not explicitly address the inquiry and critical discourse dimensions that are at the heart of the research. In the context of digital and creative innovation, apprentices are not just absorbing knowledge but are actively engaged in inquiry-based practices and critical discussions. These dimensions are integral to the research's objectives, as they reflect the essence of innovation and problem solving in the digital and creative domain. Situated Learning Theory does not provide a specific framework for analysing or promoting these inquiry and critical discourse aspects (Lave & Wenger, 1991).

Consequently, while Situated Learning Theory offers valuable insights into the importance of authentic contexts in learning, its limitations in providing a structured framework for analysing online learning environments and its lack of explicit focus on inquiry and critical discourse aspects led to the choice of the COI framework for this research. The COI framework offers a comprehensive and structured approach to examining the cognitive, social, and teaching

dimensions within online learning communities, aligning more effectively with the research's specific goals and context (Garrison & Cleveland Innes, 2005).

Actor Network Theory (ANT) is another theory that was considered it has a perspective known for its distinctive focus on both human and non-human actors within networks (Müller, 2015). While ANT can offer valuable insights in specific contexts, there are several reasons why it might not be the most suitable choice for this research.

Firstly, ANT has a reputation for introducing a level of complexity that could potentially obscure the research objectives. This complexity arises from its insistence on treating both human and non-human entities as actors with equal agency within networks. While this perspective can be illuminating in studies where the influence of non-human elements is substantial, it may introduce unnecessary intricacies in the examination of online learning environments. The research primarily concentrates on digital and creative innovation within formal educational settings, where the primary actors are human learners, educators, and facilitators. Introducing non-human actors into the analysis may divert attention from the core focus of the study (Müller, 2015).

Furthermore, ANT's ontological stance differs significantly from the social constructivist foundations that underpin the research. ANT adopts a more materialistic and agnostic view of agency, whereas social constructivism places a strong emphasis on the role of human interactions, meaning making, and the construction of knowledge within social contexts. This ontological misalignment could pose challenges in reconciling the two frameworks and may result in a less coherent theoretical foundation for the research (Müller, 2015).

Given these considerations, opting for the COI framework emerges as a more appropriate choice for this research. The COI framework provides a structured and applicable framework for studying the cognitive, social, and teaching dimensions within online learning communities. It aligns more closely with the research's objectives, which are centred on understanding the dynamics of digital and creative innovation within formal educational settings. The COI

framework is firmly grounded in social constructivist principles, making it a more natural fit for examining the interactions, sense making processes, and collaborative learning experiences of human actors within online learning environments (Garrison, Anderson, & Archer, 2000).

While ANT has its merits, its potential to introduce unnecessary complexity and its ontological misalignment with social constructivism make it less suitable for this research. The COI framework, with its structured approach and alignment with the research's objectives, offers a more appropriate theoretical foundation for the examination of digital and creative innovation within formal educational settings. By focusing on the cognitive, social, and teaching dimensions within online learning communities, COI provides a comprehensive framework for analysing the core elements of interest in the research.

Activity Theory, which was first proposed by Engeström in 1987. Activity Theory offers a holistic perspective on activities within a system, including the role of tools and artifacts. However, despite its potential applicability, there are several reasons why Activity Theory might not be the most suitable choice for this research.

One significant consideration is that Activity Theory's holistic approach may introduce a level of complexity that could make it challenging to focus on specific aspects of the research. The theory encourages researchers to examine activities within their broader socio-cultural contexts, encompassing not only individual actions but also the tools, artifacts, and the larger system within which these activities occur. While this perspective can be enlightening in studies that aim to understand complex, multifaceted systems, it may introduce unnecessary intricacies when examining online learning environments in the context of digital and creative innovation. The research primarily seeks to investigate the cognitive, social, and teaching dimensions of these environments within structured educational settings, and the holistic nature of Activity Theory could divert attention from the core focus (Engeström, 2019).

Additionally, Activity Theory does not explicitly address the cognitive and social presence elements emphasised in the COI framework. The COI framework, which underpins the research, places a strong emphasis on these dimensions within online learning communities. It provides a structured framework for examining cognitive engagement, social interaction, and teaching presence, which are central to the study's objectives. While Activity Theory acknowledges the socio-cultural aspects of learning and activities, it does not offer the same level of specificity and guidance in examining the cognitive and social dimensions that are integral to the research (Engeström, 2019; Garrison et al., 2000).

Therefore, for a research context centred on the cognitive, social, and teaching dimensions of digital and creative innovation within a structured educational setting, the COI framework emerges as a more straightforward and suitable choice. COI offers a structured approach for analysing these dimensions within online learning communities. It aligns more closely with the research's objectives, providing a comprehensive framework for examining the core elements of interest. By focusing on cognitive engagement, social interaction, and teaching presence, COI offers a clear and applicable framework through which to explore the dynamics of online learning environments in the context of digital and creative innovation within structured educational settings (Garrison et al., 2000).

Activity Theory offers a holistic perspective on activities and their contexts, its potential to introduce complexity and its limited emphasis on cognitive and social presence elements make it less suitable for this research. The COI framework, with its structured approach and alignment with the research's objectives, provides a more straightforward and appropriate theoretical foundation for examining the cognitive, social, and teaching dimensions of digital and creative innovation within formal educational settings. It offers a structured framework through which to explore the core elements of interest, making it a more suitable choice for the research's needs.

The choice of the grand theory of social constructivism and the mid-range theory of COI as the theoretical framework for this research is well justified. While alternative frameworks were considered, the limitations associated with each of them, such as their focus on individual learning or their potential complexity, made them less suitable for the research's specific objectives. COI, on the other hand, offers a structured and focused framework for examining the cognitive, social, and teaching dimensions of online learning communities in the context of digital and creative innovation within formal educational settings, aligning seamlessly with the research's central themes and goals.

The theoretical framework for this research was comprised of both Social Constructivism as the grand theory and the COI framework as the mid-range theory. The synergistic relationship between these two theories provided a robust intellectual scaffold for the study. Social Constructivism, with its emphasis on knowledge being socially constructed, naturally dovetailed with the COI's focus on social, cognitive, and teaching presence. This congruence ensured that the theories were not just complementary but also mutually reinforcing.

The theoretical framework was particularly well suited to examine the study's core problem: the impact of webcam uses in online learning, specifically among students from disadvantaged backgrounds. These theories offered frameworks through which the complex dynamics of webcam use could be predicted, interpreted, and explained. For instance, Social Constructivism provided the overarching framework to understand how social interactions in online settings could influence learning outcomes. Meanwhile, the COI framework provided the detailed constructs to dissect these interactions into their social, cognitive, and teaching components.

The theoretical alignment between Social Constructivism and the COI framework enabled the study to offer both predictive and interpretive insights. Social Constructivism helped predict that the nature and quality of social interactions would be a significant factor in learning outcomes. On the other hand, the COI framework provided the tools to interpret and explain how

specific features like webcam use could impact these interactions and thus the educational experience.

The theoretical framework comprising both Social Constructivism and the COI was adeptly aligned to investigate the intricacies of webcam use in online learning. Its dual focus allowed for a nuanced exploration of the social dynamics at play, particularly among students from disadvantaged backgrounds, thereby confirming its suitability and robustness as the study's guiding framework.

3.7 Theory Level Trustworthiness

The selection of Social Constructivism and the COI as guiding theories for this research is not without precedent. Seminal authors like Vygotsky (1978) in the space of Social Constructivism and Garrison, Anderson, and Archer in the development of the COI framework have paved the way for this sort of inquiry (Vygotsky et al., 1978; Garrison, Anderson, & Archer, 2000).

The selected theoretical frameworks are not passive descriptors of the phenomena under investigation; rather, they function as dynamic tools with the capacity to explain and predict complex interactions within online learning environments. Social Constructivism, as one of these frameworks, offers a perspective that significantly enriches our comprehension of the interactive dynamics that unfold in the space of online education.

Social Constructivism provides valuable insights that extend beyond mere description. It operates as an explanatory mechanism by shedding light on how the quality and nature of social interactions within the learning environment can influence students' engagement and, consequently, their learning outcomes. This framework enables researchers and educators to predict that students who engage in meaningful and collaborative social interactions are more likely to experience higher levels of engagement and achieve better learning outcomes. In essence, Social Constructivism functions as a predictive tool, allowing for

hypotheses about the impact of social interactions on educational outcomes to be formulated and tested empirically.

Similarly, the COI framework, with its triad of social, cognitive, and teaching presences, offers a structured and comprehensive approach to understanding the dynamics of online learning. This framework extends beyond mere description and serves as an explanatory mechanism by providing a systematic framework for exploring how specific Technology Enhanced Learning (TEL) tools, such as webcams, might impact these interactions.

The COI framework goes a step further by enabling prediction. It allows researchers to anticipate how the presence or absence of webcams, as TEL tools, might influence social, cognitive, and teaching presences within the online learning environment. By employing this framework, researchers can hypothesise and test predictions about the effects of webcams on the quality of social interactions, the depth of cognitive engagement, and the effectiveness of teaching presence. In this manner, the COI framework becomes a powerful tool for not only describing but also explaining and predicting the impact of technology on the learning experience.

The chosen theoretical frameworks, Social Constructivism, and the COI framework, transcend mere description by serving as explanatory and predictive mechanisms within the study. Social Constructivism enhances our understanding of how social interactions influence engagement and learning outcomes. Meanwhile, the COI framework offers a structured approach to explore and predict how specific TEL tools, like webcams, may impact the multifaceted dimensions of online learning. These frameworks empower researchers to delve deeper into the complexities of online education and make informed hypotheses about the effects of technology on the learning experience.

While robust, the chosen theoretical framework is not without critique. For instance, the COI framework has been critiqued for potentially underplaying the role of technology and for its Western centric bias (Heo, Bonk, & Doo, 2021).

These limitations were acknowledged and addressed where possible in the study's design. It's important to recognise that theory is not immutable; it evolves based on new research and different contexts. As such, while the framework provided a sturdy foundation for this study, its application and limitations will be examined further in subsequent chapters.

3.8 Critique of the Theoretical Framework

Critiquing a theoretical framework involves examining its assumptions, applicability, and limitations in the context of specific research objectives. In the case of the COI framework, while widely respected and utilised, it is not without its critiques.

3.9 Overemphasis on Structured Presence:

The COI framework delineates three core presences: cognitive, social, and teaching. Some critics argue that this tripartite structure might overemphasise the need for each presence to be distinctly and robustly represented, potentially leading to a formulaic approach to course design and facilitation (Garrison & Arbaugh, 2007). Critics suggest that real-world learning is more fluid and that these presences often overlap and intermingle in ways that the rigid structure does not fully capture (Annand, 2011). For example, in highly interactive or problem-based learning environments, the distinctions between teaching, social, and cognitive presences might blur, challenging the framework's applicability.

3.10 Technological Determinism:

Another critique is that the COI framework may inadvertently lean towards a form of technological determinism, implying that the right technology can directly foster a robust COI (Bayne, 2015). Critics argue that while technology is a crucial mediator in online environments, the COI framework might underemphasise the importance of other factors, such as institutional culture, learner diversity, or instructor skill, which are equally critical in shaping the

learning experience (Bayne, 2015). For instance, even with the perfect technological setup for social presence, if the learners come from a culture of learning where open discussion is not encouraged, the intended outcomes might not be realised.

3.11 Limited Address of Power Dynamics:

The framework has been critiqued for its limited address of power dynamics within the online learning environment (Vasquez, 2014). Critics argue that all educational settings, including online ones, are imbued with power relations, whether between students and instructors or among students themselves. The COI framework's focus on idealised interaction might overlook how power dynamics can influence participation and engagement, leading to unequal learning experiences (Vasquez, 2014). For example, students might not feel free to fully engage or might conform to dominant views when power imbalances are not acknowledged or addressed.

3.12 Western-centric and Context Insensitivity:

Some scholars have pointed out the Western-centric nature of the COI framework, arguing that its conception of community and inquiry might not align with non-Western educational traditions and values (Parrish et al., 2010). The framework might assume a level of individualism, critical debate, and interaction that does not resonate with or even contradicts educational norms in other cultures. This critique suggests a need for more contextual sensitivity and adaptability, especially when the framework is applied in global or multicultural learning environments.

3.13 Insufficient Emphasis on Emotional Presence:

While the COI framework focuses on social, cognitive, and teaching presences, critics have noted the lack of explicit attention to emotional presence (Cleveland-Innes & Campbell, 2012). Learning is not just a cognitive and social activity but also an emotional journey. Emotional presence, or the awareness, expression, and management of emotions in learning, is crucial for student

engagement and well-being (Cleveland-Innes & Campbell, 2012). Critics argue that by not adequately considering the emotional aspects of learning, the framework might not fully address all dimensions of the online learning experience.

While the COI framework provides a robust and widely used model for understanding and enhancing online learning, it is crucial to approach its application critically, considering these critiques and the specific context of the research. Future research and practice might involve adapting or augmenting the COI framework to address these critiques, ensuring a more comprehensive and nuanced approach to understanding online learning environments.

This study constructs a significant theoretical structure by merging the principles of Social Constructivism, the COI framework, and John Dewey's educational theories. This blend provides a comprehensive framework for examining the complex aspects of using webcams in online learning settings, especially focusing on students from less advantaged backgrounds.

3.14 Integration of Social Constructivism and the COI Framework

Central to the theoretical foundation of this research is the integration of Social Constructivism and the COI framework. Originating from the influential works of Vygotsky, Social Constructivism suggests that knowledge is formed through social interaction and cultural contexts, highlighting the critical role of dialogue and collaborative efforts in the learning journey. This concept aligns with the COI framework, which identifies the essential elements of an educational experience as social presence, cognitive presence, and teaching presence. The COI framework effectively translates the abstract ideas of Social Constructivism into clear and measurable elements within the realm of online learning.

This integration is crucial for the study as it enables a detailed examination of how webcam use impacts the social construction of knowledge. The three-fold

division of presence in the COI framework provides a structured approach to analyse the interactions occurring online and their influence on the educational process. In particular, the aspect of social presence resonates with the constructivist view that learning is fundamentally a social activity, emphasising the importance of personal connections and exchanges in building knowledge.

3.15 Dewey's Educational Theories: Enhancing the Theoretical Framework

The inclusion of John Dewey's educational philosophies further enriches the theoretical framework. Dewey advocates for experiential learning and an active, inquiry-based approach to education, which complements the social learning emphasis of Social Constructivism. Dewey's emphasis on the need for an engaging learning environment, where learners actively engage with content, teachers, and peers, adds depth to the constructivist perspective, focusing on the experiential aspect of the learning journey.

Additionally, Dewey's ideas coincide with the COI's concept of teaching presence, which involves organising and facilitating cognitive and social processes to support learning. This aspect of the COI framework reflects Dewey's view on the educator's role in creating a setting conducive to active learning and discovery.

3.16 Conceptual Integration and Interaction

The combination of Social Constructivism, the COI framework, and Dewey's educational philosophies offers a broad perspective for exploring webcam use in online learning contexts. Together, these theories provide a strong framework for understanding the intricate dynamics of online learning environments, where technology, social interaction, and educational strategies intersect.

A visual representation, such as a conceptual diagram, would be invaluable in illustrating the connections between these theoretical approaches and their relevance to the research.

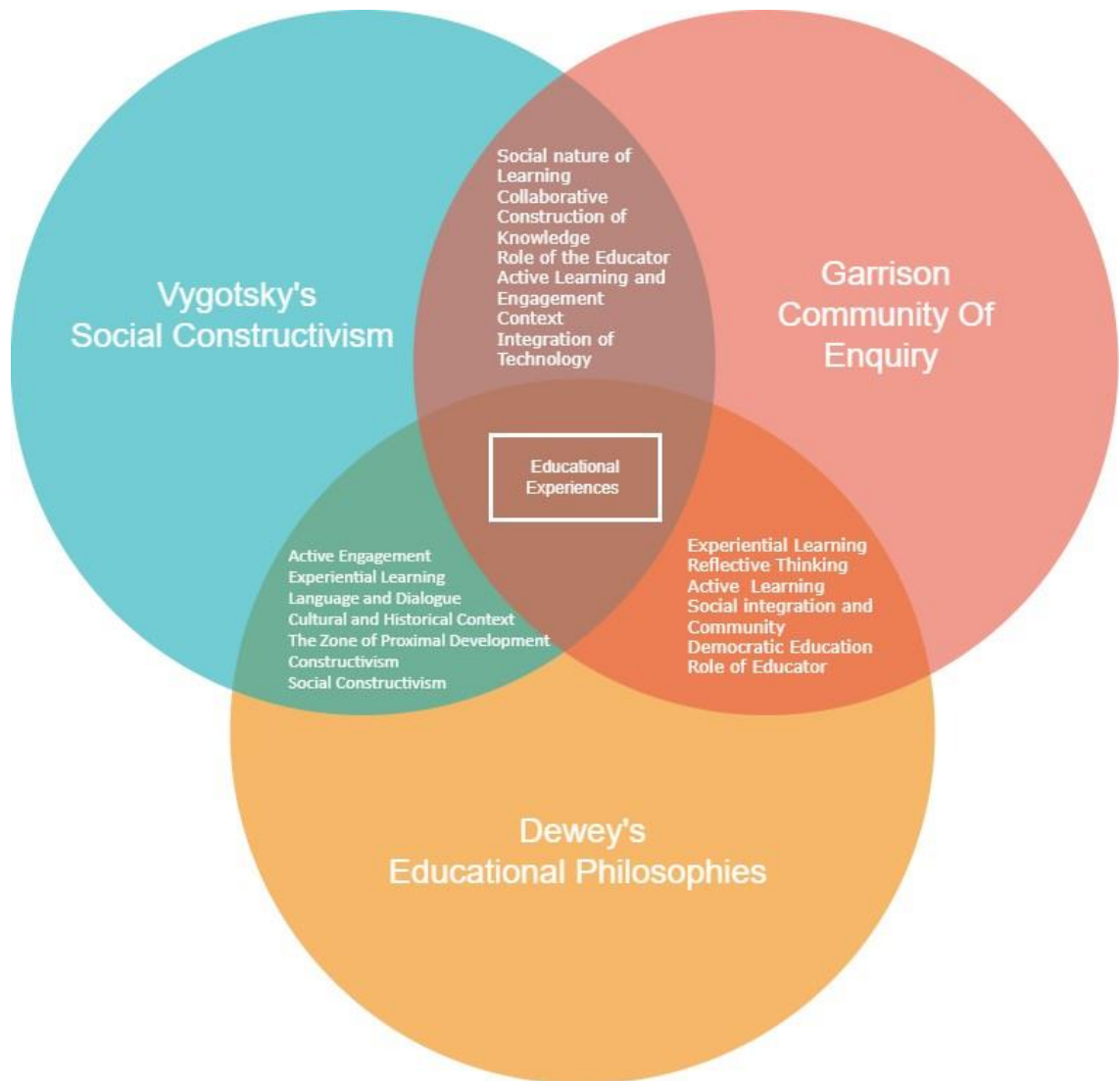


Figure 1 - Amalgamation of Theory

Figure 1 shows that Social Constructivism as the overarching philosophical foundation, highlighting the importance of social learning. It could depict the COI framework as operationalising these constructivist principles into practical elements within an online learning context. Meanwhile, Dewey's educational philosophies could be shown to enhance this framework, underlining the significance of experiential learning and the educator's role in promoting an interactive and engaging learning process.

Such a diagram would not only clarify the theoretical bases of the research but also highlight the collaborative interaction between these theories in guiding the exploration of webcam use in online learning. The model could visually demonstrate the dynamic relationship between learners, technology, and educational practices, showing how webcams serve as a facilitative tool that enhances social presence, cognitive engagement, and teaching methodologies, all grounded in constructivist principles and enriched by Dewey's educational insights.

3.17 Social Constructivism and the Community of Inquiry (COI)

The links between Social Constructivism and the COI framework are foundational and multifaceted, reflecting a deep conceptual alignment that enriches the understanding and practice of online learning. Both frameworks emphasise the social and collaborative nature of learning, albeit from slightly different perspectives and applications. Below are some of the key links and intersections between these two influential educational theories:

3.17.1 Social Nature of Learning

Social Constructivism: Rooted in the works of Vygotsky, Social Constructivism posits that learning is inherently a social process, where knowledge is constructed through interactions with others and the surrounding culture. It emphasizes the importance of language, dialogue, and social interaction in the development of cognitive abilities.

Community of Inquiry: The COI framework, with its emphasis on social presence, aligns closely with this view, positing that the creation of a supportive and interactive community is essential for meaningful learning. The framework suggests that effective learning environments are those where individuals can collaboratively engage, communicate, and construct knowledge (Vygotsky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey, 1938).

3.17.2 Collaborative Construction of Knowledge

Social Constructivism: This approach advocates for collaborative learning environments where learners engage in dialogue, debate, and negotiation of meaning to co-construct knowledge.

