Learning on their own terms: A Study of Self-Organised Learning among University Students through the lens of Activity Theory

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November 2025

This thesis is submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy

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Abstract

Recent literature on self-organised learning (SOL) in higher education (HE) highlights its potential to foster student autonomy, collaboration and resilience. However, much of this research has focused on formally mandated or tutor-supported student groups, offering limited insight into how students independently initiate and sustain SOL outside formal institutional structures. In particular, the dynamics of how SOL emerges and functions without tutor intervention remain under-explored.

This research employed a qualitative survey methodology and an Activity Theory framework. A sample of sixteen students, studying different academic disciplines in the UK and all with prior experience of SOL, were interviewed and asked questions about their intention and experiences of SOL. Questions attempted to draw out how they created, sustained and adapted SOL activities. Data were analysed using the activity system model to explore the dynamic interactions and underlying mechanisms shaping student-led learning and collaboration in informal settings.

The study identified six distinct objects of SOL activity, each giving rise to a uniquely structured activity system. These systems were characterised by different patterns of social interaction, role negotiation and structural dynamics. Each activity system revealed specific internal contradictions shaped by its object. For example, in a coursework review activity system, students experienced a tension between collaborative planning and the need to uphold academic integrity through individual work. Meanwhile, some contradictions were experienced in common ways across multiple systems most notably, the challenge of maintaining focus amid social distractions. Yet these tensions were sometimes driven by different aspects of the activity system, highlighting that similar difficult experiences could be driven by different causes depending on the dynamics of the specific activity.

The research offers a range of contributions to the literature. It conceptualises SOL as a dynamic, socially mediated, object-oriented activity system with its own internal contradictions and adaptive strategies. Notably, it draws attention

to how the roles of individual students within SOL are fluid and responsive. These insights extend current understandings of SOL by revealing the socio-cultural and structural conditions that enable sustained, autonomous students' SOL in higher education.

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Acknowledgements

I dedicate this thesis to the memory of my beloved mum, Mrs Imelda Umeano and my dearest friend, Mrs. Chizoba Okoli both of whom I sadly lost in 2024. Their unwavering encouragement and belief in me throughout this journey continue to inspire me every day.

First and foremost, I thank God Almighty for giving me the strength, wisdom and perseverance to complete this research. Through the many sleepless nights and challenging moments, His grace sustained me and gave me peace.

I extend my deepest appreciation to my husband, who discovered this course and believed it was exactly what I needed to pursue my passion for technology and education. Thank you for your consistent belief in me and your quiet understanding when I needed time and space to focus. To my first son, thank you for always asking what I achieved each day and encouraging me to keep going and to my second son, thank you for your hugs and even your playful distractions that brought much needed balance to my days.

To my friends and families, your continuous encouragement, prayers and belief in me meant more than words can express. During one of the most difficult years of my life, losing my mum and one of my best friends while also helping care for a friend's sick daughter, your love and support carried me through. I am deeply grateful to God for providing strength and blessing me with such wonderful people.

I also wish to thank Dr. Ann-Marie Houghton and the PhD study day group for their support and encouragement. Finally, I would like to express my sincere thanks to my supervisor, Dr. Brett Bligh, for his exceptional guidance, patience and invaluable feedback throughout this process. His belief in my abilities, his expertise and his consistent encouragement have been instrumental in shaping the direction and quality of this thesis. His supervision has enriched the depth of my work.

To everyone who played a part in this journey, from the bottom of my heart, I say thank you.

Author's declaration: This thesis is entirely my own work and has not been submitted in substantially the same form for the award of a higher degree elsewhere.

I declare that the word count of this thesis conforms to the permitted maximum.

Signature ....

Chapter 1: Introduction

1.1 Introduction

In a rapidly shifting educational landscape shaped by digital technology and increasing demands for learner autonomy (Benson, 2013; Cullen, 2024; Fotiadou et al., 2017), understanding how university students organise their own learning is significant and important. Many institutional policies specify a minimum number of hours during which students are expected to study independently (see Section 1.3). While student learning is expected to occur beyond the classroom, the ways in which this learning takes place need to be understood. There is growing recognition that much of this learning is structured by students themselves in response to their own goals, constraints and social contexts.

A substantial body of literature on self-organised learning (SOL) in higher education conceptualises it as an individual phenomenon, centred on constructs such as autonomy, metacognition and self-regulation (Boekaerts, 1999; Seel, 2012; Zimmerman, 2002). From this viewpoint, SOL is typically seen as an internal process through which students plan, monitor, and evaluate their own learning activities. While these models acknowledge occasional peer interaction, the core assumption is that learning beyond the classroom is largely a solitary effort.

However, this research challenges such assumptions by highlighting SOL as a socially collaborative activity. From my perspective SOL is not merely an individual act of autonomy but is a socially and materially embedded practice. It can involve negotiation, adaptability and collaboration among peers in informal settings, often without direct institutional intervention. For example, students studying the same module might collaborate informally, supporting one another in mastering content without direct instructor involvement. Such practices represent a shift in how knowledge is acquired in the digital age, as learners increasingly take ownership of their educational journeys in collaborative and dynamic ways.

In research literature, SOL has often been conceptualised as an individual process. Harri-Augstein and Thomas (1991) defined SOL as "…ability to converse with oneself and others about the process of learning; and to observe, search, analyse, formulate, reflect and review on the basis of such encounters. . ." (p. 17)

This work will highlight how collaboration is a key aspect of students' SOL and hence it could even be seen as a form of collaborative learning. Le et al. (2017) define collaborative learning as a 'set of teaching and learning strategies promoting student collaboration in small groups' (p.103). Yet collaborative learning is typically understood as following a structured format and as being guided by an instructor (Kirschner, 2001). In contrast, SOL within this research grants greater student autonomy, where individuals assume responsibility for their own learning while engaging with peers in the absence of formal instruction or supervision from an instructor.

Most literature on SOL in higher education focuses on self-organised learning environments (SOLEs) and their outcomes (Almalki, 2024; Amit, 2020; Clark, 2016; Esteban & Peart, 2014). These studies typically focus on classroom-based settings where a teacher or facilitator provides the guiding question and time frame. However, little attention has been given to how students self-organise their learning outside the classroom, especially in ways that are informal, dynamic and student driven.

This leaves a significant limitation in understanding the underlying processes, social dynamics and contextual influences that shape out of classroom student SOL. My research seeks to address this limitation by highlighting student voices and exploring their perspectives, motivations and strategies in SOL activities that occur without formal supervision. Studies exploring students' perspectives on related phenomena such as out-of-class collaboration and social study learning provide valuable insights into motivation, engagement, peer collaboration, academic development and the use of digital tools (Archana, 2022; Crookall et al., 2000; Kagwesage, 2014; Keren et al., 2017). These findings will be further examined in Chapter 2 (Literature Review). Yet there are

limited insights into the limitations, inequalities or pressures students face in enacting such practices.

The purpose of this research is to explore SOL among university students, focusing on how and why they learn beyond the boundaries of the formal classroom. It aims to contribute to the existing literature by highlighting students' perspectives and experiences. Specifically, this research investigates the motivations driving students to engage in SOL, strategies employed in SOL, challenges students face as they engage in SOL practices and the social and contextual factors shaping these practices. By bringing these practices to light, the study challenges narrow conceptions of learner independence and offers a more situated, practice-based understanding of learning beyond the curriculum.

This research examines SOL through a sociocultural lens, situating learning as a socially mediated process shaped by peer collaboration, technological mediation and institutional contexts. It moves beyond individualistic perspectives such as those found in self-regulated learning (Zimmerman, 2002) to argue that SOL emerges from collective action and shared meaning-making.

From my perspective, SOL is conceptualised as active involvement of students in taking charge of their own learning and learning decision. This includes determining what they want to learn, how they prefer to learn it, who they want to learn with and when they choose to engage in learning activities. These activities are relational and embedded in the everyday realities of university life shaped by digital tools, peer influence, institutional norms and wider socio-economic conditions.

Higher education provides a rich setting for exploring SOL. Universities are complex ecosystems where formal instruction, informal collaboration and independent exploration coexist. Students constantly make decisions about when, where, how, with whom to learn and what tools to use. However, much of this activity remains invisible to institutions, as it occurs informally and often outside measurable learning outcomes.

Ideally, university environments would nurture students who are not only capable of self-regulation and critical thinking but also are able to take ownership of their learning (Boud et al., 2014). However, achieving such ideals is challenging, institutional structures often prioritise measurable outcomes and standardised curriculum (King et al., 2011), which in my opinion may not align with the diverse, informal and often unpredictable nature of SOL. This disconnect contributes to the invisibility of SOL within institutional frameworks. This issue is challenging for researchers who wish to investigate it.

This research adopts Activity Theory (AT) as an analytical lens to investigate the dynamics of SOL among university students. Rather than viewing SOL as a purely individual cognitive process, this research argues that it is better understood as a socially situated and relational practice shaped by cultural, institutional and interpersonal dynamics (cf. Engeström, 2001). As I will elaborate further in chapter 3, AT offers an effective framework for examining human practices. It enables a nuanced exploration of how learners engage with tools, communities and institutional rules, as well as their motivations, to construct meaningful learning pathways on their own terms. This comprehensive approach allows one to identify the tensions, contradictions and adaptations that shape how learning is enacted in real-life contexts. It allows for a nuanced exploration of how learners interact and their motivations to construct meaningful learning pathways on their own terms.

The study employs a qualitative survey methodology to examine students' SOL practices within university context. According to Jansen (2010), "qualitative survey is the study of diversity (not distribution) in a population" (p. 4), making it well suited for capturing complex, context-specific behaviours and motivations. Details on methodology will be presented in Chapter 4.

The rest of this chapter sets the foundation for the study by outlining the key contextual elements that inform and shape the research. Section 1.2 discusses the personal motivations behind this research and situates it within the researcher's professional and academic context. Section 1.3 explores the practice context and the broader policy environment influencing higher education, particularly regarding learner autonomy and independent learning.

Section 1.4 reviews the existing research landscape to highlight current limitations and establish the relevance of this research while section 1.5 locates the project within institutional setting, clarifying its scope and boundaries. Finally, Section 1.6 provides an overview of the structure of the thesis.