Community of Inquiry: The COI framework operationalises this concept through cognitive presence, which involves the collaborative inquiry and construction of meaning through critical thinking and reflection. It views knowledge as being constructed within the community through shared exploration and discourse (Vygotzky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.17.3 Role of the Educator

Social Constructivism: In a constructivist setting, the educator acts more as a facilitator or guide, helping learners navigate their learning paths and encouraging interaction and collaboration among students.

Community of Inquiry: Similarly, the COI framework highlights teaching presence, which includes the design, facilitation, and direction of cognitive and social processes to support learning. The educator's role is to scaffold discussions, guide inquiry, and support the community in achieving its educational goals (Vygotzky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.17.4 Active Learning and Engagement

Social Constructivism: This perspective emphasises active engagement with the material and the learning environment, advocating for hands-on experiences and real-world problem-solving.

Community of Inquiry: The COI framework aligns with this through its emphasis on creating an environment where learners are actively involved in the learning process, engaging in discussions, reflections, and collaborative activities that

foster a deep understanding of the subject matter (Vygotsky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.17.5 Importance of Context

Social Constructivism: Vygotsky's concept of the Zone of Proximal Development (ZPD) underscores the importance of context in learning, suggesting that learning occurs most effectively in a social context with the support of more knowledgeable others.

Community of Inquiry: The COI framework also recognizes the importance of context in learning, particularly through social presence, where the context of the learning community, including its norms, culture, and modes of interaction, significantly influences the learning process (Vygotsky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.17.6 Integration of Technology

Social Constructivism: While not originally focused on technology, contemporary applications of Social Constructivism emphasise the role of digital tools in facilitating social interaction and collaborative learning.

Community of Inquiry: The COI framework is particularly relevant to online and blended learning environments, where it addresses how technologies (such as webcams, forums, and other online communication tools) can be used to foster a sense of community, support cognitive engagement, and enhance teaching presence.

In essence, the Community of Inquiry framework can be seen as an applied model of Social Constructivism, tailored specifically for online and blended learning environments. It provides a structured approach to creating educational experiences that embody the constructivist emphasis on the social construction of knowledge, collaborative learning, and the active role of learners

and educators in the learning process (Vygotsky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.18 Community of Inquiry (COI) framework and John Dewey's educational theories

The Community of Inquiry (COI) framework and John Dewey's educational theories share several foundational links and conceptual overlaps, particularly in their views on the nature of learning, the role of experience, and the importance of active engagement and reflection. Below are some key connections between these two influential educational paradigms:

3.18.1 Experiential Learning

Dewey's Theory: Central to Dewey's educational philosophy is the belief in experiential learning, where education is seen as a process of living and not just a preparation for future living. Dewey argued that learning occurs through active engagement with one's environment and experiences.

Community of Inquiry: The COI framework, with its emphasis on cognitive presence, resonates with Dewey's experiential learning. Cognitive presence in the COI framework involves the exploration, integration, and application of ideas within a community, which mirrors Dewey's idea of learning through direct experience and reflection (Vygotsky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.18.2 Reflective Thinking

Dewey's Theory: Dewey placed a strong emphasis on the importance of reflective thinking in education, viewing it as a critical component of learning from experiences. He believed that reflection transforms mere experiences into meaningful educational moments.

Community of Inquiry: The COI framework's component of cognitive presence includes a significant focus on critical reflection as part of the inquiry process. It advocates for reflection on personal beliefs and the re-evaluation of ideas in light of new evidence or perspectives, aligning with Dewey's views on reflective thinking (Vygotzky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938) .

3.18.3 Active and Inquiry-based Learning

Dewey's Theory: Dewey advocated for an active, inquiry-based approach to education, where learners are encouraged to ask questions, explore, and investigate, thereby constructing their own understanding.

Community of Inquiry: The COI framework supports this active, inquiry-based approach through both cognitive and teaching presences. It encourages learners to engage actively in the construction of knowledge through dialogue and inquiry, and it emphasises the role of the instructor in facilitating and guiding this process (Vygotzky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.18.4 Social Interaction and Community

Dewey's Theory: Dewey recognised the importance of social interaction in the learning process. He saw education as a social process and believed that schools should serve as communities where students learn to live cooperatively.

Community of Inquiry: The concept of social presence in the COI framework directly reflects this belief, emphasising the creation of a supportive community of learners who interact socially and emotionally. This social aspect of the COI framework aligns with Dewey's emphasis on the educational value of community and communication (Vygotzky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.18.5 Democratic Education

Dewey's Theory: Dewey was a proponent of democratic education, arguing that classrooms should model democratic principles where students have a say in their learning processes, fostering a sense of ownership and responsibility.

Community of Inquiry: While the COI framework does not explicitly address democratic education, its emphasis on collaborative inquiry and the shared construction of knowledge can foster a democratic ethos within the learning community. The framework encourages the participation of all members in the learning process, reflecting Dewey's ideals of inclusivity and active engagement (Vygotzky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.18.6 Role of the Educator

Dewey's Theory: Dewey viewed the educator not as a source of knowledge but as a facilitator and guide in the learning process, helping students engage with their experiences in meaningful ways.

Community of Inquiry: This aligns with the teaching presence component of the COI framework, where the instructor's role includes designing and administering educational experiences, facilitating discourse, and directing the learning process to achieve desired outcomes. Both Dewey and the COI framework advocate for a teacher's role that supports and guides learners' inquiry and engagement rather than simply transmitting knowledge.

In essence, the COI framework operationalizes many of Dewey's educational philosophies within the context of online and blended learning environments. It provides a structured model for creating rich, interactive, and reflective learning experiences that embody Dewey's principles of experiential learning, reflective thought, active engagement, and the importance of community in the educational process (Vygotzky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.19 John Dewey and Lev Vygotsky

The educational theories of John Dewey and Lev Vygotsky, though developed independently and within different cultural contexts, share several foundational principles and philosophical underpinnings, especially regarding the nature of learning, the role of social interaction, and the importance of the environment in educational processes. Below, I explore the connections and intersections between Dewey's and Vygotsky's theories:

3.19.1 Social Nature of Learning

Dewey's Theory: Dewey viewed learning as a fundamentally social process, emphasising the role of communication and interaction within a learning community. He believed that education should reflect the broader social environment and that schools should be miniature communities, mirroring democratic society.

Vygotsky's Theory: Similarly, Vygotsky placed a strong emphasis on the social context of learning, arguing that knowledge is constructed through social interaction. His concept of the Zone of Proximal Development (ZPD) underscores the importance of more knowledgeable others (peers or adults) in assisting learners to achieve higher levels of understanding (Vygotsky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.19.2 Active Engagement and Experiential Learning

Dewey's Theory: Central to Dewey's educational philosophy is the idea of learning through doing. Dewey advocated for experiential learning, where students engage actively with materials and concepts, experiencing and reflecting on their actions to construct knowledge.

Vygotsky's Theory: While Vygotsky's work does not explicitly focus on experiential learning in the same manner as Dewey, his emphasis on

meaningful engagement with cultural tools and symbols for cognitive development aligns with the principle of active engagement in learning processes (Vygotsky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.19.3 The Role of Language and Dialogue

Dewey's Theory: For Dewey, dialogue and communication were essential components of the learning process, facilitating the sharing of ideas and collaborative problem-solving within the educational community.

Vygotsky's Theory: Vygotsky also highlighted the critical role of language in cognitive development. He posited that internal speech (verbal thought) evolves from external social speech, indicating that dialogue and social interaction are pivotal for learning and the development of higher mental functions (Vygotsky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.19.4 Cultural and Historical Context

Dewey's Theory: Dewey recognized the influence of the cultural and historical context on education, advocating for an educational approach that is responsive to societal needs and changes.

Vygotsky's Theory: Vygotsky's concept of the socio-cultural approach places a strong emphasis on the role of cultural, historical, and social contexts in shaping cognitive development. He believed that an individual's development is a product of their culture and the historical context in which they live (Vygotsky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.19.5 The Zone of Proximal Development (ZPD) and Scaffolding

Dewey's Theory: Although Dewey did not formulate concepts identical to ZPD or scaffolding, his emphasis on the teacher's role as a guide and facilitator in

the learning process mirrors the supportive function that scaffolding provides within Vygotsky's ZPD.

Vygotsky's Theory: Vygotsky's ZPD describes the difference between what a learner can do independently and what they can achieve with guidance from someone more knowledgeable. Scaffolding, a concept later developed by other educational theorists building on Vygotsky's work, involves providing structured support to help learners progress within their ZPD (Vygotsky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

3.19.6 Constructivism and Social Constructivism

Dewey's Theory: Dewey's ideas contributed to the foundation of constructivism, which posits that learners construct knowledge through their experiences and interactions with the world.

Vygotsky's Theory: Vygotsky's theories further expanded this view into social constructivism, emphasising that the construction of knowledge is not only individual but deeply rooted in social interactions and cultural tools.

In summary, while Dewey and Vygotsky approached education from different perspectives and contexts, their theories converge on the importance of social interaction, active engagement, and the cultural context in the learning process. Both theorists underscore the role of the educator as a facilitator who supports learners' explorations and scaffold their development, highlighting the dynamic and interactive nature of education.

The examination of webcam use in educational settings, when viewed through the lens of Vygotskian mediation, provides a rich framework for understanding the transformative role of technology in learning. Lev Vygotsky's theory emphasises the importance of social interaction and cultural tools in cognitive development. In this context, webcams serve as a mediating tool, enabling learners to engage in a social dialogue that transcends geographical barriers.

This perspective illuminates how webcams can facilitate the Zone of Proximal Development (ZPD), where learners can perform tasks beyond their individual capability through scaffolding provided by more knowledgeable others. However, the limitations arise which could pertain to the psychological and emotional dimensions of learning that are not fully captured by digital mediation. The lack of physical presence and nuanced non-verbal cues can hinder the depth of interpersonal connections and the tacit knowledge that is often conveyed through in-person interactions.

In parallel, Garrison's Community of Inquiry COI framework, with its emphasis on social, cognitive, and teaching presences, offers a comprehensive lens to understand the dynamics of online learning environments. Garrison's model suggests that meaningful educational experiences are constructed through the interplay of these presences, facilitating a deep and collaborative learning process. The use of webcams can enhance the social presence by allowing participants to see and respond to each other in real-time, fostering a sense of community and connectedness despite physical distance. However, the challenges of sustaining cognitive presence the extent to which learners are able to construct and confirm meaning through sustained communication. In a webcam-mediated environment, the spontaneity and richness of face-to-face discussions can be diminished, potentially impacting learners' ability to engage deeply with complex concepts and each other.

Lastly, Dewey's emphasis on experiential learning and the importance of the community in educational processes provides a valuable perspective for transcending individualistic approaches to learning. Dewey advocated for learning environments that mimic the complexities of real life, promoting active participation and democratic dialogue. This philosophy aligns with the use of webcams to facilitate communal learning spaces where learners can collaboratively engage with and reflect upon their experiences. However, the logistical and pedagogical difficulties in creating truly Deweyan learning experiences in virtual settings. The absence of a shared physical space can

limit the opportunities for hands-on, experiential learning and the spontaneous interactions that often spark deep reflection and critical thinking.

In summary, while the theories of Vygotsky, Garrison, and Dewey provide insightful frameworks for understanding the potential of webcam use in education, they also highlight inherent limitations. These include the challenge of fully capturing the emotional and psychological dimensions of learning (Vygotsky), sustaining deep cognitive engagement (Garrison), and replicating the rich, experiential learning environments advocated by Dewey. These insights underscore the need for a nuanced approach to integrating technology in educational practices, one that acknowledges both its transformative potential and its limitations (Vygotsky et al., 1978; Garrison, Anderson, & Archer, 2000; Dewey., 1938).

Chapter 4: Research Design

4.1 Methodology: Case Study

The research methodology employed in this study drew from a series of comparative, in depth, qualitative case studies. This choice was influenced by seminal works in the field, including Bassey's "Case Study Research in Educational Settings" (Bassey, 1999) and Tights' "Selection, Context and Theory in Case Study" (Tight, 2017).

Before delving into the justification for transforming interviews into case studies, it is essential to establish what is meant by 'case' and 'case study' within the context of this research. In this study, a 'case' refers to a specific instance or unit of analysis that represents a larger phenomenon in this case, the individual experiences of students participating in different learning methods. A 'case study,' then, is a comprehensive examination of these individual cases, aimed at drawing insights into the broader phenomenon (Stake, 2015).

One of the primary reasons for adopting a case study approach lies in its alignment with the study's interpretative and phenomenological objectives.

Case studies provide a framework for exploring, understanding, and interpreting the lived experiences of participants in their natural settings (Creswell, 2014). This makes them particularly well suited for research that seeks to delve into the complexities of human experiences, such as the various challenges and opportunities presented by different learning methods.

Case studies offer the advantage of depth over breadth, allowing for a detailed exploration of specific experiences (Hollweck, 2015). In the space of educational research, where contexts and individual experiences can significantly influence outcomes, the depth provided by case studies can be invaluable. They allow for the incorporation of a variety of data types and sources, offering a multi-faceted view of the issue at hand (Merriam & Tisdell, 2015).

Given the study's focus on capturing the diversity of student experiences across different learning methods, the case study approach offers a methodologically sound avenue for achieving this aim. Case studies are highly adaptable and can be tailored to meet the unique characteristics and needs of each case, thereby accommodating the diversity inherent in any educational landscape (Selwyn & Facer, 2013).

Furthermore, transforming interviews into narratives within case studies not only adds a rich, qualitative dimension to the data but also has pragmatic utility. The resulting narratives can serve as pedagogical tools, offering educators and policymakers concrete examples and actionable insights for improving the learning experience (Creswell, 2014).

As online learning had gained prominence in recent years, understanding the factors that influenced students' decisions to use or not use webcams became increasingly vital. This study sought to address a significant gap in existing research by shedding light on how socio-economic factors might influence both student engagement and webcam use. The objective was to identify strategies that could promote more inclusive and equitable online learning experiences, particularly for students from disadvantaged backgrounds.

The study's comparative nature served to highlight both commonalities and divergences in student preferences and engagement levels concerning webcam use. Each case served as a unique exploration into the intricate dynamics between technology and online learning, thus providing a detailed understanding that could inform broader educational policies and practices (Tight, 2017).

Adhering to Shenton's (2004) guidelines, the study seeks to establish credibility through well-established research methods, ensure transferability by providing thick descriptions that allow for contextual understanding, uphold dependability by documenting the research process and its changes, and confirm confirmability through objective reflection and acknowledgment of the researcher's potential biases. By employing these principles of trustworthiness, the comparative approach of this study aims to offer a nuanced, in-depth understanding of the phenomena under investigation through multiple instances for analysis.

Additionally, this research contributed to ongoing debates about the COI framework by addressing some of its claimed limitations related to technology and cultural inclusivity.

The chosen methodology of employing a series of comparative, in depth, qualitative case studies enabled a multifaceted exploration of webcam visibility among students in a specific socioeconomically disadvantaged educational setting. This approach, substantiated by established works in educational research methodology (Bassey, 1999; Tight, 2017), allowed for a detailed investigation of real-life situations.

In the evolving landscape of educational research, particularly concerning TEL within the COI framework, several case studies have provided profound insights into online learning dynamics. These studies, employing qualitative methodologies, illuminate the intricacies and potential of online educational settings, offering valuable perspectives for investigating webcam visibility among socioeconomically disadvantaged students.

One seminal work in the field is by Garrison et al., (2000), who introduced the COI framework, delineating the interplay of cognitive, social, and teaching presence in online learning environments. This foundational paper has significantly influenced subsequent research, providing a theoretical and practical basis for examining the complexities of online interaction and learning (Garrison et al., 2000).

Furthering this exploration, Akyol and Garrison (2011) conducted a longitudinal study to observe the development of a COI in an online graduate course. Their work offers insights into how these communities evolve and integrate social, cognitive, and teaching presence, providing a valuable case study of COI's application over time (Akyol & Garrison, 2011).

In addition, Shea et al., (2006) investigated the role of teaching presence in the COI framework, focusing on its impact on the sense of learning community in online and web-enhanced courses. Their findings contribute to understanding how teaching strategies and presence can foster a more cohesive and effective online learning community (Shea et al., 2006).

Lastly, Richardson and Swan's (2019) research into social presence within online courses highlights the correlation between students' perceptions of social presence and their satisfaction and perceived learning. By examining these relationships, the study provides a nuanced understanding of how social aspects of the COI framework affect student experiences and outcomes in online environments (Richardson & Swan, 2019).

These studies collectively offer a comprehensive view of the application and significance of the COI framework in understanding and enhancing TEL. They provide empirical evidence and methodological insights beneficial for examining the impacts of webcam visibility on student engagement and learning in socioeconomically disadvantaged educational settings. As such, they form a robust foundation for further investigation and development of strategies aimed at creating more equitable and inclusive online learning experiences.

4.2 Design of Study

In this study, I employed an innovative methodology that intricately woven together semi-structured interviews and storytelling to explore and understand the nuanced complexities of the research subject. This approach was rooted in the belief that the combination of these qualitative methods would provide a deeper, more holistic understanding of the phenomena under investigation.

The initial phase of my research involved conducting semi-structured interviews with participants. These interviews were crucial as they provided the foundational data for the subsequent narrative construction. Characterised by their flexible yet guided nature, these interviews allowed me to collect rich, detailed accounts of the participants' experiences, thoughts, and emotions. This data collection phase was conducted with an emphasis on ensuring the participants felt comfortable and free to express their authentic selves, thus providing genuine and insightful responses.

Following the data collection, I embarked on the task of constructing stories from these interviews. This phase represented a delicate balance between faithfully representing the participants' narratives and crafting an engaging, coherent story. As highlighted by Thody (2006), the challenge in this process lies in intervening to write and present the stories without distorting or overshadowing the participants' voices. In my study, I was acutely aware of these challenges and endeavoured to maintain the integrity of the participants' experiences while weaving their accounts into a compelling narrative.

This storytelling aspect of my research was not merely about re-telling the participants' stories but about interpreting and presenting them in a way that highlighted the study's themes and findings. I aimed to construct narratives that were engaging, thought-provoking, and reflective of the complex human experiences shared with me during the interviews. This approach was informed and supported by the works of noted scholars like Clandinin & Connelly (2000) for its effective conveyance of complex ideas, Denzin (2014) for its

comprehensive and multifaceted view of phenomena, and Creswell & Poth (2018) for its ability to humanise and bring depth to the research findings.

In employing this multi-methods approach, I was committed to ensuring the trustworthiness and rigor of my study. This involved not only careful and ethical handling of the narratives but also employing strategies such as triangulation, member checking, and continuous reflection throughout the research process. By doing so, I aimed to produce a body of work that was not only insightful and informative but also respectful and representative of the participants' experiences.

The integration of semi-structured interviews and storytelling in my study provided a powerful means to deeply understand and vividly illustrate the phenomena under investigation. It allowed me to capture the richness and complexity of individual experiences while presenting them in an accessible and engaging narrative form. Through this approach, I sought to contribute a meaningful and empathetic understanding to the field, reflecting the intricate realities of the subjects studied (Thody, 2006).

In the specific context of a study like the one focusing on webcam use in online synchronous learning, storytelling could offer rich, layered insights. Imagine a narrative from a student in a socioeconomically disadvantaged area struggling with engagement in a virtual classroom. This narrative would not just be a 'story' but a case study illuminating the myriads of factors technological, emotional, and socioeconomic that influence student participation.

In essence, storytelling serves as a robust research tool that transcends mere data collection to encompass emotional resonance, contextual richness, and critical discourse. It is especially pertinent in studies that seek to explore complex social phenomena, offering a holistic view that is both deeply empathetic and intellectually rigorous.

4.3 Conduct of the study

Convenience and purposive sampling procedures were used in this study. A convenient sample was chosen due to the ease of recruiting participants from Blackpool and The Fylde College, where the researcher was employed. However, the potential for biased findings and the difficulty of generalising the data were acknowledged as disadvantages. To address some of these issues, deliberate procedures were put in place to ensure that the small sample size provided genuine experiences and attitudes.

Participants were recruited via a two-pronged approach involving email and team postings. This strategy was carefully designed to offer potential participants autonomy in choosing whether or not to engage in the study. A preliminary message provided a snapshot of the research aims, allowing interested students to reach out to the researcher to schedule a meeting at a mutually convenient time. This methodical and logical recruitment process ensured that individuals did not feel pressured to participate, thereby adhering to ethical standards of informed consent.

Convenience sampling was employed as one of the sampling strategies. The benefits of this approach are manifold, primarily residing in its cost effectiveness, efficiency, and ease of administration. It is particularly useful for quickly gathering a sample without expending significant resources. However, this method is not without its drawbacks, the most prominent being the risk of underrepresentation of specific groups and the potential for biased findings (Babbie, 2010).

In contrast, purposive sampling was also utilised to mitigate the limitations inherent in convenience sampling. This method facilitated the targeted recruitment of participants who met particular criteria, thereby ensuring a more representative and diverse sample (Tongco, 2007). Specifically, it allowed for the inclusion of students from varying curriculum areas and academic levels, enriching the range of perspectives captured in the study. The downside of

purposive sampling is that it can be resource intensive and time consuming, requiring meticulous planning and execution (Marshall, 1996).