1.2 Personal motivation

This research is driven by both personal and academic goals. It represents an attempt to better understand the processes and practices of self-organised learning among students within higher education. More broadly, the project reflects my enduring interest in student-centred learning and educational equity. It forms part of a wider agenda to support more resilient, collaborative and inclusive models of learning not only within my doctoral studies, but as a continuing line of work beyond them.

My motivation for undertaking this research stems from a deeply personal place. Over the past few years, I have closely observed the educational journeys of my sons, as well as those of relatives and friends' sons and daughters, as they navigated the challenges of university life. Despite being bright, capable and often coming from academically strong backgrounds, including some from grammar and private schools, many struggled to adapt to the shifting demands of higher education. This struggle became especially evident during the Covid-19 pandemic, when the sudden shift to online learning exposed serious gaps in institutional readiness and pedagogical support (cf. Lee et al., 2022). This experience directly informed my decision to explore SOL from the student perspective using a qualitative survey approach, as discussed in section 1.6. The study is designed around interviews with university students, allowing for rich, narrative accounts of how they organise and sustain learning outside formal classroom contexts.

During the abrupt transition to digital learning platforms during the COVID period, my son encountered significant difficulties in managing his academic workload. Course materials were uploaded indiscriminately with little consideration for how well they translated into an online learning environment. Faced with isolation and an overwhelming volume of unsupportive content, he

began to lose motivation and direction. In response, I encouraged him to reach out to his peers, a suggestion that proved transformative. His collaboration with peers allowed him to regain a sense of agency, foster accountability and rebuild confidence. He not only regained a sense of control over his studies but also developed a strong sense of autonomy and responsibility for his own learning. He later credited this work, which I call self-organised learning (SOL), as pivotal to his academic recovery and successful graduation.

This personal experience, echoed in similar stories from friends whose sons and daughters felt overwhelmed and, in some cases, withdrew from university, led me to question how students manage their own learning under difficult or poorly supported conditions. It became increasingly clear to me that, while universities offer flexibility to students including through digital environments, studying also demands new forms of learner agency that many students are not prepared for. This is in alignment with the findings from Gedera's (2014) study on students' experiences in virtual classrooms, which highlights that shifts to online learning often require learners to take greater responsibility for organising and sustaining their own learning processes. The study also notes that students generally struggled to transfer their communication practices and skills from face-to-face environments to online settings. This formative experience shaped not only the focus of this research but also my philosophical orientation towards it. It highlighted the socially mediated and relational nature of learning, leading me to adopt an ontological position informed by dialectical materialism while maintaining an interpretivist epistemological stance as will be seen in section 3.2

My academic and professional background also significantly shapes my interest in this research. I began my career as a software developer, working for an organisation that developed one of the largest course databases in the world. Although this work was situated within the education sector, the direct connection to pedagogy and learning was not always visible to me. My growing curiosity about how technology could be meaningfully integrated into education led me to pursue a PGCE in secondary education. It was in the classroom that I

began reflecting on how digital tools could support not just teaching, but also students' independent learning processes.

This reflection eventually led me to the E-Research and Technology Enhanced Learning (TEL) doctoral programme, a structured PhD programme delivered in two parts. The first part, undertaken over the initial two years, consists of four compulsory modules that prepare students in both theoretical and methodological foundations of educational research. From the third year onwards, the focus shifts fully to the design and development of the doctoral thesis. This structure offered a gradual and supported transition into the educational research community, especially valuable for someone like me coming from a STEM background.

Coming into the programme, I had already completed a Master's in Research (Education) and was familiar with both quantitative and qualitative methods. However, the doctoral modules introduced me to a new intellectual terrain. I had expected to explore educational technologies themselves but soon found myself immersed in critical debates about learning, identity, and social practice. The conceptual frameworks and methodological tools I encountered, particularly from the social sciences, reshaped how I thought about technology in education. I began to see it not just as a neutral tool, but as something deeply embedded within sociocultural systems and relationships.

As part of this doctoral journey, I conducted an empirical study on students' experiences of summative e-assessment during Covid-19. This work, undertaken during Module 3 of the doctoral programme, explored how students adapted to e-assessments amid institutional disruption. It revealed critical issues such as isolation, reduced motivation and a lack of meaningful peer interaction. That study was instrumental in reinforcing my decision to shift my attention towards how students self-organise, collaborate and sustain learning, ultimately laid the groundwork for this current project. This research aims to contribute knowledge that highlights students' voices and reveals the complex social, emotional and strategic dimensions of SOL in higher education. Understanding these processes matters not just for this research, but for informing broader educational practices and institutional policies around

independent study and learner autonomy, and for recognising these as sociocultural phenomena.

1.3 Policy and Practice

In this section, I engage with policies concerned with student agency, independent learning, and higher education teaching and learning expectations all of which are relevant to the concept of students' SOL. While numerous policy domains touch on aspects of student learning, this research focuses on those that explicitly frame the learner as an active, autonomous agent. These policies are important because they shape both institutional practices and students' lived experiences of higher education, often embedding assumptions about how students learn. Understanding these assumptions is central to this research, which explores how students navigate and enact SOL in practice.