The study employed a hybrid sampling strategy, combining elements of both convenience and purposive sampling. This innovative approach was designed to balance the advantages and disadvantages of each method. It aimed to leverage the efficiency and cost effectiveness of convenience sampling while benefiting from the representativeness and targeted diversity offered by purposive sampling. The result was a robust and informative sample that enriched the overall quality of the study.

The sampling strategy in this study was a well-considered blend of convenience and purposive sampling methods. This approach was not only efficient but also ethically sound and methodologically rigorous, ensuring a diverse and representative sample of participants. By doing so, the study succeeded in providing a rich and detailed understanding of the phenomenon under investigation.

Incorporating the discussion on trustworthiness of a relatively small sample size into the existing narrative of sampling strategy can indeed enhance the credibility and depth of your study. Here is how it might be woven into the text, including cognate studies that have effectively utilised small sample sizes:

The sampling strategy employed in this study was a deliberate blend of convenience and purposive methods, designed to combine the efficiency and accessibility of the former with the targeted representativeness of the latter. While acknowledging the potential biases and limitations inherent in convenience sampling, such as the risk of underrepresentation and biased findings (Babbie, 2010), this approach was chosen for its practicality given the research context at Blackpool and The Fylde College. To counterbalance these drawbacks, purposive sampling was employed to ensure a diverse and representative sample, thereby enriching the study with a variety of perspectives from different curriculum areas and academic levels (Tongco, 2007; Marshall, 1996).

One important aspect to address in this methodology chapter, and indeed throughout the research, is the trustworthiness of the findings derived from a relatively small sample size. Despite the smaller scale, the study is designed with rigorous methodological approaches to ensure that the data collected, and the subsequent analysis are both reliable and valid. Small sample sizes can, in fact, yield deep, nuanced insights, particularly in qualitative research where the goal is to explore complex phenomena rather than to generalise findings to a larger population. The richness and depth of the data obtained from each participant can provide valuable insights that larger sample studies might overlook (Thody, 2006).

To bolster the credibility of the study's findings, it is worth referencing similar studies that have successfully utilised small sample sizes. Morse (1995) argues that the scope of qualitative research is not to enumerate frequencies but to understand meanings and patterns, which can often be achieved with a small, focused sample. Similarly, Stake (2015) emphasises the richness and depth of case studies, which typically involve smaller samples but provide detailed, contextual insights. Furthermore, Yin (2015) underscores the value of case studies in revealing insights about a phenomenon, policy, or situation from a deep, contextual understanding.

The trustworthiness of the small sample size in this study is further assured through methodological rigor and ethical considerations. Participants were recruited through a careful strategy designed to ensure voluntary and informed participation. The use of both convenience and purposive sampling allowed for a diverse range of participants, ensuring that the study captured a variety of experiences and perspectives. Additionally, the study's analytical processes were conducted with a commitment to accuracy, relevance, and reflectivity, incorporating strategies such as thematic analysis and member checking to ensure the Trustworthiness of the findings.

While acknowledging the challenges and limitations associated with small sample sizes, this study provides a comprehensive and robust exploration of the phenomenon under investigation. By combining convenience and purposive

sampling strategies and emphasising methodological rigour and ethical recruitment, the research achieves a balance between practicality and depth. The trustworthiness of the study is supported not only by its methodological design but also by the existing body of qualitative research that validates the use of small, focused samples to provide rich, contextual, and meaningful insights into complex phenomena.

4.4 Semi-structured interviews

In developing the interview protocol for this study, a systematic and iterative process was undertaken to ensure that the questions were relevant, clear, and aligned with the research questions (Creswell & Poth, 2018). Initially, a thorough review of the relevant literature was conducted to identify key themes and issues related to the use of webcams during online synchronous learning. This review informed the development of the initial set of interview questions, which were designed to explore participants' experiences and perceptions in depth (Turner, 2014).

To enhance the trustworthiness of the interview protocol, the questions were reviewed and refined by the researcher, ensuring that they were clear, concise, and free of any biases or assumptions that could influence participants' responses (Kvale & Brinkmann, 2015). The revised set of questions was then shared with a panel of experts in the field of online learning, who provided valuable feedback and suggestions for further improvement (Creswell & Poth, 2018).

Once the interview protocol was finalised, a pilot study was conducted to test its effectiveness and to identify any potential issues or areas for improvement (Bryman, 2016). A small sample of 2 participants, representative of the target population, was recruited for the pilot study. These participants were interviewed using the finalised protocol, and their feedback on the clarity and relevance of the questions was collected. The pilot study also allowed the researcher to practice and refine their interviewing skills, ensuring that they

were well prepared for the main data collection phase of the study (Creswell & Poth 2018).

Based on the findings and feedback from the pilot study, minor adjustments were made to the interview protocol to address any identified issues or concerns. This process of developing, refining, and piloting the interview protocol ensured that the final version was robust and effective in eliciting rich and detailed data from participants, ultimately contributing to the Trustworthiness of the study's findings (Kvale & Brinkmann, 2015).

RQ1 and RQ1.1 were addressed by asking students about their overall experiences with webcam use in online synchronous learning, focusing on how they perceived the impact of webcam use on their engagement and participation. By providing an open-ended platform for students to share their experiences, the researcher gained insight into the various ways in which webcam use may have influenced students' learning experiences.

To answer RQ1.2, interview questions were designed to explore how students utilised their webcams during online synchronous sessions. This included their habits, preferences, and reasons for turning their webcams on or off. By examining the students' practices, the researcher identified patterns and variations in webcam use.

For RQ1.3, the interviews delved into the factors that influenced students' decisions to use or not use webcams during online synchronous learning sessions. By asking probing questions about students' motivations and concerns, the researcher uncovered the social, technical, and wellbeing factors that shaped their webcam use.

To address RQ1.4, the interview questions focused on the challenges and barriers faced by students in using webcams during online synchronous learning. These included issues related to technology, privacy, and self-presentation. Identifying these challenges helped inform the development of targeted interventions to mitigate these barriers.

In order to explore RQ1.5, the interviews examined the relationship between webcam use and student engagement during online synchronous learning sessions. By asking students to reflect on their levels of engagement when using webcams and comparing their experiences to sessions without webcam use, the researcher gained insight into the impact of webcam use on engagement.

Overall, the use of semi-structured interviews provided a comprehensive and flexible approach to address the research questions in this study. By exploring the experiences and perspectives of students from disadvantaged backgrounds in the UK, the researcher developed a deeper understanding of the complex relationship between webcam use, engagement, and participation in online synchronous learning. The nuanced data gathered from these interviews served as the foundational material for another crucial aspect of the methodology: storytelling.

Storytelling was employed to construct rich, narrative accounts from the interview data, effectively humanising the statistics and theories surrounding online learning. This approach allowed for a vivid portrayal of the students' experiences, capturing the emotional and personal dimensions that often remain obscured in more conventional research presentations. Through these stories, the research illuminated the multifaceted challenges and opportunities that students encounter in virtual learning environments, providing a more dynamic and relatable understanding of the phenomena.

The stories crafted from the semi-structured interviews were not mere retellings but interpretative narratives that aimed to convey the essence of the participants' experiences and the broader implications for online learning. In constructing these narratives, the researcher was careful to preserve the authenticity of the participants' voices while also creating a coherent and engaging story arc. This delicate balance required a deep engagement with the data and a thoughtful consideration of how best to represent the complex realities of the participants' lives.

Furthermore, the storytelling aspect of the research enhanced its communicative power, making the findings accessible and compelling to a broader audience, including educators, policymakers, and fellow researchers. By presenting the data in a narrative form, the study invited readers to engage with the material on a more personal and emotional level, fostering empathy and a deeper understanding of the issues at hand.

In sum, the combination of semi-structured interviews and storytelling in this study offered a powerful and innovative approach to researching the impact of webcam use in online learning. The methodology provided a rich, detailed exploration of the subject matter, yielding insights that are both deeply informative and profoundly human. This approach not only contributed to the academic discourse on online learning but also offered practical implications for enhancing student engagement and participation in digital educational environments.

4.5 Methods

In the context of this research, following the semi-structured interviews, I engaged in the construction of narratives, a methodological decision inspired by the works of scholars who advocate for the power of storytelling in research (Clandinin & Connelly, 2000). Storytelling in qualitative research is an approach that transforms the raw data of life experiences, as conveyed in interviews, into stories that are both engaging and insightful. This process involves interpreting and re-presenting the data in a narrative form, a task that requires careful consideration to maintain the authenticity and integrity of the participants' experiences.

The storytelling process began with a thorough analysis of the interview transcripts, identifying significant and poignant elements that capture the essence of the participants' experiences with webcam use in online synchronous learning. These elements were then woven into narratives, aiming to reflect the real-life complexities and emotional journeys of the students. Each story was crafted to represent the individual's experiences faithfully while also contributing to the larger narrative of the study's findings.

In constructing these narratives, the researcher adhered to ethical considerations, ensuring that the participants' voices were not overshadowed by the narrative interpretation. The authenticity of the stories was maintained by using participants' own words as much as possible and by reflecting on the meanings and emotions conveyed during the interviews (Chase, 2005). This approach aligns with the narrative inquiry framework, which emphasises the importance of understanding individuals' lived experiences and the meanings they ascribe to those experiences (Clandinin & Connelly, 2000).

The use of storytelling as a method in this study was not merely a means of presenting data; it was a strategic choice to humanise the findings and facilitate a deeper connection between the research and its audience. By presenting the data in narrative form, the study invites readers to engage with the material more personally and emotionally, thereby making the research findings more accessible and impactful (Sandelowski, 1991). This is particularly effective in educational research, where understanding the personal and emotional dimensions of student experiences can provide deeper insights into the challenges and opportunities in learning environments.

Furthermore, the stories constructed from the interviews served as a bridge between the empirical data and the theoretical framework of the study. Each narrative was linked to the broader themes and research questions, thereby grounding the personal stories within the academic discourse (Polkinghorne, 1995). This method allowed the researcher to illustrate how individual experiences reflect wider patterns and trends in online learning, thereby providing a richer and more nuanced understanding of the phenomenon under investigation.

The data collection was primarily conducted through semi-structured interviews, designed to address specific research questions (RQs) while allowing for the flexibility to probe deeper into participants' responses (Bryman, 2016). This method enabled me to explore various aspects of webcam use and its impact on students' engagement and participation in online synchronous learning. Themes such as 'challenges of engagement and motivation' (Moore &

Kearsley, 2012), 'teaching methods and digital learning tools' (Anderson & Dron, 2011), 'learning environment' (Kahu & Nelson, 2017), 'student experience and support' (Tinto, 2015), 'attitudes towards online learning' (Sun & Chen, 2016), and 'technology in remote learning' (Garrison, 2009) were identified and explored through the interviews, providing a comprehensive understanding of the complex relationship between webcam use, engagement, and participation in online synchronous learning for students from Blackpool and The Fylde College.

The integration of semi-structured interviews and storytelling in this study provided a comprehensive and flexible approach to address the research questions. This methodological choice allowed for a detailed exploration of the experiences and perspectives of students from socioeconomically deprived areas in the UK. By linking the findings to relevant themes and research, I developed a deeper understanding of the complex relationship between webcam use, engagement, and participation in online synchronous learning, thus contributing a meaningful narrative to the field of educational research.

4.6 Data Analysis Methods

This study utilised a thematic analysis approach to analyse the interviews obtained from participants, following the methodological framework proposed by Braun and Clarke (2006). Thematic analysis is a widely used method in qualitative research, involving the identification and analysis of patterns or themes within the data, and has been employed across various fields such as psychology, education, and sociology (Nowell et al., 2017).

The analysis process consisted of several steps, including reading and re-reading the interview transcripts, coding the data into meaningful units, grouping similar codes together into broader themes, and identifying overarching patterns and commonalities (Braun & Clarke, 2006). Through this rigorous approach, the study aimed to identify the factors that influence the use of webcams during online synchronous learning and to gain insights into how

the use of webcams affects student engagement and participation in the learning process (Hrastinski, 2008).

The use of thematic analysis in this study is not arbitrary but is rather predicated on a series of methodological and contextual considerations that are well aligned with the research objectives. Herein lies the compelling argument for its application: thematic analysis affords the study a qualitative, interpretive paradigm, which is crucial for understanding the lived experiences, meanings, and social contexts that surround the use of webcams in online synchronous learning (Creswell & Poth, 2018). This interpretive framework is particularly significant in shedding light on the relationships between technology, student engagement, and participation.

Thematic analysis contributes qualitatively meaningful insights in several ways. Firstly, it accommodates the exploration of complex, multifaceted phenomena like the interplay between technology and student engagement in online learning (Nowell et al., 2017). In doing so, it provides an understanding that is both rich and detailed” Through its theoretical freedom, thematic analysis provides a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex, account of data” (Braun & Clarke, 2006 p.78). Secondly, this method allows for the incorporation of various perspectives, thereby offering a more holistic view of the issue at hand (Patton, 2015). This is particularly pertinent for understanding the unique challenges faced by students from disadvantaged backgrounds, as the method considers individual contexts and lived experiences (Braun & Clarke, 2006).

The thematic analysis was conducted deductively, meaning that the themes were developed from the data itself rather than being imposed based on preexisting theories or frameworks. This approach was more congruent with the study's aim to explore and understand the students' lived experiences and perceptions. The data were initially coded to identify patterns, which were then grouped into categories. These categories were subsequently reviewed and refined to formulate overarching themes that encapsulate the students'

experiences and the complex factors that influence webcam use in synchronous learning.

Thematic analysis was selected for its versatility and ability to systematically identify, analyse, and report patterns (themes) within the data. In the context of your study, it provided a structured approach to distil the semi-structured interview data into coherent themes that relate to webcam use, student engagement, and participation in online learning. This method was particularly suited to your research for its ability to accommodate a wide range of perspectives, offering a 'big picture' understanding of the data collected from students from socioeconomically deprived backgrounds. While discourse analysis might focus more on the nuances of language and power and narrative analysis on the structure and content of stories people tell, thematic analysis allowed for a more straightforward and adaptable approach to understanding the broader patterns in the data, focusing on the content and context of participants' experiences.

The use of storytelling in your research did not replace thematic analysis; rather, it built upon the themes identified through thematic analysis to create engaging, illustrative narratives. After identifying the key themes in the data, these themes were woven into stories that represented the participants' experiences and emotional journeys. Storytelling was used to humanise and give depth to the findings, transforming the themes into compelling narratives that resonate with a wider audience. It allowed for a richer, more empathetic understanding of the participants' experiences, going beyond the 'what' uncovered in thematic analysis to explore the 'how' and 'why' of their experiences in a more engaging and accessible manner.

In essence, thematic analysis was the foundational methodological tool used to dissect and understand the data systematically. In contrast, storytelling was used to translate these findings into a more evocative, nuanced, and relatable format. The combination of these methods in your study allowed for a robust examination of the research questions, providing both the in-depth analysis required to understand complex phenomena and the narrative depth to bring

the participants' experiences to life. This methodological approach ensures that the research is not only methodologically rigorous but also richly descriptive and impactful, engaging readers and providing deep insights into the lived experiences of the study's participants (Hrastinski, 2008).

4.7 Ethical Considerations

Individual autonomy and rights formed the basis for informed consent, which was the process by which individuals decided whether to participate in a research project after being informed of the risks and benefits (Naufel & Edwards, 2022).

In the present study, the power dynamic between the researcher and participants was acknowledged as a significant ethical factor in both petitions for ethics approval from both universities. It was possible that students would feel compelled to participate due to the fact that all participants were students at the researcher's university.

Throughout the study, students were sent an electronic consent email that described the research being conducted and the data that was intended to be collected. To avoid coercing students into participating in the study, an electronic form was used rather than a paper form. Students were able to indicate their participation status online without being identified, and their status could be modified at any time.

The consent communication made it clear that participation was completely voluntary, and that all students who volunteered were welcome to participate. Additionally, the document reassured students that their privacy and confidentiality would be protected, and that the contents of their intellectual property (especially their research work) would never be shared with others. Students were able to withdraw from the study at any time by informing the researcher or updating their status on the computerised consent form. The email concluded by assuring students that their involvement or lack thereof would not impact their course grades. To protect students' privacy, their

collaborative notes were stored in a Google Drive account created specifically for this research project. Two factor authentication and a password protected the account. These notes were preserved indefinitely as a valuable learning resource that students might want to reference in the future. On the researcher's computer in the office, data on students' collaborative behaviour and note taking thoroughness were recorded.

On the same day that audio recordings of interviews were made, they were transferred from the recording equipment and stored on a password protected computer in the researcher's office. Lancaster University required that the data be stored securely for at least ten years.

In designing and executing my research, I committed to an ethical framework that extended beyond the compliance with formal regulations such as the Data Protection Act of 2018. My approach encompassed a comprehensive understanding of relational ethics and incorporated reflexive practice throughout the research process.

I recognised the importance of relational ethics in my study, acknowledging the value and impact of the relationships formed between myself and the participants. I strived to conduct the research in a manner that respected each participant's autonomy, dignity, and privacy. This involved creating a comfortable and respectful environment for participants and being acutely aware of and addressing any power dynamics present in the researcher participant relationship. My commitment to relational ethics guided every interaction with participants, ensuring that the research process was not only ethical but also enriched by the value I placed on these relationships.

Throughout the research, I engaged in ongoing reflexive practice. This meant continuously examining and questioning my assumptions, biases, and actions and considering how these might affect the research and participants. I committed to a reflexive redesign based on ethical concerns, which involved regularly reviewing and adjusting my research methods, questions, and participant interactions. This practice ensured that my research remained

ethically sound and responsive to the needs and feedback of participants. It also fostered an openness to learning and adapting, which was integral to maintaining the ethical integrity of the study.

In terms of data handling, I rigorously followed the Data Protection Act of 2018. All physical data was securely stored in password-protected locations, and electronic data was kept in an electronic file store with access restricted solely to me. I ensured complete transparency with participants regarding the use, storage, and protection of their data and upheld their rights throughout the research process. This compliance was not merely a legal obligation but a fundamental component of my commitment to protecting participant data and maintaining trust.

By integrating these ethical considerations into my research design and execution, I aimed to conduct a study that was not only legally compliant but also ethically responsible and responsive to the needs and rights of the participants. This comprehensive approach to ethics was crucial in safeguarding the integrity of my research and the well-being of the participants, enhancing the quality, credibility, and impact of my findings.

According to the research data management policies of both Lancaster University and Blackpool and The Fylde College, audio recordings were to be kept for no more than one year following the publication of the study, while all other research data, such as consent forms, interview transcripts, and field notes, were to be kept in locked physical locations and/or password protected university computers for ten years following the publication of the study.

While there are various measures that can be taken to protect the identities of organisations and individuals involved in research studies, Trowler (2016) cautions that this can be difficult when the researcher is on the "inside," particularly if the audience is aware that the researcher is a member of the institution involved.

One of the most compelling reasons for revealing the name of the institution in an insider research study is academic rigour. By disclosing the institution's

name, the research gains a specific context that can lend greater weight and relevance to the findings. This is especially true if the institution itself has unique characteristics or practices that are integral to the research questions being explored. Omitting the name could potentially dilute the impact of these unique elements, thereby affecting the study's academic validity.

Transparency is another important factor that justifies the disclosure of the institution's name. If the audience is already aware of the researcher's affiliation with the institution, choosing to hide the name could raise ethical questions and potentially compromise the study's credibility (Ellis & Bochner, 2000). On the contrary, acknowledging the affiliation openly demonstrates a commitment to ethical transparency, which can, in turn, strengthen the study's credibility (Trowler, 2016).

Revealing the institution's name can also be beneficial for future research and institutional development. The findings could serve as a point of reference for other researchers interested in similar institutional settings. Additionally, the institution itself could use the research for internal reviews and improvements, a benefit that becomes more tangible when the institution is explicitly named.

While there are compelling reasons to disclose the institution's name, it is crucial to address the associated ethical risks. The key here is to implement stringent safeguards to protect the anonymity of individual participants. This could involve using pseudonyms, numerical identifiers, or other anonymising techniques for interviewees, and ensuring that sensitive data is securely stored and handled.

The decision to disclose the name of the institution in an insider research study should be underpinned by a well-considered rationale. By doing so, the study can achieve a balance between academic rigour and ethical integrity. The justifications for this decision may include the enhancement of academic validity through contextualisation, a commitment to ethical transparency, and the facilitation of future research and institutional development. However, this

decision should be accompanied by robust ethical safeguards to mitigate any potential risks associated with revealing the institution's name.