In higher education policy and practice, the expectation that students will engage meaningfully in independent study is both well-established and widely institutionalised. It is seen not only as a necessary complement to formal teaching but also as a means for cultivating student autonomy, critical thinking and lifelong learning. These expectations are echoed in global policy discourses, international bodies such as UNESCO and the OECD advocate for learner autonomy as a 21st-century competency. For instance, UNESCO's work on Open Educational Resources (OER) encourages students to play a more proactive and self-directed role in their learning (UNESCO, 2019). Similarly, the 'Future of Education and Skills 2030' initiative aims to define the competencies students need for future challenges and student agency is a core concept. Student agency in such policies, is taken to mean that students 'learn to navigate by themselves through unfamiliar contexts and find their direction in a meaningful and responsible way, instead of simply receiving fixed instructions or directions from their teachers' (OECD, 2019, p.24).

At the national level, Australia's Australian Qualifications Framework (AQF) emphasises self-management and initiative, requiring graduates to show increasing independent judgment and responsibility (AQF Council, 2013). Similarly, Canada's Ontario Qualifications Framework (OQF) highlights

professional capacity and autonomy, expecting graduates to exercise personal responsibility, take initiative in complex contexts and manage their own learning in changing circumstances (Ontario Qualifications Framework, 2008). In the UK, which is the setting for this research, the UK Quality Code for Higher Education, published by the Quality Assurance Agency (QAA), emphasises the importance of developing students as independent learners who can engage in self-directed study and demonstrate initiative in pursuing academic and professional goals (QAA, 2024). This message is reinforced even before students begin university, UCAS, the UK's centralised admissions service, highlights independent learning as a defining characteristic of higher education, advising students to expect less direct supervision and greater responsibility for organising their study time (UCAS, n.d).

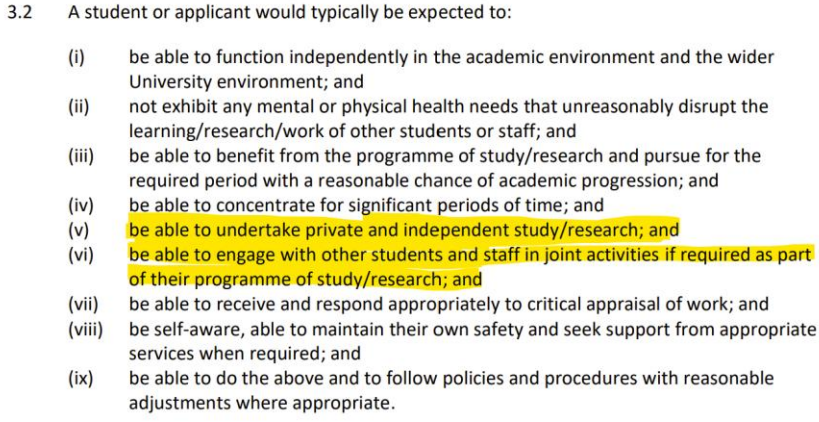
Institutional policies serve to further operationalise these expectations. For example, the policies of Lancaster University, where I studied this PhD programme, specifies that students should commit 40 hours per week to study, with 30 of those hours devoted to private study outside scheduled teaching (Lancaster University, 2024). The University of Cambridge similarly advises undergraduates to expect a minimum of 35 hours per week of combined contact and independent study, with postgraduate researchers expected to commit around 40 hours (University of Cambridge, 2024). These benchmarks are common across UK institutions, reinforcing a systemic expectation that students are capable of managing substantial learning workloads independently. This pattern is not unique to the UK, in the United States, institutions typically require two hours of independent study for every hour of classroom instruction, resulting in roughly 30 - 45 hours of total study per week (U.S. Department of Education, 2010). Similarly, in Australia, universities such as Deakin recommend students commit around 10 hours per week per unit of study, equating to 40 hours weekly for a full-time course load (Deakin University, 2024). While in Vietnam, universities such as VinUniversity have a detailed policy on independent learning, it specifies credit hours, time required (45 hours of work for each credit hour over a 15-week semester) and final expectations (Ha.Nh, 2023). Universities that offer blended learning such as online and distance learning, independent study is a core component of this

mode of learning, hence they have policies that guide this kind of learning. Example, University of the Free State (South Africa), their 'Blended Learning and Teaching Policy' defines Distance education methods as including 'structured learning resources and activities for independent study'. This indicates a policy-level recognition of independent study within their educational delivery (UFS Council, 2022). Similarly, National Guidelines for Open and Distance Learning in Nigerian Universities, specifies that the programme includes independent study of learning materials (National Universities Commission, 2009). These policies reflect a global trend in higher education towards expecting high levels of self-regulation and time management from students, often without explicit recognition of how students might organise and sustain such efforts.

These policies are important for my work because they reveal a common pattern across different educational systems, formal policies expect students to undertake significant learning outside class hours but rarely recognise the social, collaborative and student-led practices that students create to meet those expectations. In these policies, independent study is often assumed to be a personal responsibility and often treated as a solitary task as can be seen in the Lancaster Supported Study and Fitness to Study Policy and Procedures (Figure1.1)

Figure 1.1

Extract from Lancaster Supported Study and Fitness to Study Policy and Procedures (highlighting added by author)



3.2 A student or applicant would typically be expected to:

(i) be able to function independently in the academic environment and the wider University environment; and
(ii) not exhibit any mental or physical health needs that unreasonably disrupt the learning/research/work of other students or staff; and
(iii) be able to benefit from the programme of study/research and pursue for the required period with a reasonable chance of academic progression; and
(iv) be able to concentrate for significant periods of time; and
(v) be able to undertake private and independent study/research; and
(vi) be able to engage with other students and staff in joint activities if required as part of their programme of study/research; and
(vii) be able to receive and respond appropriately to critical appraisal of work; and
(viii) be self-aware, able to maintain their own safety and seek support from appropriate services when required; and
(ix) be able to do the above and to follow policies and procedures with reasonable adjustments where appropriate.