In this chapter, I detailed the methodological framework and ethical considerations underpinning my study. I employed a qualitative approach, utilising semi-structured interviews complemented by storytelling to explore the experiences and perspectives of students from disadvantaged backgrounds in the UK concerning webcam use during online synchronous learning. The semi-structured interviews provided a flexible yet structured means to deeply understand the complex relationship between webcam use, engagement, and participation. Following the interviews, I engaged in storytelling, transforming interview data into compelling narratives that highlight the emotional and personal dimensions of the students' experiences.

I adopted thematic analysis to systematically identify and analyse patterns within the data, chosen for its adaptability and suitability for the study's aims. This approach allowed for a comprehensive understanding of the themes emerging from the interviews, ensuring a robust and nuanced exploration of the research questions.

Ethical considerations were paramount throughout my study. I embraced a relational ethics approach, recognising the importance of the relationships between myself and the participants. Reflexive practice was integral to my methodology, allowing for continuous examination and adjustment of the research process based on ethical considerations. Moreover, I adhered to the Data Protection Act of 2018, ensuring the security and confidentiality of all data collected.

Having established the methodological and ethical foundations of my research, the next chapter will bring the voices and stories of the participants to the forefront. It will showcase the participants' cases, delving into the individual experiences and insights that emerged from the semi-structured interviews and storytelling process. Each case will provide a unique window into the lived realities of students using webcams in online synchronous learning, illustrating

the themes identified in the thematic analysis. This chapter aims to humanise the data, presenting the rich tapestry of challenges, motivations, and experiences that define the participants' journeys and contribute to a deeper, more empathetic understanding of the complex dynamics at play in online learning environments. As I move forward, these narratives will not only illuminate the findings of the study but also set the stage for discussion, implications, and recommendations in subsequent chapters.

Chapter 5: The Cases

This chapter was dedicated to the presentation and initial exploration of eight individual cases, each focusing on an undergraduate student from Blackpool and The Fylde College. Situated in a disadvantaged area of the United Kingdom, these cases were selected to delve into the specific experiences related to webcam use in online synchronous learning environments. While the broader theoretical framework of Social Constructivism and the COI shaped the study, this chapter homed in on the experiences of the students, capturing the complexities, challenges, and opportunities they encountered. The aim was to offer a granular view that could later be interpreted in the context of broader research questions and theoretical constructs. Each case stands as a unique narrative, contributing to a composite picture that enriches our understanding of webcam use in online learning among disadvantaged backgrounds.

Before delving into the individual cases, it is crucial to understand the process of transforming the raw data from the semi-structured interviews into detailed participant cases. Each interview was transcribed verbatim, capturing the rich, intricate details of the participants' experiences and perspectives. These transcripts then served as the foundation for a meticulous thematic analysis, where key themes and patterns were identified and explored. Following this, I engaged in a careful process of storytelling, weaving the thematic insights into narrative forms that faithfully represent each participant's journey. This approach ensured that the cases presented are not only informative and analytically sound but also resonate with the depth and complexity of real-life

experiences. By presenting the participants' stories through detailed cases, this chapter aims to provide a vivid portrayal of the varied and nuanced ways in which students interact with and are impacted by webcam use in online synchronous learning. As such, each case serves as a standalone narrative that, when combined, contributes to a richer, more comprehensive understanding of the research questions at hand.

5.1 Jack's Case

Interview transcript can be found in [Appendix 1](#).

Jack, a second-year student in the Digital and Creative Innovation program at Blackpool and The Fylde College, has faced significant challenges due to the transition to online learning brought about by the global pandemic. While he has a supportive background with access to the latest technology and stable internet, the shift to virtual instruction has made it difficult to replicate the hands-on, practical aspects of his coursework in digital media production, coding, and creative project management. These subjects require visual and interactive elements that are challenging to achieve online. Additionally, Jack's preference for keeping his webcam on to enhance interaction and participation is not shared by many of his peers, leading to reduced visual engagement and making collaborative work less effective. Technological hurdles, such as software glitches and occasional connectivity issues, further disrupt the flow of learning and hinder his ability to stay focused. Despite these obstacles, Jack's proactive approach and commitment to his studies have helped him adapt, highlighting the importance of visual cues and active participation in an effective online learning environment.

Jack observed that many students in his online classes chose not to turn on their webcams. He, however, tried to keep his camera on as much as possible to foster interaction. He speculated that the reasons for not using webcams could range from technological issues to personal discomfort.

Jack preferred to keep his webcam on during online sessions to enhance interaction and engagement within the class. He believed that visual cues were important for effective communication.

Jack was motivated to use his webcam to engage more fully in the online classes. He did not mention any particular barriers that prevented him from using it, indicating a personal preference for visual interaction.

While Jack himself did not report any specific challenges in using a webcam, he noted that some students might have felt uncomfortable or intimidated by the video conference format.

Jack felt that keeping his webcam on helped him to engage more effectively in the learning process. He believed that the use of webcams could enhance the quality of interaction among students and between students and tutors.

Jack did not specifically address how webcam usage impacted his learning outcomes, but he mentioned that the lack of interaction with peers was something he missed, implying that increased webcam use could potentially improve his learning experience.

Jack found the online sessions to be somewhat monotonous and "robotic," following a predictable pattern. He suggested that more interactive activities could enrich the learning experience but acknowledged the challenges due to varying network conditions and personal priorities. When comparing different online platforms, Jack appreciated the user friendliness of Microsoft Teams used in Blackpool over the previous provider's more fragmented approach.

Jack's experiences highlighted the benefits and challenges of online learning. He valued the flexibility and efficiency of the online format but missed the spontaneity and interpersonal interactions of traditional classrooms. While he made a conscious effort to engage through webcam usage, he observed that not all students were comfortable doing so, affecting the overall class dynamics.

5.2 Colin's Case

Interview transcript can be found in [Appendix 2](#).

The transition to online learning came at a time when Colin, a mature student returning to academia, was eager to re-engage with his studies. Adjusting from traditional learning methods to a blend of synchronous and asynchronous online classes, including live lectures, prerecorded sessions, and seminars, posed a significant challenge. Initially proactive in using his webcam during live sessions to foster interaction, Colin's enthusiasm waned due to the lack of direct peer interaction and the limitations of the virtual environment, making it difficult to engage deeply with his coursework. His studies in English Literature, which rely heavily on discussion and textual interpretation, required flexibility to adapt to diverse teaching methods, but maintaining the same level of engagement in an online setting proved challenging. Additionally, Colin observed that some students' discomfort with using microphones or webcams led to a more passive learning experience. Technological barriers, such as unstable internet connections and software glitches, occasionally disrupted his learning process, further complicating his ability to stay engaged and participate fully in online classes.

Colin's initial enthusiasm for online learning was high, likely driven by the novelty of returning to education. However, his engagement level declined over time, possibly due to the absence of traditional classroom dynamics and peer interactions.

Initially, Colin was proactive in using his webcam during online sessions, but this enthusiasm diminished as the course progressed. He attributed this decline to the lack of peer interaction and the virtual format's limitations.

Colin mentioned a mix of synchronous and asynchronous methods. While some tutors used live lectures to facilitate discussions, others opted for prerecorded lectures followed by seminars. The common thread was the use of PowerPoint

presentations. Colin felt that these methods resulted in varying levels of student engagement.

Colin believed that the online format might make some students uncomfortable, particularly when it came to using a microphone or being on camera. This discomfort might lead to lower levels of active participation and turn the learning experience into a more passive one.

Colin's suggestions focused on creating a learning specific platform with more interactive features, like collaborative whiteboards and robust communication tools. He also suggested looking at how creative companies had managed online collaboration during the pandemic as a potential source of inspiration for educational settings.

Colin discussed his participation in online role-playing games, which utilised interactive platforms like Skype and Roll20 to create engaging experiences. He suggested that similar platforms could be adapted for educational purposes, though this would require teaching students how to use such software effectively.

Colin's perspective was valuable for educational institutions seeking to improve online learning experiences, particularly for mature students who might be returning to education after a long break. His recommendations for a more interactive and engaging online platform were noteworthy and could serve as the basis for future educational technology development. Additionally, his unique insights into the limitations of online learning in terms of engagement and interaction provided important considerations for curriculum development and teaching methodology.

5.3 Andrew's Case

Interview transcript can be found in [Appendix 3](#).

Andrew found the transition from in person to online learning to be relatively smooth, albeit with some caveats. He pointed out the lack of visual cues in online settings as a drawback, which suggested that he valued interpersonal interaction in his learning experience.

Andrew is a third-year Computer Science student at Blackpool and The Fylde College, having grown up in a tech-savvy household with access to the latest technology and resources due to his parents' IT professions. Despite his strong background and early fascination with technology, the shift to online learning during the global pandemic presented new challenges. Andrew found it difficult to manage the balance between theoretical studies and practical projects in a virtual setting. The blend of synchronous live lectures, asynchronous recorded sessions, and digital tools like PowerPoint required a high degree of adaptability and self-motivation. Additionally, the lack of face-to-face collaboration and immediate feedback in online group projects hindered his ability to engage deeply with complex concepts and tasks. Nonetheless, Andrew leveraged his familiarity with online platforms to adapt quickly, demonstrating resilience and proactive learning habits to navigate these challenges effectively.

Andrew was proactive in his education, using platforms like LinkedIn Learning and Udemy, along with tech focused literature, to supplement his coursework. This initiative was crucial for understanding how self-directed learning could supplement formal education.

Andrew observed a lack of engagement in online discussions among his peers, attributing this to the comfort students found in keeping their cameras off, which mimicked behaviour in traditional classrooms.

One significant advantage cited by Andrew was the ability to revisit recorded lectures, a feature he believed had benefitted many apprentices. This could imply that asynchronous learning elements could be particularly effective for certain types of learners.

While he initially found it challenging to adapt to online learning, Andrew managed to create a conducive learning environment, eventually finding online education to be as effective as in person classes.

Andrew saw ample room for innovation in online learning, mentioning the potential for new methods like digital whiteboards and breakout rooms. He also suggested that online learning could be tailored to suit individual learning preferences.

Taking inspiration from marketing strategies, Andrew suggested incorporating elements of gamification and novelty to keep students engaged. He believed such approaches could be particularly beneficial in subjects like coding, which might otherwise risk monotony.

Andrew's insights were particularly relevant for institutions looking to strike a balance between in person and online learning. His experience underscored the importance of developing interactive features and personalised learning paths in online education platforms. Additionally, his views on self-directed learning could inform the design of supplementary educational resources. Finally, his open-minded approach to incorporating strategies from other fields, like marketing, could offer fresh perspectives for enhancing student engagement in online environments.

5.4 David's Case

Interview transcript can be found in [Appendix 4](#).

David is a final-year Computer Science student at Blackpool and The Fylde College, hailing from a socially deprived area and grappling with significant financial pressures and the responsibilities of parenting. The shift to online learning has intensified these challenges, as he now studies from a cramped

kitchen table rife with distractions. His tutors' diverse teaching methodologies, including synchronous live lectures and asynchronous prerecorded sessions, have required him to adapt quickly. Despite a less-than-ideal study environment and the demands of parenting, David remains committed to his studies, finding value in the structured approach of some tutors and the utility of prerecorded videos for managing his time and understanding complex material. His experience underscores the importance of visual engagement in virtual classrooms for effective communication and collaboration. Through resilience and determination, David continues to pursue his academic goals amidst considerable personal and financial challenges.

David was a student who had been navigating the shift to online learning. His experience was particularly unique due to his home situation; he was in the midst of moving residences when online classes commenced. Consequently, his workspace was limited to a table with a laptop. David's online educational experience varied, with different tutors adopting diverse teaching methodologies. Despite the challenges, David maintained a generally positive outlook, focusing on staying ahead in his coursework, especially considering his responsibilities as a parent.

David mentioned that many students in his class did not turn on their cameras during online sessions. While he himself was indifferent to having the camera on, he believed that visual engagement could better emulate a classroom experience.

David was not particularly bothered by whether the webcam was on or off during classes. However, he did express a preference for cameras to be on, as he felt it approximated a traditional classroom setting.

David's webcam use seemed to be influenced by the collective behaviour of his classmates. While he held the view that webcam use could enhance the learning experience, he did not insist on it, given the general sentiment in his class.

David's primary challenge seemed to be the lack of reciprocation from his peers in using webcams. He felt that this lack of visual engagement could inhibit effective communication and collaboration within the class.

David indicated that the absence of webcams from his peers made it more challenging to engage fully in the class. While he did not explicitly state how his own webcam use affected his engagement, it could be inferred that he believed it would be more beneficial if everyone used webcams.

While David did not directly address this, his overall sentiment suggested that increased webcam usage among his classmates could potentially enhance class participation and, by extension, learning outcomes.

David pointed out that the online format could be improved by considering the varying needs of different students, such as those in apprenticeships and those just starting their careers. He also mentioned that unnecessary requirements, like psychometric tests and CV submissions, could be eliminated to make the process more streamlined. David valued the structured approach of some tutors and found prerecorded videos to be a helpful resource.

David's experience in online learning offered insights into the role of webcams and the importance of adapting teaching methodologies to suit the needs of diverse learners. Despite his limited workspace and the challenges of online collaboration, David remained committed to his educational journey, appreciating the opportunity to continue studying amidst the pandemic.

5.5 Courtney's Case

Interview transcript can be found in [Appendix 5](#).

Courtney was a student who had transitioned from traditional to online learning. Her initial experience was generally positive, thanks to the faculty's familiarity with the Microsoft Teams platform. Her learning environment seemed to be quite structured, involving various lecturers and a content heavy degree

programme. The online classes in which she participated varied in terms of how they were executed, depending on the lecturer's capabilities and preferences.

The transition to online learning coincided with Courtney's advanced coursework in her rigorous, content-heavy Maritime Engineering program, making the shift a significant adjustment due to the detailed technical content and practical applications involved. Adapting to diverse teaching styles, ranging from prerecorded lectures to live interactive sessions, required flexibility and resilience. The virtual environment posed challenges for engaging with hands-on aspects crucial for understanding technical concepts. Courtney observed variability in interaction and engagement based on class size and webcam use, with smaller classes benefiting from better interaction through webcams, while larger classes felt impersonal. Technological issues, such as unstable internet connections and software glitches, occasionally disrupted her learning process. Despite these challenges, Courtney leveraged the structured format of her program and digital tools, particularly Microsoft Teams, to maintain a semblance of her traditional learning environment and remained proactive in her studies, utilizing available resources to overcome the limitations of online learning.

Courtney mentioned that some lecturers required students to turn on their cameras, while others did not. In her case, she found it easier to have the camera on because her class was relatively small, and the students knew each other well.

The primary factor seemed to be the class size and the familiarity between students. Courtney was more comfortable using her webcam in smaller classes where students knew each other well. She did not specifically mention challenges or barriers related to webcam use. However, she did note that in larger classes where students were not as familiar with each other, having the camera on could be uncomfortable.

While Courtney did not directly discuss the impact of webcam use on her engagement, she implied that having webcams on in a familiar setting could be less inhibiting and possibly more engaging. Courtney did not explicitly address

how webcam use impacted her learning outcomes or participation. However, she did stress the importance of auditing and monitoring to identify both exceptional and problematic teaching methods, which could indirectly relate to her learning outcomes.

Courtney's experience highlighted the variability in teaching quality in an online environment. She suggested that better auditing and monitoring of lessons could help improve the overall quality of teaching. Furthermore, she believed that the suitability of online learning could be course specific; for her content heavy degree, she felt that a traditional classroom environment might be more appropriate. In terms of student lecturer relationships, Courtney noted that these could vary greatly depending on the lecturer's approach and personality.

Courtney's insights provided a view of online learning, revealing both its merits and limitations. Her observations could be instrumental in making improvements to existing online learning frameworks, particularly in ensuring consistency in teaching quality and considering the suitability of online formats for different types of courses.

5.6 Elizabeth's Case

Interview transcript can be found in [Appendix 6](#)

Elizabeth was a student pursuing a degree in English language, literature, and creative writing, primarily for personal enrichment rather than career advancement. She was also employed as an examiner for the insolvency service. Elizabeth's educational experience had largely benefited from the transition to online learning during the COVID 19 pandemic. This mode of delivery allowed her greater flexibility to balance her studies with her work responsibilities. She had been exposed to different teaching methodologies from her lecturers, ranging from prerecorded PowerPoint presentations to more interactive discussions.

Balancing her demanding job as an examiner for the Insolvency Service with her academic pursuits often leads to high stress and requires exceptional time management skills. The shift to online learning during the COVID-19 pandemic has reduced opportunities for face-to-face interaction, which Elizabeth values for effective learning in literature and creative writing. Adapting to a mix of prerecorded PowerPoint presentations and live discussions demands flexibility, while technological issues like unstable internet connections further impede her participation. Additionally, the solitary nature of online learning can lead to feelings of isolation and a lack of motivation, as Elizabeth misses the camaraderie and spontaneous interactions of in-person classes that are vital for maintaining enthusiasm and a sense of community.

Elizabeth noted that many of her classmates chose not to turn on their webcams during online sessions. She believed that this lack of visual engagement made interaction more challenging, suggesting that some students might not even have been present during the class or may have been preoccupied with other matters.

Elizabeth did not explicitly state her personal stance on webcam usage, but she did imply that the lack of webcams among her classmates affected the overall classroom interaction.

While Elizabeth did not explicitly mention any challenges, she personally faced with webcam use, she did note that family issues or other distractions might have been reasons why her classmates chose to keep their cameras off.

Elizabeth felt that the absence of webcams among her peers made interaction more difficult. Although she did not state how her own webcam use impacted her engagement, it could be inferred that she believed a more visually interactive class would be beneficial.

The interview did not provide specific information on how webcam use, and engagement affected Elizabeth's participation and learning outcomes. However, given her positive outlook on online learning and her appreciation for flexibility, it

might have been that her primary learning outcomes were not significantly influenced by webcam use.

Elizabeth appreciated the flexibility that online learning offered, especially considering her work commitments. She pointed out that the teaching methods varied among her lecturers, with some providing prerecorded PowerPoint presentations and others encouraging more interaction. Elizabeth found value in the chat feature for class interactions, particularly for on-the-spot creative exercises. She also mentioned that a sense of camaraderie had developed among her classmates through the chat feature.

Elizabeth's experience highlighted the benefits of flexibility in online learning but also pointed to the challenges of reduced interaction when webcams were not universally adopted. Her insights offered valuable perspectives on the pros and cons of different teaching methods in an online environment. While she had generally found the transition to online learning beneficial, she noted that the lack of visual interaction could be a hurdle to effective communication and engagement.

5.7 Luke's Case

Interview transcript can be found in [Appendix 7](#).

Luke was a student who had engaged in both Face to face and online learning experiences. He found that there were similarities between the two formats but also noted distinct challenges with online classes. One of the most salient issues he pointed out was the difficulty in gauging the progress and engagement of classmates in an online setting. Typically, an online class for him involved a session that began with waiting for everyone to arrive, followed by a briefing, PowerPoint presentation, or material review. The class usually concluded with a period for workshopping.

Balancing his academic commitments with part-time work in his family's business often left Luke with limited time for his studies, leading to high stress

and fatigue. His home study environment, though technologically equipped, was frequently disrupted by the distractions of a shared living space, hindering his focus and productivity. The shift to online learning during the COVID-19 pandemic eliminated the immediate feedback and social cues he relied on, making it harder to gauge his progress and understand complex concepts.

Luke suggested that a lack of webcams could be contributing to difficulties in communication and collaboration. He did not specifically state whether he used a webcam but implied that their absence could lead to awkward silences and limited social cues.

Luke did not specifically mention how he personally used the webcam during online sessions. However, he did indicate that their usage could improve the online learning experience.

Luke did not go into detail about what factors might influence his own use of webcams. However, he suggested that the use of webcams could help overcome some of the challenges of online learning, such as awkward silences and lack of social cues.

Luke identified the absence of social cues as a key challenge in online learning. While he did not explicitly state that this was a barrier to using webcams, the implication was that the incorporation of webcams could help alleviate this issue.

Luke did not specifically discuss how the use of webcams affected his engagement. Nevertheless, he did point out that engagement levels could fluctuate significantly from week to week, depending on the lesson's structure and content.

Luke did not directly address how the use of webcams impacted his learning outcomes or participation. However, he did suggest that the absence of webcams and social cues made it difficult to communicate and collaborate effectively, which could potentially affect his learning experience.

Luke believed that activity-based learning could be more effective in maintaining student engagement compared to lecture style teaching. He also felt that there should be more avenues for discussion among classmates to facilitate better learning and engagement. Luke identified the absence of social cues as a significant drawback in online learning, suggesting that webcams could potentially address this issue.

Luke's experience with online learning was a mixed bag. While he saw similarities with traditional classrooms, he also identified specific challenges, including fluctuations in engagement levels and the absence of social cues. His observations offered valuable insights into how online learning could be improved, particularly through the use of webcams and more interactive teaching methods.

5.8 Lewis's Case

Interview transcript can be found in [Appendix 8](#).