However, while such policies promote independence and align with broader employability and lifelong learning goals, they also suggest critical gaps in understanding. The presumption that students will naturally adapt to the demands of independent study overlooks the uneven terrain of students' prior learning experiences. In practice, students' ability to self-organise their learning is often shaped by the diverse social, cultural, and economic contexts they bring with them, factors, yet these nuances are rarely reflected in policy discourse.

This is important for the present work because it suggests a disconnect between the policy rhetoric of independent learning and the lived realities of students. While policies call for independent learning, they tend to treat it as a static expectation rather than a dynamic, socially mediated process that requires negotiation, adaptation and support.

It should be noted that many universities do attempt to offer support and guidance aimed at fostering students' ability to manage their own learning. Many institutions have a central academic skills or study skills centre, which offers workshops, one-on-one tutorials, and online resources covering a wide range of topics, including time management, critical thinking, research skills and academic writing. Departments also contribute by providing module handbooks that break down large, independent projects into manageable steps. This support demonstrates that while independent learning is framed as an expectation, universities also recognise that it is a skill that must be taught and developed.

Where such policies are lacking is in acknowledging how students learn outside of structured teaching particularly, the role of peer support, informal norms and shared resource practices that characterise SOL especially from the students' own perspectives. By attending to students' voices and experiences, this research contributes to a more grounded, equitable and responsive understanding of independent learning, one that may inform future policy and institutional practice. An opportunity to further develop policy might be to shift from metrics of hours completed to a more nuanced recognition of different collaborative learning modes.

By critically examining how students themselves organise learning, this research exposes an overlooked dimension of higher education practice, one that is due for policy innovation. This research is situated within the context of UK Higher Education, a sector characterised by emphasis on independent learning and student agency, yet practical understandings of how students navigate those expectations remain limited.

Having considered how institutions set broad expectations for independent learning, the focus now shifts to the programme level, where these institutional principles are enacted through specific policies, curriculum designs, and learning outcomes.

While data for this research were collected across several institutions, my understanding of the landscape is also informed by my own professional engagement in teaching and my personal experience supporting students close to me. These perspectives have shaped not only the research questions I sought to explore, but also my awareness of the everyday challenges students face in navigating learning independently.

As discussed earlier, institutions, while diverse in institutional culture, consistently promote the expectation that students will engage in substantial independent learning beyond formal contact hours. This is reflected in the allocation of designated independent study hours across modules and programmes. Such expectations are underpinned by assumptions about students' self-motivation, organisational skills and capacity for autonomous learning. However, these assumptions often mask the complexities of student experience, particularly the structural, social and emotional barriers to fulfilling those expectations. Moreover, independent learning is frequently conceived as a solitary endeavour, overlooking the socially mediated practices that students may develop informally.

As noted, students today operate within a multifaceted and often fragmented learning environment, the burden of academic success increasingly falls on the individual student (cf. Kizilcec et al., 2017; cf. Zhao et al., 2024). The central practice issue underpinning this research is not simply the lack of support, but

the lack of recognition or understanding of the informal, student-driven learning strategies that emerge in response. These informal practices are often overlooked in institutional discourse, despite their significance in supporting students' learning trajectories.

Within formal academic structures, students participate in lectures, seminars, access virtual learning environments, complete assessments, and are expected to engage in independent study. Yet, layered beneath these visible activities are a set of largely hidden, self-organised learning (SOL) practices. These include peer-led revision sessions, collaborative note-sharing, informal support network and co-construction of resources, all of which many students rely on to sustain their academic progress. Initially, I conceived of these practices as survival strategies employed by students to cope with the demands of higher education. However, as I engaged further with the literature, I came to view these practices not merely as reactive or compensatory, but as intentional, meaningful and valuable forms of learning practice in their own right.

This research, therefore, aims to investigate these student SOL activity systems, what motivates them, what tools and social structures they employ, and what tensions or contradictions they contain. While the setting is not confined to one single institution, it is firmly rooted in the shared cultural and policy assumptions that shape the UK HE sectors. By bringing attention to these under-researched practices, the study seeks to highlight a vital, student-led layer of learning that operates parallel to, and often in response to, formal education systems.

1.4 Research context

My research, which explores students' self-organised learning in higher education, is situated within broader field of educational research around learner autonomy, self-directed learning, peer-to-peer learning, learner agency, collaborative learning and informal learning. These areas share a common emphasis on learners as active agents rather than passive recipients of knowledge, who shape their own learning trajectories in increasingly complex,

flexible and socially mediated educational environments (Bandura, 2001; Boud et al., 2014; Ryan & Deci, 2000; Zimmerman, 2000).

The concept of learner autonomy has been widely examined in pedagogical theory, particularly in the context of constructivist and sociocultural learning frameworks. Knowles' (1975) work on self-directed learning laid early foundations for understanding adult learners as capable of taking ownership of their learning process. Further literature expanded this to formal educational contexts, arguing that self-directed learning is a necessary competence in increasingly complex and learner-driven educational landscapes (Candy,1991; Garrison, 1997). Recent literatures continue to stress the importance of students taking control of their learning by setting goals, selecting strategies, and evaluating outcomes, with motivation, metacognitive skills, and technology integration playing essential roles (Sharina & Abdullah, 2025).

Research on peer-to-peer learning and collaborative learning also provides vital insights into how students co-construct knowledge outside formal teaching structures. Boud et al. (2014) examine how peer learning in higher education can enhance critical thinking and deepen subject understanding through mutual support and dialogue. Whether peer learning is facilitated through institutional programmes or emerges informally in study groups and digital platforms, it enhances academic understanding and contributes to the development of interpersonal and collaborative competencies (Topping, 2005). Similarly, studies on learner agency such as Bandura's (2001) concept of collective agency, highlights how students act intentionally and reflexively in pursuit of their learning goals through socially coordinated and interdependent effort.

Furthermore, informal learning is an integral part of students' educational experiences (Livingstone, 2001; Marsick & Watkins, 2001). The rise of online communities, digital resources and mobile technologies has expanded the spaces in which students can take initiative in organising their learning (Garrison & Vaughan, 2008). This shift is evident in hybrid pedagogical models like blended learning and flipped learning, which require significant student self-study outside of class time. These approaches position students as active participants responsible for engaging with materials and applying concepts

independently (Lage et al., 2000; O'Flaherty & Phillips, 2015). The effectiveness of such models is closely tied to how physical and digital learning spaces are integrated to support both structured teaching and self-directed learning (Bligh, 2019). This aligns with broader studies on student engagement in higher education, which show that much learning occurs outside traditional lecture halls, within social spaces, peer networks and online environments where students are self-organising their experiences and knowledge acquisition (Astin, 1997; Kuh, 1995; Pascarella & Terenzini, 2005).

These lines of research suggest a growing recognition that learning in higher education is not confined to formal curricula or teacher-led instruction. Instead, students often engage in complex, self-directed and collaborative learning activities that are deeply embedded in both social and material contexts.

Within this broader research context, my study narrows its focus to a specific area: students' experiences of self-organised learning (SOL) in higher education. This is a more specific area of literature, and it is this area to which my work aims to contribute. This area explores how students independently initiate, structure and sustain their learning through informal peer collaboration, SOL study groups, and the use of digital tools usually outside the formal institutional settings. This focus reflects a growing interest in understanding how students exercise autonomy in practice, not just as a theoretical ideal but as a situated and socially mediated set of behaviours and experiences.

As discussed in Chapter 2, this specific literature provides valuable insights into SOL as a feature of informal settings (2.3.1), students motivations for engaging in SOL (section 2.3.2), social and group dynamics of SOL (2.3.3), and the use of technology in SOL (2.3.4). These studies reveal how SOL fosters engagement, collaboration, creativity, adaptability, problem-solving, stronger interpersonal connections and enhanced learning outcomes.

However, the literature review also reveals key limitations. First, much of the existing research focuses on the beneficial outcome of SOL, while offering limited understanding of the processes and strategies by which students organise their learning in practice. Second, while the importance of social and

group dynamics is acknowledged, there is a lack of critical enquiry into how students navigate interpersonal tensions, share responsibility and sustain group cohesion over time. Third, the role of technology in SOL is often treated as a background support, with insufficient exploration of how learners appropriate and use tools to mediate and shape their learning. Finally, the literature has paid limited attention to the challenges and contradictions that arise within students' SOL.

There is a growing body of work on self-directed learning and informal learning, however, fewer studies explore how higher education students themselves conceptualise and experience self-organised learning in their day-to-day university life, especially in relation to peer-based and digital learning contexts. Where this literature does exist, it often lacks granularity regarding students' motivations, affective experiences or the informal organisational processes they develop.

By addressing these limitations, my research contributes a more nuanced and socially grounded understanding of how HE students make sense of and manage their learning beyond formal structures. It explores how these practices intersect with issues of support, access, equity and efficacy in an increasingly student-driven learning environment. My research moves beyond individualistic accounts of learner autonomy by focusing on the relational, collaborative and contextually embedded nature of SOL. In doing so, it provides a richer, more grounded picture of SOL as a lived and negotiated practice, thereby contributing a distinct social understanding of how students learn in higher education.

1.5 Locating the project

As discussed in Section 1.2, my personal and professional experiences prompted a deep interest in how students learn independently, particularly outside the boundaries of formal instruction. This interest is reinforced by broader developments in policy and practice (Section 1.3), which increasingly position higher education students as independent, self-regulating learners. Within this context, learners are expected not only to manage their own

academic responsibilities, but also to actively construct meaningful learning experiences across diverse formal and informal contexts.