Lewis was a student who had a mixed experience with online learning. Initially attracted to the convenience of not having to travel to college, Lewis eventually found the format challenging due to distractions at home and the impersonal nature of large online classes. In his experience, classes were often recorded, which he felt diminished the urgency to pay active attention. However, he did find value in smaller, more interactive classes that used webcams and microphones, as well as breakout rooms for group work.

Lewis faced significant challenges balancing his studies with part-time work due to financial instability, often leaving him with limited time and resources for academic pursuits. Living in a crowded household with minimal personal space, he struggled to find a quiet, conducive environment for studying, particularly during the shift to online learning necessitated by the COVID-19 pandemic. His home environment was rife with distractions, making it difficult to maintain focus during online classes.

Lewis strongly felt that smaller classes where webcams and microphones were used offered a more "normal and interactive" experience. He contrasted this with larger classes where these tools were not used, finding them less engaging and more challenging for communication.

In smaller classes where webcams were used, Lewis felt more comfortable and found the experience to be more interactive. He did not specify whether he personally turned his webcam on but implied a preference for classes where webcams were used.

Lewis suggested that the class size and whether webcams were generally used in the class were factors that influenced his experience. He preferred smaller classes where webcams were used, as this fostered a more interactive environment.

Lewis identified the lack of webcams and microphones in large classes as a challenge, stating that it made communication difficult and led to a sense of being "lost in the crowd."

For Lewis, the use of webcams in smaller classes significantly enhanced his engagement. He felt more comfortable sharing thoughts, asking questions, and collaborating with classmates when webcams were used.

While Lewis did not directly comment on how webcam usage impacted his learning outcomes, his preference for smaller, webcam enabled classes suggested that he believed such an environment would positively impact his participation and ultimately his learning.

Lewis highlighted that the use of breakout rooms in online classes was beneficial for him. In these smaller groups, he felt more at ease sharing his thoughts and found it easier to engage in meaningful discussions with classmates. Based on his experience, Lewis recommended that online classes could be improved by having smaller class sizes, enabling webcams for better communication, and making greater use of breakout rooms for group work.

Lewis's experience with online learning had been a journey of initial optimism followed by challenges. While he initially appreciated the convenience of online classes, he found that a lack of interactive elements led to a decline in his engagement and participation. His insights suggested that webcams and other interactive features were crucial for making online learning more effective and engaging.

Chapter 6: Findings and Discussion

In this chapter, I present the findings of my research with a deep commitment to preserving the integrity and authenticity of the data. This endeavour is rooted in a belief that the most profound understanding arises when the data is allowed to speak for itself, reflecting the real voices and lived experiences of the participants. As a researcher, my roles have been to facilitate this expression, carefully navigating the space between semi-structured interviews and storytelling, ensuring that the narratives developed are both true to the participants and analytically rich. Throughout the process of converting interview transcripts into detailed cases, I have been acutely aware of my dual role as both an analyst and a storyteller. This has meant continuously balancing the need for accurate representation of the participants' voices with the interpretative work necessary to bring out the deeper meanings and implications of their experiences. While the thematic analysis provided a structured framework to identify and organise key themes and patterns, the subsequent storytelling was approached with a conscientious effort to maintain the original context and sentiment of the participants' narratives. My objective has been to illuminate the data, not overshadow it, allowing for a nuanced understanding that respects the participants' perspectives while also drawing out broader insights relevant to the field.

This approach required a constant, reflexive examination of my own biases and preconceptions and an ongoing effort to ensure they did not colour the representation of the data. In presenting each case, I have strived to let the authenticity of the participants' experiences shine through, providing readers with a clear, unadulterated view into the complexities and nuances of webcam

use in online synchronous learning. Each narrative has been crafted with an intention to bring the reader closer to the participant's world, allowing for an empathetic and informed engagement with the findings.

However, it is imperative to acknowledge that whilst these findings are presented in their most unadulterated form, a certain degree of structure is necessary to facilitate comprehension and to enable the reader to navigate through the experiences and insights that have emerged from the research. This structuring is done with careful consideration, ensuring that the essence of the data is not altered or diluted. The chapters that follow are therefore arranged in a manner that reflects the natural progression of experiences and observations noted during the study, providing a coherent narrative that respects the original context and meaning of the data.

The data was meticulously gathered through a series of interviews and were organised into a structured table under key thematic umbrellas: 'Social', 'Cognitive', 'Teaching', 'Anomalies', 'Cameras', and 'Improvements'. This categorisation aimed to facilitate a coherent analysis of the participants' perspectives.

Across the eight individual cases, a total of 31 speaking turns focused on the subject of webcam use were recorded. Of these, 9 were favourable, 5 were neutral, and 17 were unfavourable. This skewed distribution provided a rich insight into the complex dynamics of webcam use among disadvantaged students.

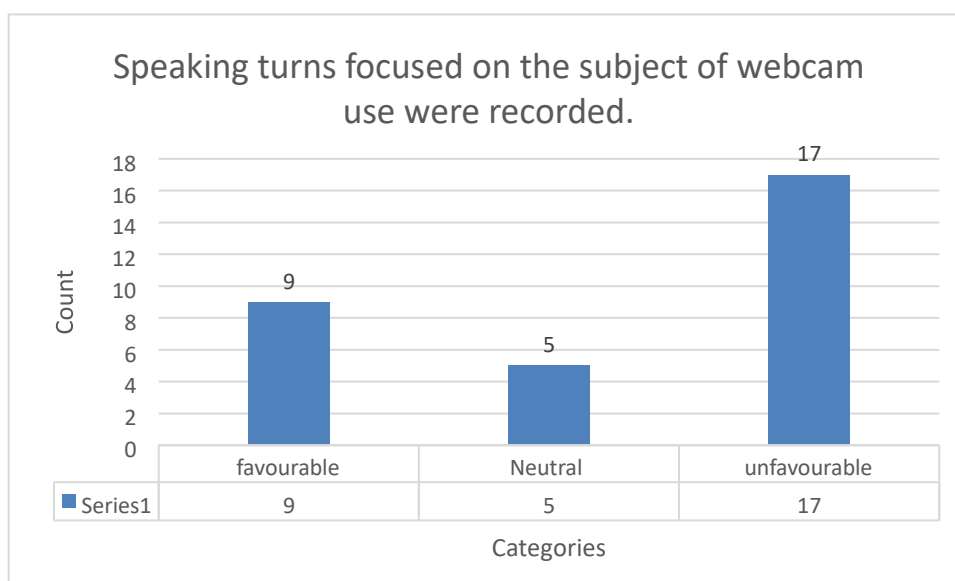


Figure 2 - Speaking turns focused on the subject of webcam use were recorded.

In line with the insights from our participants, it is worth referencing the work of Garrison (2007) in the context of validity concerns in qualitative research.

Garrison's exploration of online COI, social presence, and cognitive presence provides a solid foundation for understanding the impact of webcam use in online learning environments. His study sheds light on how online interactions can enhance engagement and reduce feelings of isolation, aligning with our participants' comments.

In this table below (Table 1), I delve into the diverse experiences and attitudes of participants regarding webcam use in online synchronous learning. The following table presents a concise summary of the responses from eight participants, identified by pseudonyms to maintain confidentiality. Each participant's perspective is categorised into three columns: 'Favourable', 'Neutral', and 'Unfavourable', reflecting their varied reactions and feelings towards the use of webcams in their learning environment.

The 'Favourable' column highlights aspects of webcam use those participants found beneficial or positive. These include perceptions of increased engagement, feelings of normalcy, and aspects of online learning that resonated well with their personal or academic preferences. The 'Neutral'

column captures observations and attitudes that neither particularly hindered nor enhanced the participants' learning experience. These might be seen as indifferent or passive stances towards webcam use. Lastly, the 'Unfavourable' column notes the challenges, concerns, and negative aspects associated with webcam use as expressed by the participants. These include technical difficulties, privacy concerns, and elements that detracted from their learning experience.

Each participant's feedback provides valuable insights into the multifaceted nature of webcam use in online synchronous learning. By examining these perspectives side by side, I gain a comprehensive understanding of the factors that influence students' engagement and participation, as well as the potential implications for educators and online learning platforms. The table aims to encapsulate the range of experiences, offering a snapshot of the collective attitudes towards webcam use among the participants in my study. [Favourable] - [Neutral] - [Unfavourable]

This structured approach allows the appreciation the complexity of online learning experiences and consider how varying factors contribute to students' preference for or against the use of webcams. It sets the stage for a more in depth discussion and analysis of these perspectives in subsequent sections, where I will explore the implications of these findings for enhancing online synchronous learning environments.

Table 1 Favourable, Neutral and Unfavourable comments on webcam use

	Favourable	Neutral	Unfavourable
P1 (Jack)		Surprised at low camera use... varied network quality...	Video conferencing feels robotic, needs more interactivity... Poor camera quality fear of judgment... Lack of confidence...Accidental embarrassment... Preference for camera off.

P2 (Colin)		Some use cameras, some don't... Others dial in and disengage...	Focused on PowerPoint, few faces visible...feels like in front of people, not beside... Cameras encouraged, yet seldom used... Poor environment... TV and phone distractions...
P3 (Andrew)	Different learning styles; online offers more variety...greater potential reach... Breakout rooms in lessons keep us engaged...		Tutors rumble on...tempted to turn camera off, revisit recording later...
P4 (David)	All tutors had cameras on. Similar to a normal lesson.		Most students keep camera off. Dislike seeing own face...leads to obsession...
P5 (Courtney)	Lecturers improved in judging ability...asked targeted questions		Internet not sufficient for camera and mic... Camera uses easier among acquaintances...
P6 (Elizabeth)	Similar to face-to-face learning at times...		Interaction harder...dislike cameras on due to family issues...often absent, difficult to engage...
P7 (Luke)		Varied weekly energy... activity based approach keeps engagement...	Face to face allows pace gauging...online makes tracking progress difficult... Varied weekly energy... activity-based approach keeps engagement... Awkward silences common...lack of social cues leads to speaking hesitancy...
P8 (Lewis)	Asked to turn webcams on for normality... Webcams aid focus and reduce loneliness... Breakout rooms helpful for smaller group interaction...		

In the table below (Table 2), I present a summarised view of participants' reflections on the three integral dimensions of online synchronous learning as categorised by the COI framework: social, cognitive, and teaching presence. This framework helps to understand the complex dynamics of online learning

environments and how they impact student experiences and outcomes. Each column in the table represents one of these dimensions, with 'Social' focusing on the aspects of group dynamics and peer interaction, 'Cognitive' dealing with the intellectual and reflective components of learning, and 'Teaching' involving the strategies and behaviours of educators and how they facilitate learning.

The 'Social' column highlights the participants' views on how online learning platforms and activities foster or hinder interpersonal interactions and the development of a learning community. It reflects the sense of camaraderie, communication challenges, and the overall feeling of connectedness among peers within the online learning environment.

The 'Cognitive' column captures insights into the participants' intellectual engagement with the course content, their reflections on the learning process, and the challenges and successes they encounter in understanding and applying knowledge. This includes their experiences with zoning out, distractions, and the effectiveness of various instructional strategies on their learning.

Lastly, the 'Teaching' column provides perspectives on the instructional strategies and behaviours of educators in the online synchronous learning environment. It includes reflections on the effectiveness of breakout rooms, the adaptability and evolution of teaching methods over time, and the overall impact of teaching presence on the participants' learning experiences.

By examining the participants' experiences across these three dimensions, I aim to provide a multifaceted understanding of the dynamics at play in online synchronous learning environments. The following table serves as a concise depiction of the collective sentiments and experiences of the participants, reflecting the diversity of their interactions and the varying impacts of different elements of the learning environment on their educational journey.

[Social] - [Cognitive] - [Teaching]

In presenting this table, I aim to draw out the nuanced and varied experiences of the participants, providing a basis for a richer, more informed discussion on how to enhance online synchronous learning environments to better serve students' needs across social, cognitive, and teaching dimensions. The insights gathered here will be instrumental in guiding further analysis and discussion in the subsequent sections of this study.

Table 2 - Social, Cognitive and Teaching Presence coded

	Social	Cognitive	Teaching
P1 (Jack)	Teams is really helpful...	Video conference feels robotic...	In a classroom, you chat...
P2 (Colin)		Hard to motivate sometimes...	Shifted a bit after excitement...
P3 (Andrew)	People learn in different ways...	Tend to zone out...	Breakout rooms worked for me...
P4 (David)		All tutors have cameras on...	Three topics to research...
P5 (Courtney)	Content was readily available...		Lectures got progressively better...
P6 (Elizabeth)	Good camaraderie...	Interaction was harder...	
P7 (Luke)	Harder to talk to people I usually wouldn't...	Awkward silence sometimes...	activity-based was good...
P8 (Lewis)	Less comfortable to communicate...	Loads of distractions...	Breakout rooms were good...

In this table below (Table 3), I present a table summarising the reflections and observations of participants concerning anomalies they have encountered, their experiences with camera use, and their suggestions for improvements in online synchronous learning environments. This table aims to provide a structured overview of the participants' varied experiences and insights, highlighting notable deviations from the expected norms ('Anomalies'), the practical realities and challenges associated with using webcams ('Cameras'), and the participants' ideas on enhancing the learning experience ('Improvements').

The 'Anomalies' column captures unexpected or unusual experiences noted by the participants during their online learning. These can range from surprising behaviour among peers to unique challenges posed by the virtual environment.

Understanding these anomalies helps in recognising the diverse and sometimes unpredictable nature of online learning experiences.

The 'Cameras' column focuses on the participants' specific experiences and attitudes toward webcam use in the online learning context. It reflects on how camera use (or non-use) influences the learning environment, including issues related to network connectivity, privacy concerns, and the general comfort level of students being on camera.

Lastly, the 'Improvements' column gathers participants' suggestions and ideas for enhancing the online synchronous learning experience. These insights are crucial as they come directly from the users of these systems and include practical suggestions that could make the virtual learning environment more engaging, inclusive, and effective.

[Anomalies] - [Cameras] - [Improvements]

By providing a concise summary of these observations and insights, this table serves as a valuable resource for understanding the specific and sometimes subtle aspects of online learning that affect student experiences. The participants' perspectives offer direct feedback on the current state of online synchronous learning and propose actionable steps for improvement. As I delve into this table, I aim to highlight the complexities and nuances of online learning and discuss how these insights can inform strategies for creating more effective and engaging online learning environments.

Table 3 Anomalies, Cameras and Improvements noted.

	Anomalies	Cameras	Improvements
P1 (Jack)	Surprised by how many people...	Different network connectivity...	More engagement with cameras...
P2 (Colin)		Easy place to hide...	People dialling in and doing other stuff...
P3 (Andrew)	Distracting environment...	Cameras rarely on...	Can rewatch lessons...
P4 (David)		Similar to a normal lesson...	
P5 (Courtney)		Internet not good enough...	Targeted questions are impressive...
P6 (Elizabeth)	Family issues, people dashing off...	Worked for me...	Students not necessarily participating...
P7 (Luke)	Get distracted easily at home...	Sometimes similar to face to face...	Don't get to see where everyone's at...
P8 (Lewis)	Motivation lacks...	Helps a lot to turn webcams on...	All being recorded...

I have adopted an unconventional approach by presenting the research questions in reverse order. This deliberate structural choice was made after careful consideration of the nature and goals of my research, as well as the most effective way to communicate the findings and implications to the audience. The rationale behind this decision is multi-faceted, reflecting both the complexity of the research topic and a strategic approach to discussion and analysis.

One of the primary reasons for this reverse presentation is to build complexity in a manner that is engaging and accessible. Often, research questions progress from foundational concepts to more complex analyses. By reversing the order, I lead the readers from the specific and intricate aspects of the study to the broader, more foundational concepts. This approach allows for a gradual unveiling of the research, helping to deconstruct complex ideas into their more basic elements. It is an invitation to the audience to first consider the advanced findings or novel contributions of the research before delving into the underlying principles or broader context.

Moreover, presenting the research questions in reverse order places immediate emphasis on the most significant or innovative aspects of the study. By highlighting

these elements at the outset, I aim to capture the audience's attention and underscore the unique contributions of my research. This strategy ensures that the key findings and implications are front and centre, making the research's value and relevance clear from the beginning.

The structure of this chapter also reflects a careful consideration of narrative flow and logical progression. By starting with the more specific or advanced questions and moving towards the general or foundational ones, I create a narrative that is both compelling and intuitive. This reverse order can help to clarify complex relationships and patterns, providing the audience with a clearer understanding of the research as a whole. It is a journey that first explores the outer branches of the research before tracing back to the root, ensuring a comprehensive understanding of the topic.

Additionally, this approach aligns with a strategic emphasis on certain aspects of the research that might otherwise be overshadowed by more foundational questions. By presenting the more nuanced questions first, I ensure they receive the attention and consideration they deserve. This strategic emphasis helps to highlight the depth and breadth of the study, showcasing the full range of insights and analyses involved.

In conclusion, the decision to present the research questions in reverse order was made to enhance the clarity, impact, and narrative flow of this chapter. It reflects a thoughtful and strategic approach to communicating complex research in a way that is both engaging and informative. By guiding the audience through the research in this manner, I aim to provide a clear, comprehensive, and compelling account of the study's findings and implications.

6.1 RQ 1.4 & 1.5 Use of webcams and impact on participation and learning.

The use of webcams in online synchronous learning sessions presents a multifaceted impact on students' participation and learning outcomes. Webcams can enhance social presence, a critical aspect of the COI framework, leading to more meaningful interactions and potentially more robust learning outcomes. However, technical issues and personal discomfort with being on camera can create barriers to participation and engagement.

The COI framework, comprising cognitive presence, social presence, and teaching presence, suggests that social presence is essential for meaningful learning experiences (Garrison, Anderson, & Archer, 2000). Webcams can enhance social presence by allowing participants to see each other's facial expressions and body language, which are vital non-verbal communication cues. Lewis articulated this benefit, stating, "It means I have to be there and do work. And so, in a way, it sort of motivates you to do work and keep on track." This sentiment is supported by Lowenthal and Dunlap (2020), who posited that visual cues deepen interactions and enrich the learning experience.

Elizabeth's observation that instructors can better gauge students' understanding and ask targeted questions based on visual feedback further underscores webcam's potential to enhance cognitive engagement. She noted, "Lecturers got progressively better at being able to judge the ability of us as well, which made it really useful because he could actually ask targeted questions, which I think is quite impressive." This ability to adapt teaching in real-time can lead to improved learning outcomes, aligning with the COI framework's emphasis on the interplay between cognitive and teaching presence.

Despite the benefits, the use of webcams also introduces significant challenges. Technical issues, particularly regarding internet connectivity, can disrupt participation. Courtney highlighted that poor internet quality impeded the simultaneous use of cameras and microphones, stating, "The internet wasn't good enough for us to have cameras and microphones all at the same time," leading to disengagement. This is consistent with findings in the literature that stress the necessity of reliable technology for effective online learning (Bedenlier et al., 2020).

Personal discomfort and fear of judgment also deter active participation. Jack expressed that some students, lacking confidence, are reluctant to be on camera, fearing judgment or making mistakes: "Students don't want to perhaps be judged. They perhaps aren't as confident, then struggle a bit because they don't want to say the wrong thing or appear in the wrong way." This reluctance can hinder academic risk-taking, which is crucial for deep learning (Baxter & Hailey, 2022). Such

wellbeing concerns reflect broader discussions about the barriers in digital learning environments and their impact on student engagement and outcomes.

Pedagogical design plays a critical role in determining the effectiveness of webcam use in online learning. Interactive elements, such as breakout rooms, can significantly enhance engagement. Andrew noted, "Lessons, where we go into breakout rooms and stuff, keep us engaged." In contrast, didactic teaching approaches may lead to disengagement, with students turning off their cameras. He pointed out that when tutors "just rumble on," students are tempted to disengage. This observation aligns with the educational discourse advocating for student-centred and interactive teaching methods in online learning (Czerniewicz et al., 2019).

This exploration delves into two intertwined research questions: how the use of webcams during online synchronous sessions impacts student engagement and how this engagement influences students' participation and overall learning outcomes. Addressing these questions together provides a holistic understanding of the digital learning environment, recognising that momentary engagement can echo into broader educational outcomes.

The research findings, drawn from qualitative interviews, reveal a complex dynamic. While some students, like David, found that webcams enhanced engagement and participation, noting "more engagement with people putting their cameras on," others, such as Elizabeth and Courtney, pointed out that online engagement often lacked the depth of face-to-face interactions. Elizabeth specifically mentioned that face-to-face learning provided social cues that were missing online, making it "hard to track progress with people online." This divergence highlights that while webcams can simulate some aspects of a physical classroom, they cannot entirely replace the richness of in-person social cues.

The use of webcams in online synchronous learning sessions at Blackpool and The Fylde College reveals a nuanced scenario. While webcams can enhance social presence and engagement, technical limitations and personal discomfort can impede these benefits. The effectiveness of webcam use is also contingent upon pedagogical approaches. Educators must, therefore, balance the potential

advantages of webcam use with its challenges to optimise student participation and learning outcomes in online environments.