In Section 1.4, I outlined several closely related areas of scholarship in which this research is situated. These fields provide important insights into student agency, co-construction of knowledge and the social nature of learning in higher education. I explained that the focus of this work is on contributing to a specific literature concerned with students' experiences of self-organised learning (SOL) in higher education. This literature, while growing in scope, reveals key limitations particularly in understanding how students initiate, negotiate and sustain SOL within informal settings. The strategies they employ, the challenges they face and how technology supports or complicates these practices.

To guide this research, I have chosen Activity Theory proposed by Engeström (1999) as the guiding theoretical framework. It allows for the analysis of human activity as systemic, socially situated and mediated by tools, rules and community. This framework especially the Activity System model of human activity, is well-suited to this research as it enables a detailed examination of the interconnected components of students' learning activities including their purpose (objects), the technologies and artefacts they use (tools), the social arrangements they participate in (community), the implicit and explicit norms they follow (rules), and the task distribution, responsibilities and role negotiation (division of labour) within their groups. Central to this framework is the notion of contradictions, the tensions and conflicts that arise within or between elements of an activity system. These contradictions can act as catalysts for learning, innovation, or breakdown within and between activity systems, offering a rich analytic lens for exploring the dynamics of SOL. A detailed explanation of my use of Activity Theory is presented in Chapter 3.

Guided by this framework, the study is structured around the overarching research question:

RQ: How do student self-organised learning *activity systems* shape students' experiences in Higher Education?

To address this, the research is further guided by four sub-questions:

- RQ1: What are the *objects of activity* in students' self-organised learning?
- RQ2: What roles do *tools* play in students' self-organised learning?
- RQ3: In what ways do social and group dynamics within student self-organised learning activity systems influence learning experiences?
- RQ4: What challenges or *contradictions* emerge during self-organised learning among students?

These questions are designed to uncover both the internal mechanisms of student SOL and the broader social, cultural and institutional forces that shape these processes. The study aims to offer a situated and critical understanding of how students in UK higher education construct and experience learning on their own terms.

A purposive sampling strategy is employed in this research to ensure diversity in disciplinary background, level of study and institutional context. To explore these questions, the study adopts a qualitative survey research approach. Data are generated through semi-structured interviews with students enrolled at UK universities who are actively engaged in SOL practices. This approach enables the collection of rich, situated accounts of student SOL. Data are analysed using principles drawn from activity theory. The analysis focuses on identifying key patterns, interactions and contradictions within the students' SOL activity systems. A more detailed account of the research design, data collection and analysis procedures is presented in Chapter 4.

The aim of this approach is to generate new insights into how students co-construct learning pathways outside formal instruction, and in doing so contributes to existing literature. This research also aims to inform both academic discourse and institutional practice, by offering evidence-based reflections on how higher education can better recognise and support students self-organised learning.

1.6 Thesis Overview

This research investigates self-organised learning (SOL) among university students within the context of Higher Education (HE) in the UK. The thesis is organised into seven chapters, outlining how each chapter contributes to the overarching research objective.

Chapter 2 – Literature Review: This chapter critically examines existing literature on student SOL within higher education, exploring key themes such as students' motivations, perceptions, benefits and challenges associated with SOL. This review establishes the academic context for the research and identifies limited research in understanding the systemic and student-led nature of SOL.

Chapter 3 – Theoretical Framework: This chapter presents my ontological and epistemological assumptions, leading to the selection of Activity Theory as the guiding theoretical framework. It outlines the key components of Activity Theory and explains how it enables a systemic analysis of SOL activity and justifies its application to this research.

Chapter 4 – Research Design and Methodology: This chapter presents the research design and methodology, the use of qualitative survey design to explore students' SOL experiences and the rationale behind it. It details the participant recruitment, data collection and analysis strategies and addresses ethical considerations.

Chapter 5 – Findings: This chapter presents the empirical findings of the study. It begins with an overview of the identified SOL activity systems and then explores each activity system in depth with its contradictions. It highlights recurring contradictions within and across these systems, offering insights into students' lived experiences of SOL.

Chapter 6 – Discussion: This chapter interprets the findings in relation to the research questions and existing literature. The chapter is structured into two

main sections; the first part addresses the research questions. It focuses on the ways in which students construct and manage their learning, the tools they utilise, the influence of social dynamics and the contradictions they encounter. While the second part reflects on the contribution of the study to scholarly debates on SOL, peer collaboration and the application of Activity Theory in educational research.

Chapter 7 – Conclusion: The final chapter synthesises the study's key insights and contributions. It reflects on how the research questions have been addressed, considers the implications for university policy and practice around independent study, acknowledges the study's limitations, and outlines directions for future research around SOL.

Chapter 2: Literature Review

2.1 Introduction

This chapter critically reviews existing literature on students' self-organised learning (SOL) in Higher Education (HE), examining key themes, challenges and key practices. The literature describes SOL as representing a contemporary educational paradigm that emphasises learner autonomy, aligning closely with the broader shift towards student-centred learning.

The literature review explores scholarly discussions on SOL, including students' motivations for engaging in SOL, their perceptions, the benefits they experience and the challenges they encounter. Additionally, it examines how existing studies assess the value of SOL in relation to the learning process. This review establishes a foundation for the research by situating it within the existing body of knowledge. It highlights key themes emerging from the literature, identifying gaps and underscores the significance of this study in contributing to the field.