6.2 RQ 1.3: Challenges and barriers

In online synchronous learning at Blackpool and The Fylde College, the challenges and barriers to webcam use unfold across several dimensions, ranging from technical difficulties to social wellbeing and pedagogical concerns, intertwined with environmental factors. These multifaceted challenges resonate significantly with the broader themes identified in existing literature on online learning.

On the technical front, students encounter issues such as poor internet connectivity and inadequate hardware, a reality echoed in Elizabeth's and Jack's experiences. Elizabeth highlighted, "the internet wasn't good enough for us to have cameras and microphones all at the same time," while Jack cited the "camera's not good quality" as a challenge. These technical hurdles are a primary concern in the wider research context, where the digital divide often hinders effective online learning (Hilbert, 2016; Lee, 2017). The inadequacy of infrastructure, particularly in socioeconomically disadvantaged areas, underscores the need for robust technological support as a cornerstone for successful online education.

In the social wellbeing domain, the study highlights the students' apprehensions about being on camera, including fears of judgment and self-consciousness. Jack's concerns about being judged and David's observation about the discomfort of seeing oneself on camera provide a window into the internal struggle's students face. Jack expressed, "students don't want to perhaps be judged," while David noted, "people don't like talking and seeing a little picture of their own faces" and that students "obsess over things when you can see yourself." This finding aligns with the literature emphasising the wellbeing impacts of online learning environments (Baxter & Hainey, 2022). It illustrates the imperative for fostering an online learning culture that is both supportive and sensitive to the emotional wellbeing of students.

Pedagogically, the findings reveal how the structure and delivery of online courses influence webcam use. Criticisms from students like Andrew, who pointed out the

monotony in some tutors' teaching styles, and Luke's mention of "awkward silences" reflect the challenges inherent in virtual learning environments. Andrew noted, "some tutors just rumble on, and that makes us very tempted to turn the camera off and then not even listen," while Luke highlighted the issue of "awkward silence sometimes," attributing it to the absence of social cues that are naturally present in face-to-face settings. This aspect of the study dovetails with the broader discourse on effective pedagogical strategies in online learning (Czerniewicz et al., 2019), highlighting the need for educators to innovate and adapt their teaching methods to engage students more effectively in the digital realm.

The study also sheds light on environmental challenges, notably the distractions within home settings, as articulated by Colin. Colin admitted to being easily sidetracked: "I didn't have a good environment for it. I could see the TV and it was very distracting." This observation is in harmony with existing research on the impact of the home environment on online learning engagement. The diverse and often uncontrollable nature of home learning environments presents additional hurdles for students, suggesting a need for greater flexibility and understanding from educators.

Finally, the study addresses the challenge of fostering engagement and interaction in online sessions, as evidenced by Courtney and Luke's experiences. Courtney noted that online sessions make it "definitely easier for us," but Luke indicated that "it's hard to get anyone to speak at all" in some sessions, despite some activities being "good and kept people engaged." The difficulty in stimulating participation and dialogue in virtual classrooms is a recurring theme in the literature, underscoring the challenge of replicating the interactive dynamics of traditional classrooms in an online setting (Fabriz et al., 2021).

In summation, the insights from this study at Blackpool and The Fylde College underscore the complex and layered nature of challenges in webcam use within online synchronous learning. Reflecting the concerns highlighted in the wider research landscape, these findings emphasise the necessity for a comprehensive approach in online education. Such an approach must not only address technological needs but also encompass the social, psychological, pedagogical, and environmental

factors that collectively shape the online learning experience, particularly for students from disadvantaged backgrounds.

6.3 RQ 1.2: Influence whilst using webcams.

The factors influencing the use of webcams during online synchronous learning sessions among students at Blackpool and The Fylde College are manifold and complex. At the technical level, constraints such as poor internet connectivity and inadequate camera quality play a significant role. Elizabeth succinctly captured the issue of connectivity by stating, "the internet wasn't good enough for us to have cameras and microphones all at the same time." Similarly, Jack lamented, "the camera's not good quality."

Technical constraints play a pivotal role in shaping students' engagement with webcams. Issues of inadequate internet bandwidth and camera quality, as highlighted by Elizabeth and Jack, resonate with findings in the broader literature that stress the importance of reliable and accessible technological infrastructure in online learning. These technical challenges are not merely logistical concerns but also significant barriers to active participation, underscoring the digital divide that often hinders effective online learning, especially among socioeconomically disadvantaged groups (Hilbert, 2016; Lee, 2017).

Social factors influencing webcam use are equally critical. The apprehension of being judged or feeling self-conscious, articulated by students like Jack and David, reflects a wider discussion about the emotional and wellbeing impacts of online learning environments. Jack voiced concerns that students might not want "to perhaps be judged," and also noted individual mood as a factor: "I'm in the mood to be a camera off type person." David observed that "people don't like talking and seeing a little picture of their own faces" and that students "obsess over things when you can see yourself." This highlights the need for a supportive and empathetic online culture where students feel comfortable and safe engaging visually, addressing broader concerns about the emotional wellbeing of students in digital spaces (Baxter & Hainey, 2022).

Pedagogical strategies and course design significantly impact webcam usage. Andrew's observations about certain teaching styles leading to disengagement align with research advocating for interactive and student-centred teaching approaches in online learning. Andrew noted that "lessons, where we go into breakout rooms and stuff, keep us engaged," whereas more didactic teaching styles result in disengagement. Luke mentioned the issue of "awkward silence sometimes," attributing it to the absence of social cues naturally present in face-to-face settings. These findings emphasize the necessity of adapting teaching methods to the online format, where interactive elements can enhance engagement, while more traditional approaches may lead to reduced participation (Czerniewicz et al., 2019).

Environmental factors, particularly the suitability of the home learning environment, also influence webcam use. Colin pointed out the distractions in his learning environment: "I didn't have a good environment for it. I could see the TV, and it was very distracting." This finding aligns with studies that discuss the impact of the home environment on students' capacity to engage in online learning. The diverse and often uncontrollable factors present in students' home environments suggest the need for educators to be flexible and understanding of the varied circumstances from which students participate in online learning (Bower et al., 2015)

The level of engagement and the nature of interaction within online sessions are crucial in determining webcam usage. Luke noted, "Some weeks people collect quite high energy, and they'll participate a lot; in some weeks, it's hard to get anyone to speak." Lewis found that using the webcam "sort of motivates you to do work and keep on track." These insights reflect the findings in the literature about the influence of engagement and peer dynamics on student participation in online learning (Fabriz et al., 2021).

In summation, the decision to use webcams in online synchronous learning sessions at Blackpool and The Fylde College is shaped by an interplay of technical, social psychological, pedagogical, and environmental factors. These multifaceted challenges and considerations resonate with the broader themes identified in the field of digital education. Understanding these factors is crucial for educators and institutions aiming to optimise the online learning experience, particularly for students

from disadvantaged backgrounds. The findings from this study not only validate existing literature but also provide context-specific insights, offering practical implications for enhancing the online learning experience.

6.4 RQ 1.1: Use the webcam.

The exploration of how students at Blackpool and The Fylde College use webcams during online synchronous learning sessions has revealed a rich tapestry of influencing factors, intricately woven with both practical and wellbeing threads. This complex interplay highlights the nuances of technology use in education, especially within socioeconomically disadvantaged groups.

A prominent aspect of the findings relates to the technical constraints faced by students, such as issues of internet connectivity and camera quality. Elizabeth noted, "the internet wasn't good enough for us to have cameras and microphones all at the same time," while Jack lamented, "the camera's not good quality." These limitations significantly influence students' ability and willingness to use webcams, resonating with broader findings in the literature about technological barriers being a major impediment in online learning (Hosszu et al., 2022). The study reinforces the need for educational institutions to invest in technological infrastructure to ensure equitable access to online learning resources.

Another crucial factor is the influence of pedagogical strategies on webcam usage. David observed that "all tutors have had cameras on," implying that the consistent use of cameras by tutors sets a normative behaviour for students, suggesting a role modelling effect. Andrew emphasized the importance of engaging activities, noting that "lessons, where we go into breakout rooms and stuff, keep us engaged." This aligns with the literature underscoring the significance of interactive learning designs in enhancing student engagement in online settings (Czerniewicz et al., 2019). These findings highlight the pivotal role educators play in shaping the online learning environment and influencing student behaviour.

Wellbeing and social dimensions also play a critical role in webcam use. Jack mentioned that students might not want "to perhaps be judged," and Colin noted the

influence of individual mood, stating, "I'm in the mood to be a camera off type person." These reflections reveal the complex emotional landscape of online learning, echoing research findings on the wellbeing impacts of online environments (Baxter & Hainey, 2022). This highlights the importance of creating a supportive online atmosphere where students feel comfortable engaging visually.

Environmental factors contribute significantly to students' webcam usage decisions. Colin pointed out the distracting elements in his learning environment, saying, "I didn't have a good environment for it. I could see the TV, and it was very distracting." This finding resonates with studies highlighting the impact of the home environment on learning engagement (Bower et al., 2015). This underscores the need for educators to be mindful of the diverse and potentially challenging environments from which students engage in online learning.

Finally, the influence of peer behaviour and engagement levels adds another layer to the understanding of webcam use. Luke observed, "Some weeks people collect quite high energy, and they'll participate a lot; in some weeks, it's hard to get anyone to speak," while Lewis found that using the webcam "sort of motivates you to do work and keep on track." These insights reflect the findings in the literature about the influence of peer interactions on student participation (Fabrizz et al., 2021). This underscores the complex interplay of social influences in online learning environments and the need for strategies that foster a supportive and collaborative online community.

This research at Blackpool and The Fylde College has illuminated the multifaceted nature of webcam use in online synchronous learning, underscoring that it is not merely a matter of technological access but is deeply influenced by pedagogical, psychological, environmental, and social factors. These findings advocate for a holistic approach in online learning design, one that acknowledges and addresses these diverse influences to optimise the learning experience for all students, particularly those from disadvantaged backgrounds. This approach aligns with the broader educational discourse, emphasizing the need for inclusive and equitable online learning environments.

6.5 RQ1: Experiences of webcam use.

Jack's experiences with webcam use in online synchronous learning presented a mosaic of both neutral and unfavourable observations, each providing valuable insights into the complexity of this modern pedagogical tool. Initially, Jack exhibited a neutral stance towards the use of webcams, noting the limited number of his peers who chose to activate their cameras during online sessions. He stated, "I was surprised by how many people didn't have their cameras on," suggesting that he perceived webcams as a standard feature of online learning and found the limited uptake puzzling. He also acknowledged differing network connectivity as a potential barrier, remarking, "We all have different network connectivity." This observation aligns with broader findings in the literature about technological barriers being a major impediment in online learning (Hosszu et al., 2022).

Jack's unfavourable perspectives enrich our understanding of the complexities involved in webcam use during online synchronous learning. Firstly, he pointed out technical limitations by commenting on the poor quality of webcams: "The camera's not good quality." This remark underlines the role of hardware limitations in shaping user experience. Additionally, Jack raised concerns about the emotional and wellbeing aspects of webcam use. He worried that students might fear judgment or feel a lack of confidence, inhibiting their willingness to activate their cameras: "Students don't want to perhaps be judged... perhaps aren't as confident then struggle a bit." This insight aligns with research highlighting the emotional challenges in digital learning environments (Baxter & Hainey, 2022).

From a pedagogical perspective, Jack found the online learning experience to be less interactive and even "robotic," suggesting a lack of engagement compared to traditional face-to-face environments. He elaborated, "It feels very sort of robotic and in some cases a bit boring," highlighting the need for more interactive educational strategies in online settings. This perception echoes the broader discourse on effective pedagogical strategies in online learning (Czerniewicz et al., 2019).

Jack also touched upon the potential for embarrassment, cautioning, "You don't know your camera's on, and you do something embarrassing." This issue raises questions

about privacy and self-awareness in online settings. Finally, Jack's mood-dependent willingness to use the camera, expressed as, "I'm in the mood to be a camera off type person," adds another layer of complexity, suggesting that personal factors also play a significant role in webcam usage decisions.

In contrast, Colin's experience presented a balanced yet critical view that unveils both practical and wellbeing challenges associated with webcam use. Initially, Colin made a neutral observation about the varying levels of engagement among students. He noted, "Some people use cameras, some people didn't; some people were just literally dialling in and then going off and doing other stuff." This statement highlights the diverse participation patterns in online settings, implying that webcam use alone may not necessarily equate to full engagement.

Colin's critical insights into the limitations of online synchronous learning include the distractions associated with the online learning environment. He noted, "I didn't have a good environment for it. I could see the TV, and it was very distracting. I had my phone on me, so it was very tempting to go on social media." This admission underscores the reality that online learning environments are not always conducive to focused engagement and that external distractions can be a significant barrier. This aligns with studies highlighting the impact of the home environment on learning engagement (Bower et al., 2015).

Colin also pointed out the limitations of current content delivery methods: "You spend the time looking at your computer screen, looking at a PowerPoint presentation while they're talking about it with a couple of little faces underneath the PowerPoint presentation." This perspective raises questions about the effectiveness of current content delivery methods and their ability to replicate the richness of face-to-face interactions.

Andrew's perspective offers a more optimistic view, particularly in the context of the pedagogical opportunities that online learning can offer. He begins on a favourable note, stating, "People learn in different ways and the variety that's available online in comparison to classrooms has probably a greater potential to reaching more people in my opinion." This observation highlights the flexibility and adaptability that online

platforms can offer, allowing for varied teaching approaches that can cater to diverse learning styles.

Andrew praised the pedagogical tool of 'breakout rooms,' suggesting that such features enhance the online learning experience: "Lessons, where we go into breakout rooms and stuff, keeps us engaged." However, he also highlighted some limitations of online learning: "Other tutors sometimes just rumble on, and that makes us very tempted to turn the camera off and then not even listen." This comment exposes a critical challenge: the efficacy of technology is often directly tied to the effectiveness of the person wielding it.

David's narrative captures a multifaceted perspective on webcam use that touches upon pedagogical norms, student preferences, and the wellbeing aspects of online visibility. David observed, "all tutors have cameras on," suggesting that webcams are considered essential for maintaining a traditional classroom environment. However, he noted, "most students don't put the camera on," indicating a disconnect between educator practices and student behaviour. He elaborated, "People don't like talking and seeing a little picture of their own faces on the screen, and you obsess over things when you can see yourself."

Courtney highlighted both logistical challenges and evolving pedagogical practices. She pointed out, "the internet wasn't good enough for us to have cameras and microphones all at the same time," emphasizing the practical challenges that can affect the feasibility of webcam use. However, she also noted improvements in pedagogical techniques over time: "Lecturers got progressively better at being able to judge the ability of us as well for the lectures, which made it really useful because he could actually ask targeted questions." This remark suggests a dynamic adaptability among educators in leveraging the technology to enhance teaching and learning outcomes.

6.6 Synopsis of Findings and Theory

The exploration of webcam use in online synchronous learning at Blackpool and The Fylde College has unveiled a complex interplay of factors influencing student

engagement. Technical issues, such as internet connectivity and camera quality, pose significant barriers. Pedagogical strategies play a crucial role in shaping webcam usage, with engaging activities and educator practices influencing student behaviour. Wellbeing concerns, such as fear of judgment and discomfort with visibility, further complicate the dynamics of webcam use. Environmental factors, including home distractions, also impact student engagement.

These findings advocate for a holistic approach in online learning design, recognising the need for inclusive and equitable environments that address diverse student needs and circumstances. By understanding and addressing these factors, educators and institutions can enhance the effectiveness of online learning and support students in navigating the complexities of digital education.

This study investigates the use of webcams in online synchronous learning at Blackpool and The Fylde College, focusing on the experiences and perceptions of students, particularly in socioeconomically disadvantaged settings. The research highlights the multifaceted influences on webcam use, drawing on theoretical frameworks from Vygotsky, Garrison, and Dewey to provide a comprehensive analysis of the factors shaping student engagement and learning outcomes.

The study identifies significant technical constraints impacting webcam use, including poor internet connectivity and inadequate camera quality. Elizabeth and Jack highlighted these issues, with Elizabeth stating, "the internet wasn't good enough for us to have cameras and microphones all at the same time," and Jack lamenting, "the camera's not good quality." These technical challenges align with broader literature emphasising the digital divide as a barrier to effective online learning (Hosszu et al., 2022).

Pedagogical strategies play a crucial role in influencing webcam usage. David noted that "all tutors have had cameras on," suggesting a role modelling effect. Andrew emphasized the importance of engaging activities, stating, "lessons, where we go into breakout rooms and stuff, keep us engaged." These findings support the literature on the significance of interactive learning designs in enhancing student engagement in online settings (Czerniewicz et al., 2019).

Wellbeing and social dimensions are critical factors in webcam use. Jack expressed concerns about judgment and confidence, stating, "students don't want to perhaps be judged... perhaps aren't as confident then struggle a bit." Colin mentioned the influence of individual mood: "I'm in the mood to be a camera off type person." These insights reflect the emotional challenges in digital learning environments and the need for a supportive online culture (Baxter & Hainey, 2022).

Environmental factors, particularly the suitability of home learning environments, significantly influence webcam use. Colin noted distractions such as the TV and social media: "I didn't have a good environment for it. I could see the TV, and it was very distracting." This finding aligns with studies highlighting the impact of the home environment on learning engagement (Bower et al., 2015).

Peer behaviour and engagement levels also affect webcam usage. Luke observed, "Some weeks people collect quite high energy, and they'll participate a lot; in some weeks, it's hard to get anyone to speak." Lewis found that using the webcam "sort of motivates you to do work and keep on track." These insights underscore the importance of social dynamics in online learning environments and the need for strategies that foster a supportive and collaborative community (Fabrizz et al., 2021).

Applying Vygotsky's concept of mediation to webcam use reveals how these tools facilitate the co-construction of understanding through gestures, facial expressions, and visual cues. However, the limitations of this mediation are apparent when technology fatigue, home distractions, and the impersonal nature of digital communication constrain their effectiveness. Extending Vygotsky's framework, this study incorporates digital literacy and emotional engagement, proposing a model where mediating tools also include strategies to foster engagement and emotional connection in virtual spaces (Vygotsky et al., 1978).

The COI framework helps understand webcam-mediated interactions, highlighting the intersections of teaching, social, and cognitive presences. However, maintaining a consistent cognitive presence can be challenging. Introducing the concept of 'digital presence,' a composite measure of technological engagement, aims to

address the unique challenges of sustaining attention and cognitive engagement in online settings (Garrison, Anderson, & Archer, 2000).

Dewey's emphasis on experiential learning and communal aspects of education provides a foundation for analysing webcam use. Despite the challenges of replicating tangible experiences online, learners engaged in activities and discussions that mirrored Dewey's ideals. Future research could explore integrating virtual reality (VR) and augmented reality (AR) technologies to offer immersive, experiential learning opportunities in a digital age (Dewey, 1938).

The study underscores that webcam use in online synchronous learning is influenced by a complex interplay of technical, social, emotional, and pedagogical factors. These findings advocate for a holistic approach to online learning design, considering the diverse needs and circumstances of students. By understanding and addressing these factors, educators and institutions can enhance the effectiveness of online learning, particularly for students from disadvantaged backgrounds.

Chapter 7: Conclusions

In the concluding chapter, it is imperative to revisit the research's core aim: to meticulously examine the influence of webcam usage on the engagement and participation of undergraduate students at Blackpool and The Fylde College. This tertiary institution is situated in a disadvantaged background of the United Kingdom, thereby adding another layer of complexity to the study.

My core argument is that a COI comprising students, from an area of socioeconomic disadvantage, which consists of students from a socioeconomically disadvantaged background, can be successfully facilitated and supported through the use of webcams in their activities or efforts related to inclusive learning and teaching (Razvi et al., 2019), comfortable working environment (Correia et al., 2020), and active learning opportunities to enhance engagement (Bedenlier et al., 2021). However, for this approach to be effective, certain limitations denoted as nonvisible cues (Themeli

& Bougia, 2016), feelings of distraction and isolation (Bozkurta et al., 2020), and levels of engagement need to be addressed and reduced (Castelli & Sarvary, 2021).

The findings of the study have highlighted a complex interplay of variables that influence webcam usage, including levels of comfort, personal circumstances, and the pedagogical approaches adopted by educators. For instance, while some students saw webcams as a tool for enhancing interaction and accountability, others viewed them as sources of discomfort, thereby revealing the double-edged nature of webcam use in online learning. This intricacy warrants a flexible, empathetic approach to webcam policy, one that accommodates the varied experiences and challenges faced by students, particularly those from disadvantaged backgrounds.

This research has not only contributed to the literature but also contributed valuable insights to the broader pedagogical discourse. It has underscored the importance of understanding the individual experiences and challenges that students from varied disadvantaged backgrounds may encounter in the space of online learning. These insights aim to guide educators and institutions in creating more inclusive, supportive, and effective online learning environments. The study's recommendations, while tailored to a specific demographic and contextual setting, offer a broader pedagogical guide, emphasising the importance of flexibility in webcam usage policy, use of breakout rooms smaller class sizes, and the cultivation of a respectful and familiar learning environment.

Several key recommendations were formulated to address the complexities associated with webcam utilisation in online learning, particularly for students from socioeconomically disadvantaged backgrounds.

A flexible approach to webcam usage was highly recommended. Educational institutions were encouraged to allow students the autonomy to decide whether or not to use webcams, depending on their comfort levels and personal circumstances. This not only respected students' privacy but also acknowledged the diversity of needs within the student body.

Following this, the notion of reducing class sizes was explored as a means to increase comfort levels associated with webcam usage. The study found that

students, particularly those from disadvantaged backgrounds, felt a smaller class size fostered a stronger sense of community, thus encouraging a more effective use of webcams.

Creating a supportive and inclusive virtual classroom environment was also emphasised. The importance of cultivating a culture of respect was highlighted, based on the experiences of some participants in the study. This supportive environment was believed to encourage more effective webcam use.

In terms of digital literacy, which could vary considerably among students, there was an emphasis on the provision of training for online communication. Students were thought to benefit from instruction that would enhance their comfort and proficiency with using webcams and other online communication tools.

Moreover, the study advocated for the design of online learning activities to focus on fostering active participation. Methods such as the use of breakout rooms for group discussions were suggested. This approach was believed to not only engage students but also encourage the use of webcams for a more interactive learning experience.

Consideration of the home learning environment was another pivotal point. Educators are urged to provide resources and guidelines to assist students in creating a conducive learning setting at home. The conduciveness of the home environment was deemed critical to students' decisions to use webcams effectively.

Lastly, a gradual transition to online learning was recommended. Students were believed to benefit from a phased approach with adequate support mechanisms, providing the scaffolding they needed to become comfortable with digital tools like webcams over time.

These recommendations aimed to address the intricate challenges and opportunities associated with webcam use in online learning. The implementation of these suggestions was tailored to the specific needs and circumstances of each student, class, and institution.

While this research has provided a critical overview of the students' experiences and the ensuing complexities, it also acknowledges its limitations. The recommendations are based on a specific demographic and may not fully encapsulate the broader student population. Moreover, they assume a certain level of technological access and digital literacy among the students, which might not be universally met. Therefore, future research should aim to address these gaps and limitations, focusing on the long-term impacts of webcam usage, the experiences of students from disadvantaged backgrounds, and the effectiveness of different strategies aimed at optimising webcam use in online education.

This study serves as a comprehensive guide for enhancing the online learning experience, particularly among students from disadvantaged backgrounds. It has explored the multifaceted motivations, challenges, and opportunities associated with webcam use, offering insights that can inform future pedagogical strategies. The shift to online learning, exacerbated by the global pandemic, has brought about both opportunities and challenges. These experiences, as evidenced by the study, highlight significant gaps in the literature concerning the role of webcams, the impact of home environments on learning, and effective strategies to enhance online student participation. The potential for future research is vast, underscoring the continual evolution and complexity of online education. Therefore, the study concludes with a call for a balanced, insightful approach to online education one that is deeply rooted in the complex matrix of technological, emotional, and social variables that shape student engagement and learning outcomes.

Chapter 8: References

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Chapter 9: Appendices

9.1 Appendix 1 (Jack)

Interviewer: Can you tell me about your experience with remote learning and how it has evolved over time?

Student: Yes, so most of my learning experience from starting the degree apprenticeship has been a mix of face to face and online learning. Initially, it was about once or twice a month where I would go up to London for a day or two for face-to-face classes and then do independent learning in between. However, with COVID, we moved entirely to online learning with my existing provider.

Interviewer: How did you find the transition to online learning?

Student: Honestly, I struggled at first because I prefer working at a desk and had to adjust to not being in a classroom environment. But I'm lucky to have my own study space at home. The online learning sessions were held either in the morning or afternoon every Wednesday. The idea was to have some time for learning and then work on assignments or individual tasks. The course was structured in 10-week modules, and we would usually submit one or two assignments or have a multiple-choice exam at the end of each module.

Interviewer: How was the online learning experience with your provider compared to the previous one?

Student: The previous provider was a mix of face to face and online learning, but the new one with QA was entirely online. The weekly sessions were led by a tutor, and there was less face-to-face interaction with other students. However, I found the online platform to be efficient and user friendly, and the weekly sessions helped keep me on track with my learning.

Interviewer: Can you tell me about your experience with online learning?

Student: Sure. I started my degree apprenticeship with a previous provider where it was 50/50, half face to face and half online learning. But then COVID hit, and we moved to entirely online learning. Initially, we had face to face sessions once or twice a month, but then we moved to online sessions every week.

Interviewer: How did you find the transition to entirely online learning?

Student: At first, I found it easier to manage my time, and I enjoyed working from home. I had extra time since I didn't have to travel, and I could work wherever I wanted. But as time went on, I realized that I missed the interaction with my peers.

Interviewer: How did the different providers compare in terms of their online learning platforms?

Student: The first provider we had didn't have a central place where all the students and lecturers could interact. They used Cisco WebEx, but it was only open for a short time before and after the lecture. We had to send emails or messages through their version of Canvas, which wasn't great. But when we moved to Blackpool, we had a central platform using Microsoft Teams, which made it easier to interact with everyone.

Interviewer: Did you have any issues with online learning?

Student: The biggest issue was staying motivated and engaged. It was easy to get distracted at home and not want to do the work. Also, sometimes the technology didn't work correctly, and I was stuck. But overall, I found online learning to be a convenient way to learn, and it allowed me to work around my schedule.

Interviewer: Can you describe what a typical lesson is like at Blackpool? What was it like for you when you logged on and were there a lot of people with their cameras on?

Student: Sure, so at the beginning of each lesson, the lecturer usually turns on their camera and then goes through an introduction of what we'll be covering that session. They then go through the assignment brief and what we need to deliver. Generally, the structure is quite standard, like most online sessions, and then it moves into a more informal conversation, covering content and answering questions. I was surprised at how many people didn't have their cameras on, but I tried to turn mine on as much as possible to help with interaction.

Interviewer: Do you think there could be more interactive activities to build the community among students since many people don't know who they're working with?

Student: That's a good question. It's difficult to do much else when you're on a video conference, as it's hard to get the same feedback as you would face to face. It's challenging to do interactive sessions as we all have different network connectivity, laptops, and personal priorities. I think it would be good to have more interactive activities, but it's hard to say what else we could do besides delivering content through a PowerPoint. When you're in a classroom, you have breaks and can chat, but on a video conference, it can feel a bit robotic and boring.

Interviewer: So, you mentioned that the lectures feel quite robotic and repetitive. Can you elaborate on what you mean by that?

Student: Yes, definitely. The lectures are very structured and samey, usually starting with an introduction to the course and the first assignment, followed by

a similar format for subsequent assignments. There might be a question-and-answer session towards the end, but the lectures follow a predictable pattern. I understand that lectures are supposed to be informative, but it can get a bit monotonous.

Interviewer: That makes sense. Do you think there's anything we could do outside of the structured sessions to encourage collaboration among peers? For example, team building activities or group excursions?

Student: Yes, that's definitely something that could be helpful. As an online learner, it's difficult to get involved in on campus activities, but it would be nice to have more options for online learners to connect and collaborate with each other.

Interviewer: That's a great point. In your experience, do students tend to have their cameras on or off during sessions?

Student: Generally, there are a few students who always have their cameras on and interact heavily with the tutor. Others tend to have their cameras off and remain silent throughout the session. It's easier to recognize these patterns early on, but it can be difficult to get those quieter students to engage in the session.

Interviewer: I see. Do you think there are any reasons why some students might not feel comfortable turning on their cameras or engaging in the session?

Student: There could be a number of reasons. For example, some students might feel intimidated by the video conference format or worry about being judged based on their appearance or surroundings. Others might be concerned about accidentally doing something embarrassing on camera. Personally, I always make sure to have my camera on, but I can understand why some students might not feel as comfortable with it.

Interviewer: That's understandable. Thank you for sharing your perspective on this.

9.2 Appendix 2 (Colin)

Interviewer: Today, we are joined by a student who has returned to education after a long hiatus. They started their studies in September 2020, which means most of their experience has been in online learning. Can you tell us a bit about your experience transitioning back into education and how it has been mainly online?

Student: Returning to education after such a long break has been interesting. At the beginning, there was a mix of online and in person classes, but it quickly transitioned to completely online learning. Initially, I was very keen and always had my camera on during lessons. However, as time went on, I found it harder to focus and stay engaged during the lectures. I think the lack of peer interaction and the ability for students to hide behind their screens made it difficult for me and others to stay motivated.

Interviewer: How did your tutors adapt to this online learning environment? What teaching methods did they use?

Student: Our tutors used different methods. Some would deliver synchronised lectures and facilitate discussions, while others would ask us to watch a recorded lecture during the week and then hold a seminar for discussion. In either case, there was usually a PowerPoint presentation and a few students who were more vocal than others. But overall, I felt there was a lack of engagement from many of the students.

Interviewer: What do you think were the challenges faced by your peers in engaging with online learning?

Student: I think some people might have felt uncomfortable speaking into a microphone or being on camera. There is a difference between being comfortable performing in front of others and just having a conversation with your classmates. The online format might have caused some people to

withdraw from discussions and treat the lectures more like passive listening experiences.

Interviewer: Based on your experience, what improvements do you think could be made to enhance online learning?

Student: I think creating a platform built specifically for learning, with more interactive features, could help. For example, having collaborative tools like whiteboards that everyone can use and contribute to, and software that facilitates better communication even when internet connections are not optimal. Additionally, it might be helpful to explore how creative companies have managed collaboration during the pandemic to inspire new teaching methods.

Interviewer: It sounds like you have some specific ideas in mind for how online learning could be improved. Can you share any examples from your own experiences?

Student: Sure. I participate in online role-playing games with friends from different locations. We use a combination of Skype and a website called Roll20, which allows us to move objects around, share images, play music, and draw on a virtual whiteboard. This kind of interactive and engaging experience could potentially be adapted for educational purposes, although it would require teaching students how to use the software effectively.

Interviewer: Thank you for sharing your experiences and insights. We wish you the best of luck in your future studies and potential PhD endeavors!

9.3 Appendix 3 (Andrew)

Interviewer: Today, we're speaking with a student who has experience with both in person and online learning. Can you tell us about the learning methods you've experienced and how they compare?

Student: Sure! I've attended seminars, set tasks for myself, and taken online classes. In my prior apprenticeship, we went to a learning centre where we'd learn through PowerPoints and other traditional methods. The transition to online learning was quite smooth, but I do miss some of the visual cues that helped me know when to ask questions.

Interviewer: How do you make the most of your time when there aren't any lectures?

Student: I use platforms like LinkedIn Learning or Udemy, read books about tech, or explore other learning sites. It's really up to me to maximize my learning potential.

Interviewer: Can you describe your home learning environment?

Student: I have a room dedicated as an office with two monitors, bright lighting, and minimal distractions, so I can focus on my work.

Interviewer: How do you find the level of interaction in online classes compared to in person classes?

Student: Even though communication is encouraged, most people rarely engage in online discussions. I believe this is because students feel more comfortable keeping their cameras off, similar to what they would do in a traditional classroom.

Interviewer: What are some advantages of online learning?

Student: One major advantage is that lectures are recorded, so you can rewatch them as many times as you need. This has been a big help for many apprentices I've spoken to.

Interviewer: Was it difficult for you to adapt to online learning?

Student: At first, it was challenging. I needed to find the right environment and strategies to help me focus. Once I did, I found online learning to be just as effective as classroom learning.

Interviewer: Do you think online learning has more potential for growth and innovation?

Student: Yes, I believe online learning is still in its infancy, and there's a lot of potential for new learning methods, such as digital whiteboards and breakout rooms.

Interviewer: What are some examples of how online learning can be tailored to individual learning styles?

Student: Some students, like me, prefer breakout rooms and teamwork. Others might prefer digital whiteboards or collaborative projects. The variety of online tools can help accommodate different learning preferences.

Interviewer: What are some strategies you think can improve online learning?

Student: I think we can learn from marketing, which uses gamification and novelty to keep people engaged. This could be applied to online learning as well, especially when teaching subjects like coding. Breaking up lessons and introducing interactive elements can help maintain student engagement.

Interviewer: Thank you for sharing your experiences and insights on online learning. It's fascinating to see how education is evolving and adapting to new technologies.

9.4 Appendix 4 (David)

Interviewer: Regarding cameras, I heard that not many students in your class turn their cameras on during online classes. Do you know why that is?

Student: Yeah, I think most students either don't have a camera or they don't mind not having it on. Personally, I'm not bothered either way, but I do think it's better if everyone can see each other because it's as close as we can get to being in a classroom.

Interviewer: Working from home can be challenging. Can you describe your setup at home?

Student: Well, we were in the process of moving when classes started, so I was pretty limited in terms of workspace. I don't have a desk, so I've been working from a different table with my laptop, which is not ideal, but it works. I can slip in quick tasks if I need to, which is convenient.

Interviewer: How have your online classes been structured? Has it been consistent across all your tutors, or has it varied?

Student: It's been a mix, actually. With one tutor, we had structured lessons with assignments and workshops, which was very similar to a normal classroom setting. With another tutor, they would give us three topics to research for 10 minutes and then we'd come back and discuss them. Personally, I didn't like that approach because 10 minutes isn't enough time to research sources properly. Another tutor would occasionally send us a prerecorded video to watch before class, which was helpful because we could refer back to it.

Interviewer: How do you stay motivated and focused while working from home?

Student: I'm generally quite motivated, but I like to be ahead with everything in case anything comes up, especially since I have kids. I don't want to fall behind and get overwhelmed.

Interviewer: Have you had any opportunities to collaborate with your classmates online?

Student: Not really. It's been more difficult to collaborate online compared to in person classes. We did collaborate a bit last year when we had a module on web design, using Google Docs, but it wasn't a big part of our coursework this year.

Interviewer: Have you had any challenges or gripes with the online format?

Student: Overall, it's been handled pretty well, but there are a few things I'd like to see improved. For example, some students don't turn on their cameras during class, which can make it harder to engage with them. Also, there's no differentiation between an apprenticeship that someone already established in their career is taking and someone who is just starting out. We were asked to do psychometric tests and submit CVs, which seemed unnecessary for some of us.

Interviewer: Thanks for sharing your experience with me. Is there anything else you'd like to add?

Student: Not really, those are the main points. Overall, it's been an interesting experience and I'm grateful that we've been able to continue our studies despite the pandemic.

9.5 Appendix 5 (Courtney)

Interviewer: How was your initial experience with online learning during the transition?

Student: At first, it was intriguing and a bit new, so it wasn't so bad. Most of our lecturers were already well acquainted with Microsoft Teams and knew how to work their way around, which made the transition smooth.

Interviewer: How did the quality of online teaching vary among your lecturers?

Student: It depended on tutor to tutor. Some were good at adapting to the online format, asking targeted questions and making sure we understood the material. However, some struggled with the transition, like one lecturer who didn't prepare any PowerPoints or structured content for our content heavy degree.

Interviewer: Did your lecturers require you to turn your cameras on during online classes? How did this affect your experience?

Student: Some lecturers asked us to have our cameras on, while others didn't. In our circumstance, it was easier for us since we had known each other for two years and were comfortable with each other. However, I can see how this could be uncomfortable for larger classes with students who don't know each other well.

Interviewer: Based on your experience, what improvements could be made in online learning?

Student: I think better auditing and monitoring of lessons could help, as we had one lecturer who negatively impacted a couple of terms for us. More support from supervisors to identify both fantastic teaching and areas that need improvement could be beneficial.

Interviewer: How has your overall experience been with your college's online learning delivery?

Student: Overall, I think the college did a good job providing everything we needed for online learning, despite some unfortunate circumstances.

Interviewer: How do you feel about the potential for more online learning in the future?

Student: I think it's essential to be careful about where and when online learning is implemented, as it has been challenging for us. Sitting at a desk from half eight to five every day, staring at a laptop screen has been difficult. For our particular course, a classroom environment might be better.

Interviewer: Do you think the online learning environment influenced the relationships between students and lecturers?

Student: It varied depending on the lecturer. Some were able to maintain a friendly and engaging atmosphere, while others didn't. The relationships were influenced by what happened in the class and the lecturer's personality.

Interviewer: Thank you for sharing your experiences with online learning. Your insights will be helpful in understanding the challenges and benefits of remote education.

9.6 Appendix 6 (Elizabeth)

Interviewer: Can you tell me a bit about your academic background?

Student: Sure, I decided to do a degree in English language, literature, and creative writing. Just for me, I didn't need the qualification as such, because I have a career already. And basically, I've worked for the insolvency service, so I'm an examiner for the insolvency service. So, I didn't, I didn't think I was ever going to use it really even.

Interviewer: How has online learning been for you during the COVID 19 pandemic?

Student: To be honest, it was one of those things I was doing, literally just for me. Since starting it as well, so really enjoyed it really. It worked for me because I don't have to attend all the time and I can work around my work. Issue. So that's, that's the reason why not kind of way the COVID stuff has really worked to my advantage because that's been work at home and at the same time I can, you know, catch upon lectures and things like that. So, in an old kind of way, it's worked out the second year, works out quite well.

Interviewer: Can you describe the teaching methods and digital learning tools used in your online classes?

Student: Yeah, the traditional lecturer, she actually delivered a PowerPoint presentation a few days before. Possibly even up to, sort of a week before. And she would have done all the slides that she would normally have done in the class. And then she talked over them so that you could actually do that and watch it and make notes and all the rest of it. And then she'd deliver a seminar sheets. So that you were expected to have watched that and, you know, understood it so that you could then do the workshopping. And that's what we used to do and go out into the breakout rooms and, you know, break out in teams, and discuss things and then come back and, and that kind of thing. So that worked quite well.

The other lecturer, it was, I think she did a lot more sort of talking then it was again, the PowerPoint presentation that she talked over. And we would then, well then, you're more likely to chip in, you know, in that kind of thing. Cause that's the way that her teaching method was. So, I mean, hers, I didn't probably change that much really. It's just that the sort of physical elements or I think people maybe didn't shout up as much and I think, yeah. Interaction was a bit harder because people really dislike pointing the cameras off, you know, I think there were family issues and various other things and I think sometimes just to be honest people, weren't actually there, well, they'd had to dash off or, you know, I think it was, it was much more difficult delivering it, when you weren't getting much back and I think that's, they felt a lot of the time.

Interviewer: How did you interact with other students in your online classes?

Student: The chat feature went down really well. Not necessarily. I mean, there were some bits in the sort of traditional delivered lecture, but maybe more in the linguistics and the creatives. Side of it. You know, if we were doing things like that, there were instances where we'd have to write poetry on the spot or, you know, do that kind of thing and you would put that in the chat or, you know, say, yeah, I'll share something or, you know, that kind of thing. So, and I think there was a good camaraderie built up as well through the chats. Because I mean, we did sort.

9.7 Appendix 7 (Luke)

Interviewer: Can you tell me about your experience with online learning?

Student: So, I think mostly it's been, sometimes it's similar to being in face-to-face learning. Well, I think there are definitely times where you can get distracted a lot more easily at home. I think one of the biggest things I noticed was when, what face to face learning, when you're around other people, you get to see kind of where they're at. So, you can kind of gauge if you're, you know, up to pace with everyone else, or if you've fallen behind, but you don't really get to see where everyone's at with. I think it's hard to track progress with people online.

Interviewer: Can you walk me through a typical online class?

Student: Usually, you log on to a call, wait for everyone to arrive, and then depending on what stage of the lesson you're in, maybe they'll read through the material specification, or you'll go through a PowerPoint, or there will be a briefing. And then you'll go through some kind of material, like a PowerPoint, or you'll have a discussion. And then that will probably go on for maybe half an hour to an hour. And they'll maybe be a bit of workshopping time at the end just to get on with stuff.

Interviewer: Have you noticed any differences in engagement levels among your classmates during online classes?

Student: I think it's definitely dependent on the lessons. Some weeks people collect quite high energy, and they'll participate a lot in some weeks. It's hard to get anyone to speak at all.

Interviewer: How do you think online learning could be improved?

Student: I think activity-based learning is a good way to keep people engaged, and it's been harder to keep people engaged when classes have become more

lecture y style. And I think people need to adapt their environments to benefit them. I also think there could be more avenues for discussion among classmates.

Interviewer: Have you had any difficulties with communication or collaboration during online learning?

Student: Sometimes there are a lot of awkward silences, and it could be down to a lack of cameras. A lot of it is that when you're face to face, you've got those social cues, you know when someone else is going to speak because you can kind of see it in their expression, but online, you don't want to accidentally speak over someone.

9.8 Appendix 8 (Lewis)

Interviewer: Can you tell me about your experience with online classes?

Student: Sure. At first, I thought it would be alright because I wouldn't have to wake up as early to get to college. But over time, it went downhill. I had a lot of distractions at home, like my computer and games. And when we were in class, the lessons were recorded, so there was no point in paying attention. I could just log on and let the lesson play while I did something else.

Interviewer: That sounds like a challenging environment. Did you have any difficulties with the online format?

Student: Yes, definitely. It was harder to communicate with my classmates and ask questions because we didn't have webcams or microphones on. And the class was quite big, so it was easy to get lost in the crowd. But when we had smaller classes with webcams on, it felt more normal and interactive.

Interviewer: That makes sense. How did you find the breakout rooms?

Student: They were really helpful. In smaller groups, I felt more comfortable sharing my thoughts and collaborating with my classmates. It was easier to ask questions and get feedback from each other.

Interviewer: That's great to hear. So, looking forward, how do you think online classes could be improved?

Student: I think smaller classes with webcams on would be better. It helps bring a sense of normality and makes it easier to communicate with each other. And having more breakout rooms for group work would also be helpful.

9.9 Full Transcripts with questions

9.9.1 – Jack- PhD Data Collection

Jack: [00:00:00]. Um, and to start with. We are essentially. And obviously when, when I moved when I moved home, I mean, I'm, I'm quite lucky. I live with my partner, and we've got our own house, so I've got my own study space. So, I've got my laptop here and then my screen here and, and, and things like that. So, I'm quite lucky that I've got my own space to do that.

Honestly, I struggled not working at desks. I have to get up. And some people like my partner works either in bed or on the sofa or at the dining room table and I can't do that. I've got to be like to be sat desk, that was from, that was from March last year now, which seems like a lifetime ago.

So, we moved totally to online learning with Mike system provider, who were QA actually and we, um, they had a lead. So instead of sort of having a then a face-to-face sort of once a month for one or two days, it then moved to sort of a, either a morning or an afternoon, every single week.

So it was, I usually every Wednesday and then. That the idea was is that, you know, whichever, whichever session you're in, if you're in the morning, one, you'd go, you'd go along. You do a bit of a learning and then in the afternoon, you'd then work on your assignments or work. Work on your individual tasks or reading or external learning. Then obviously it was sort of relatively similarity, sort of like, you know, um, as it is with Blackpool, it was like 10 weeks sort of modules. And then, you know, you generally sort of submit the end of it. You'd either, you'd usually submit, you know, one or two assignments or you submit an assignment or a, or a, or a sort of a, have an exam, multiple choice, that sort of thing.

And then that was pretty much the same all the way through. And, and to be honest, I, I did find it easier to start with I found it just better to manage my time moving personally. I, I quite am one of these people that quite enjoys working from home. I think going back to the office is definitely gonna be quite a struggle for myself.

So, start with it was like, great. You know, I've got all this extra time. I'm not spending it traveling or like whilst before, you know, and now I've got all this time where I'm at home and. You know, I can work wherever I want. It's, it's also the little things for me. It's like, you know, being able to like, control the temperature exactly.

As I like it, sit where I want to eat what I want, you know, it's that sort of stuff as well, you know? So, I really enjoyed it. I mean, I'd say if I look at myself kind of a Year on um, I would probably, obviously we're Blackpool it's , It's been a permanent sort of online, which is fine, but I think, um, I'm looking for definitely to going back one or two days a week, and just having that interaction with peers, because I think my opinion, I learned as much from other apprentices and other members of my team than I do from sort of the tutors and being an lectures and doing my reading and completing assignments.

So, rounds, September, October time, last year we moved to, to Blackpool and that was again, a big change. So, for me, I think I sort of preferred it to start with, because I liked sort of the idea that in that, in those 10 weeks, instead of having a morning or an afternoon, your kind of have like, within those 10 weeks you have one or two or maybe three days.

That you have, like the, um, you have your lectures, so, you know, right. I can totally write that day off. That's dedicated to lectures and then you can plan on the weeks in between or any other time you've got free. Like for me, it's whenever I sort of have the time, I sort of, you know, if I've got half an hour here, I'll go and write a couple of paragraphs or whatever, or I tend to sort of work like that.

Um, trying to just use as much of my free time as possible. So moved to Blackpool. Um, and actually I have to say it was a lot better because with QA, we didn't actually have like, um, like teams. We didn't have a central place where we were all working and that was really useful because it's like they, they were using like, Cisco, WebEx, but.

Like it was only open for the, for like the, so we'd log on 10 minutes before that, before the, before the lecture, and then it was sort of open and then it would close and then you wait, touch. Reluctance was like either messaging them. They also

have canvassed their version of canvas, either messages, messaging them through that, which wasn't great or sort of, you know, sending them an email, which I dunno, just.

I personally hate Emails. So, you know, teams' message. So, um, definitely having teams is really helpful because it's like it's one central place where all the lecturers and the students can interact. Other students, you know, can interrupt each other. lecturer and Students are great, having it all in one place and all of the meetings and stuff on there.

And that really helps a lot because it's, it's kind of, again, it's everything is all of the course contents on there, all the files, So I found that a lot, a lot easier.

Colette: [00:05:58] Could you talk me through like a typical lesson, but being at Blackpool and the Fylde college ? So, what, what was it like for you? So, when you logged on or whatever, what, what was the lesson like? What was the session like? And was there were a lot of people that had cameras on or was it very many cameras off? Like what, what did it feel like to you?

Jack: [00:06:17] So to me, I think when I first started, it was the, um, When I say the first couple of sessions that we had, the first one or two modules that I did, um, generally at the start, you know, it's quite sort of everyone looks on and it's, it's always a little bit Bridget and everyone gets to know each other and they will get a bit more sort of fluid.

Um, but the start off with it's generally sort of the Electra has the cameras on. And then, you know, they usually follow the same structure. So, it's a bit of an introduction, what we are covering and then you, we go through the assignment brief and say, look. Yeah holistically. Yeah. And this is what you need to deliver.

Um, but, and then it kind of moves into a little bit more of informal, um, conversation, covering content, asking questions. Um, and I think, I mean, I, I surprised actually that a lot of people didn't have their cameras on because although we're kind of, generally it was only the lecture. I mean, I guess so. No, I probably don't in high so

much as I should, but I would try to as much as possible because, um, you know, we are.

Working so remotely that, you know, just being able to sort of interact as much as possible I find is, is, is useful. And then just putting a face to a name, whatever, because it's funny. A lot of the, a lot of the apprentices though, I worked with them at Vodafone. I have no idea who they are or what they do because some of them I've never met because either they've joined during COVID or some of them.

I probably have met at some point in, it's been such a long time. I've forgotten who they are, you know, because obviously Vodafone is massive and we work all over the place and some of us don't all work in new breeze, some of us do so it just depends. Um, so I, I have found that, yeah, I was surprised by how many people didn't have their cameras on.

Um, and I think. You know, generally the lesson structure, um, is quite sort of standard, you know, as it is with all conference calls or online quizzes. So, with generally just sort of an introduction, this is kind of the outcome. Are you, you know, we cover the assignment briefs and whatnot? Um, and then sometimes at the end we always do a bit of a, like, um, like a sort of a, a session where we can sort of work and the tutor is just there on hand to answer questions.

Um, that's quite useful. Um, so, you know, for example one I'm doing at the moment, um, like, um, data fundamentals that was quite useful because like at the end, you know, the tutor, we just sat there. Um, we can sort of leave it and come back, but the tutor sort of there for the last half an hour, 40 minutes, um, and it gives us a good time to get some sort of stuff out of the way and done.

Um, but yeah, I mean, Yeah, I think that's sort of my, my view on it. Um, I think the lesson onset is usually it's usually or PowerPoints based on PowerPoints. Um, which I guess, you know, that's kind of the best way to do it really, you know, because then after which you can put the PowerPoint straight onto teams and people can access it.

Yeah. So, use it, print it if they want to. Yeah.

Colette: [00:09:20 Do you think there's any other ways we could. Could deliver content. Like, do you think we should be doing more activity-based things to build the community, you know, within teams, like to get to know for your students to get to know each other, because I'm very aware that you're not the only person that said, you know, I don't know the students that I'm working with. Whereas if you're in a classroom environment, you would very much get to know your peers. So just, you know, does that, does that have any impact, do you think.]

Jack: [00:09:54] I think, I think it's a good question. Um, so if I think about my personal experiences, I think in a sense it's, um, it's, it's really difficult to kind of, to do much else because when you're on a video conference, you know, it's difficult to get, like the feedback that you would sort of face-to-face. So, like a good example of this was, again, the module, another module I'm doing at the moment, cybersecurity fundamentals in that we had to like to log on to light some servers and get some reports and that sort of stuff. Um, and, and it's like, if we'd have been in a classroom, it's like, you know, nine times out of 10 is, you know, here's a whiteboard with a projector.

Like this is what you need to do. Follow me kind of step by step. But it's like, you know, someone won't have like something open and then it's like, it's, I think it's difficult to kind of do. To do a real sort of like interactive session because it's like, you know, someone and then someone gets stuck and then we jumped back a bit and then we jumped forward and, and that's like, no, one's fault.

It's just, it's just how video conference is because, you know, we're all, we all have different network connectivity. We all have different laptops. We all have different, you know, um, Personal priorities. You know, there might be someone there that's, that's trying to do two things at once or the postman turns up or that kind of thing, you know, particularly the, for those of us who are working from home.

Um, I think, I didn't know why. I think he; I think it would be good to perhaps have more interactive activities. Cause a lot of what I've had so far is like, you know, sit, and listen to. Um, to a PowerPoint, but then if you were to ask, well, what, what could we do to make that, to improve on that? It will be really difficult for me to sort of say

what, because in a sense, when I think about it, what else could you do if you need deliver content, you know, um, other than sort of, you know, giving us that content.

In a PowerPoint, you know, and I guess that's kind of what lectures are there that give you content. And then it's your time in between the weeks to take that content, digest it and then integrate that into your assignments. So, I think, I think it's just because it's on a video conference, it feels very sort of robotic and some cases a bit boring.

Whereas if you're in a classroom, you know, you have sort of breaks and you chat and, you know, there's that kind of direct feedback. And it's very easy for everyone to just sort of sit there and. That trust question, you know, and then silence because yeah. You know, whereas in a classroom, it's, it's a lot easier to still, um, interact, but yeah, it's, it's, it's a good question.

And it's a difficult one to answer.

Colette: [00:12:45] so you said, um, I have to, I'm just writing down buzzwords as you're talking. And so, you said quite robotic. So, when you mean robotic, do you mean like quite structured in the way that it's delivered and it, you know, it's quite samey, you know, what's going to happen week on week sort of thing. Is that, is that what you mean?

Jack: [00:13:04] Pretty much. Yes. It's very sort of repetitive and you know, like you come in and, you know, and then it's, it's cause often, generally you have a, you have the lecture on the first week and then you have a lecture sort of halfway through an electricity towards the end. Um, and sometimes it's only two, sometimes it's three.

It just depends. Um, but generally the first one is always like introduction. This is the course; this is your first assignment. And this is the content for the first assignment question and answer. Don. And then the second one's generally like, you know, little introduction, this is your second assignment.

This is the content for that Darden. And then generally there's a third one. It's right. You know, this is sort of any sort of Germany to sort of the third, one's usually sort of

a question and answer, cover anything particularly that any, any one house or the collective kind of group of people are struggling with, but it's generally yeah, very sort of samey, but then I guess that's what a lecture is, you know, you're there to kind of.

It's there, it's an informative session for everyone. And, you know, it's kind of up to everyone in between, um, to kind of digest that information and see that they would want to know further. Um,

Colette: [00:14:15] okay. No, not that. That makes sense. So, in terms of like collaboration with your peers, do you think there's anything that we could do that is not in the structured session? So, for example, like in your progress meetings, um, I know you have like one-to-one meetings, and you take off bits of bits and pieces that you've done. Is there anything we can do more as a collective? You know, like almost like a, I don't know, you know, like you do your excursion weeks, like team-building sort of things. Do you think that would be something that? The groups would get involved in if it were set up, maybe. I mean, I think, yes, definitely.

Jack: [00:14:54], that is, that is something that, you know, would, would perhaps be nice to see. I mean if we had. I mean, the thing is, is it's like being a, like an online learner it's it is difficult to get involved. So, I see, I get like a weekly news bulletin from like canvas and it sort of runs me through like stuff that's going on at the college. And it's like, get involved in this, in this thing or in that thing. And, you know, it's like, I find it's a lot. It's very basic people who were there on the campus and who you have access, and you were coming in. So, it's like, you know, get involved in, there was one the other day, it was like student union. And it was like, come and meet our student union. There'll be in this place at that place or this time, or, you know, in the foyer or somewhere like that. And it's like, well, it's lovely, but I can't get, you know, um, so I think, yeah, it would, if my only sort of points that would be.

I mean, Account for your online learners. But then I guess if we're looking at kind of online versus physical learners, we are online, and it's probably account for very small amounts. So now you've got sort of,

Colette: [00:16:01] yeah, well I think every, every student's opinion and voice is valid. So, I think this goes to, to show that you might only be a small minority of the, of the

cohorts, but I think it's still something that we need to consider. Definitely. So, when you, in your sessions, do students typically have the cameras on or just cameras off while the teacher's delivering? Or like, how does that normally work?

Jack: [00:16:26] So generally there's usually sort of a few students that always have the cameras on., and there's, there's generally a few students that, that, that try to interact.

And always interact, you know, heavily with the tutor. And the generally I tend to find it's the same four or five students that are always have the cameras on always interacting, which is, which is fine and, but yes, generally, you know, you, you could recognize the pattern from quite early on.

If a student's they're going to have the camera's off and, you know, and I gotta be silent that generally often silent, you know, mentally true and possibly up for the. I for the whole duration, the module, and I guess getting those students to interact is probably, you know, it's a difficult one because they're not actually there, you know, so.

Colette: [00:17:17] Um, yeah, I think that's a good point though. Um, because as a teacher, I see those patterns, um, you know, you always have your, you're few that will always answer, regardless of whatever the question is, even if they don't know the answer, they'll still put their two pennies worth it, which is.

I quite agree. I mean, I know for example, like I I'm, I'm quite lucky in a sense, like, you know, I'm, I've always been quite confident and that then leads into being at work, you know?

Jack: [00:17:45] And, and, and luckily, you know, I'm quite fortunate. That's just how it's been. So, I can't like, I, I wouldn't sort of know what I guess it's like to be. To not feel comfortable putting my camera on, in a sense., because I, I was due out, it was for the camera on and had to have a chat and, you know, and, and that sort of stuff.

I can understand that being on a video conference. Can be, can be intimidating. You know, it's a lot easier sort of face to face because you not only have that sort of body

language and that, and that interaction and that kind of physical feedback, you know, as you've got the physical kind of body language, as well as kind of the visual, you know, face and sort of, you know, feedback as well, whereas it's more difficult when you're on the camera and perhaps the camera's not good quality or whatever, but I, and I would think it's also a case of some students, you know, some students don't, want to perhaps be judged, you know, perhaps. What they're wearing or, you know, perhaps what's behind them or, yeah. You know, I mean, luckily now on things like teams, you can blow the background or background.

It's not so much of a problem, but I know for example, Vodafone recently moved from, from Skype to all be teams based and Skype just didn't allow that. So, you need to do things like WebEx. So it was either camera's on sharing everything behind you or comes off, you know so I think, yes, I can understand why students who perhaps aren't as confident then struggle a bit because they don't want to say the wrong thing, or they don't want to appear in the wrong way, or, you know, there's that age old sort of belief that, you know, it's like when you're on a video conference or you don't know your camera's on and you do something embarrassing.

I think that's what a lot of students, but, you know, I dunno. Personally, I just got into the habit of, I know when my camera's on and its off-type thing.

Colette: [00:19:34] Absolutely the same, but I feel like if I don't have my camera on, I'm not engaged. I'm not like I'm not there. If that makes sense. I'm not there in the room. I feel like I'm almost. Separated from it, which is quite an odd way to feel. But I don't know. I very much need that facial expression that not in I've had, you know, that understanding that there's risk somebody at the end of the call. Yeah.

I quite agree. Yeah, no, I I'm the same. I mean, yeah. Sometimes I'm in the mood to be a camera off type person, but it does occasionally happen. Um, but yeah, no, most of the time I'm yeah, pretty much camera and, and, and sort of, yeah, ready. Trying to, I guess, engage as much as possible really. Cause it's, you know, it's, as much work for us as it is for sort of tutors and stuff to try and engage.

9.9.2 – Luke- PhD Data Collection

Luke: [00:00:00] so I think mostly it's been, sometimes it's similar to being in like face-to-face learning. Well, I think there are definitely times where you can get distracted a lot more easily at home. I think one of the biggest things I noticed was when, what face-to-face learning, when you're around other people, you get to see kind of where they're at. So, you can kind of gauge if you're, you know, up to pace with everyone else, or if you've fallen behind., but you don't really get to see where everyone's at with. I think it's hard to track progress with people online.

Colette: [00:00:40] Yeah, I agree. So just talk me through like a structured session.

Luke: [00:00:45] So usually you try it on to a call. So, you go into the lesson, they'd be waiting around for five minutes to wait for everyone to get there. And people like try and get cold and if they don't turn up and then, depending on what stage of the lesson you're in, maybe they'll read through the specification, like the material specification, or you'll go through a PowerPoint or I'll just be, well, do you have like a briefing? Like, this is what we're going to do in today's lesson. And then you'll go through maybe some kind of line of material, like a PowerPoint, or you'll have a discussion. And then that will probably go on for maybe half an hour to an hour. And they'll maybe be a bit of workshopping time at the end just to get on with stuff.

Colette: [00:01:32] Okay, cool. So how did you find like the engagement of the, of the session?

Luke: [00:01:36], I think it's definitely dependent on the lessons.

Some weeks people collect quite high energy, and they'll participate a lot in some weeks. It's hard to get anyone to speak at all.

Colette: [00:01:46] Yeah. So, it depends on the lesson, the teacher, a lot of different variables, I imagine. Okay, cool. So, what would you say your preferred style of learning online would be? Would it be more activity-based or more lectures driven or what would be your preferred?

Luke: [00:02:07] I think activity based, because I think that's a good way to keep people engaged and, I know back in the peak when, uh, I think it was like, the amount of people coming to lessons towards the end of the year, it was falling off. And I think that was because. A lot lessons. Became a lot more lecture-y style and there were like less activities going on. So, people didn't feel the need to turn up for whatever reason.

Colette: [00:02:33] Thinking about your workspace at home, what's it been like transitioning, obviously being at home, having your workspace and like, you know, creating that motivation to learn. I know that's something we've struggled with a little bit this year.

Luke: [00:02:47] So I think it's, it's been okay trying to transition it. There are some things that are definitely easier. Like. For creative things like working with video or anything with the Adobe suite. I'm always on one version of Adobe now, whereas in uni it's always about a year behind in this compatibility issues. So, it's definitely nice not having to transfer files back and forward and make sure everything's compatible. But then, you are also in your own environment, so. I know I've made changes. I put a whiteboard up and I've put like a checklist on there and I've got like a calendar. Yeah. But that didn't come in until about halfway through the year. But they've definitely helped since then. So, I think it's just, people need to maybe adapt their environments a little bit just to benefit them.

Colette: [00:03:41] Yeah, I think that's a valid point as well. I think, you know, having that, um, having your workspace set up is, a key sort of indicator as to how well are you going to work or how focused you're going to be. Definitely. So how have you found engaging with your peers online? Have you found it easy to do or?

Luke: [00:04:04] I think it's been. Easier. I definitely personally, I find it easier to talk to people online, especially through messages and stuff., I think it's been easier to talk to the people I usually talk to, but I think I've spoken less to the people I usually wouldn't speak to because it's been like in face to face, you know, usually maybe you'll be waiting outside of classroom or something like that. And, you know, just. You

have a chance for conversation, but when you're online, everyone just kind of gets the class at the same time and there's not really. Avenues for discussion.

Colette: [00:04:42] That's a really, really good point. I never thought about that. Those little informal chats, like, oh, you're all right. Yeah. How are you, you know, that sort of waiting outside of the classroom for the teachers to turn up sort of and talk? Yeah, that's a really good point. I never thought about that. Um, but you have managed to keep that, um, communication with, with people you would speak to, you know, that you'd sit next to almost. Yeah. Is there anything we could do in particular to improve their teaching and learning online, going forward? Is there anything that you can think of that we could put into place?

Luke: [00:05:18] I think the only, the only strain like could think is just finding a way to make. People more engaged, but that's, that's more of a question and then answer.

Colette: [00:05:29] Yeah. That's a, that's a challenge. Definitely, so do you mean like engage more in the sessions, like talk and, and getting involved?

Luke: [00:05:38] Yeah, there's a lot of awkward silence sometimes. down to I think a lot of it is I think it could be denser cameras. A lot of it, sometimes as people are you know, face to face, you've got those social cues, you know, when someone else is going to speak, because you can kind of see it in their expression, but online, you don't want to accidentally speak over someone. So that'd be the use of the hands up feature. So. Yeah. Like stricter too. So that just to make sure people aren't worried, they're going to speak over someone or something.