The chapter is structured as follows:

- Section 2.2 outlines the process of conducting the literature review, including its scope, search strategy, filtering criteria and analytical approach.
- Section 2.3 provides an overview of SOL in Higher Education with the following subsections.
    - Section 2.3.1 explores SOL as a feature of informal learning settings, examining how it contrasts with formal education.
    - Section 2.3.2 investigates students' motivations for engaging in SOL.
    - Section 2.3.3 discusses the social and group dynamics that influence SOL.
    - Section 2.3.4 discusses the use of technology in SOL
- Section 2.4 summarises the key findings, highlighting identified gaps and their implications for this research.

2.2 Process of Conducting the Literature Review

This section outlines the approach taken to identify, evaluate and analyse the relevant literature on students' self-organised learning (SOL) in Higher Education (HE). The review process ensures that the study is grounded in established research while identifying key gaps that justify further investigation.

2.2.1 Scope of the Literature Review

This literature review focuses on students' SOL within the Higher Education (HE) context, specifically examining students' perspectives and experiences. It explores literature which discusses how students independently organise their learning through informal collaborative learning and study groups outside formal educational settings, without direct external intervention. The review will evaluate existing literature on the factors that facilitate or hinder SOL, the impact of SOL on students' academic success and learning experiences, students' motivations for engaging in SOL, their perceptions of its effectiveness and the challenges they encounter. In addition, the review will also explore how students leverage technology to enhance their self-organised learning efforts.

In determining the scope, alternative areas of focus such as informal learning were initially considered. While student SOL can be considered a form of informal learning, the concept of informal learning is too expansive and encompasses a wide range of activities and contexts beyond the scope of this work. SOL remains closely aligned with formal education by supporting curriculum objectives, distinguishing it from the wider range of self-directed activities encompassed by general informal learning. The decision to focus on literature addressing this phenomenon in higher education is particularly important because university students experience greater autonomy in managing their learning compared to those in earlier educational stages. The transition to higher education requires students to develop independent learning strategies, making students' SOL a crucial factor in their academic success and engagement. By understanding SOL in this context, the review provides

valuable insights into how students navigate their learning within a formal educational framework.

To further refine the scope, this review deliberately excludes research on self-organised learning environments (SOLEs) within HE, which is a prominent focus for discussion revealed in my early literature searches (Almalki, 2024; Clark, 2016; Esteban & Peart, 2014; Qurtubi et al., 2023) as these often involve structured interventions and external facilitation. The focus for present work remains on how students take ownership of their academic progress in a manner that is both structured and flexible without external intervention. By defining these boundaries and applying a structured review process, this literature review sets a foundation for the study's contribution.

The review employs a focused process to identify and synthesise relevant literature. It includes a diverse range of sources such as peer-reviewed journal articles, books and conference proceedings, all selected based on rigorous quality criteria. The subsequent sections of the review will outline the search strategy employed to identify relevant literature, the criteria used for filtering sources, and the analytical approach taken to synthesise the findings. Following this, a structured analysis of key themes emerging from the literature will be presented, highlighting significant discussions, existing limitations and areas for further research.

2.2.2 Search for literature

To ensure comprehensive coverage, Scopus and Google Scholar were selected as primary databases. Scopus offers extensive scholarly resources across disciplines, while Google Scholar provides centralised access to diverse academic materials, including journals, theses, books and conference papers.

To conduct the search on Scopus, the search by title, abstract and keyword was used, for the initial search on Scopus, I used terms such as 'self-organised learning' or 'informal study group' AND 'higher education' OR 'university,' yielding 53 documents. Since I was particularly interested in the student perspective, I added further criteria, 'student perception' OR 'student experience', however, this reduced the results to 8 documents. Considering the limited number, I reverted to analysing

the 53 documents and exported the meta data including abstracts, keywords, document titles, DOI and publication year as a CSV file for further analysis.

A supplementary search on Google Scholar was done using the search term ‘self-organised learning’ or ‘informal study group’ AND ‘higher education’ OR ‘university’. This resulted in 87 reviewed documents; this was saved in my library. The metadata (Authors, Title, Relevant, Publication, Volume, Number, Pages, Year and Publisher) was then downloaded as an excel file for further analysis.

2.2.3 Filtering of the Literature

The selection of literature was guided by the need to identify the most relevant and recent contributions to self-organised learning in higher education. The review process was structured to ensure clarity and consistency, with a focus on independently organised student learning outside formal education by determining relevance based on titles and abstracts.

The search results from Scopus and Google scholar were merged while still leaving the source of information to aid in easy access of the full text resulting to 140 articles. Duplicates were then removed resulting to 128 documents for review. Reviewing of the studies was started by adding an additional column (‘Relevant: Y or N’) to facilitate sorting for relevant documents. It should be noted that the downloaded documents from Google Scholar does not provide abstract hence the abstract for individual document was read from the website and marked as relevant in spreadsheet where applicable. Particular attention was given to accessibility and comprehensiveness, ensuring that sources provided sufficient detail for critical evaluation. This approach allowed for the refinement of the selection based on the abstracts.

Following this initial screening based on the abstracts and titles, 46 documents were identified for full text review. The following inclusion criteria guided the developed selection process to ensure that it aligns with the research focus:

- The study must focus on self-organised learning (SOL) as defined in this research, ensuring conceptual alignment.

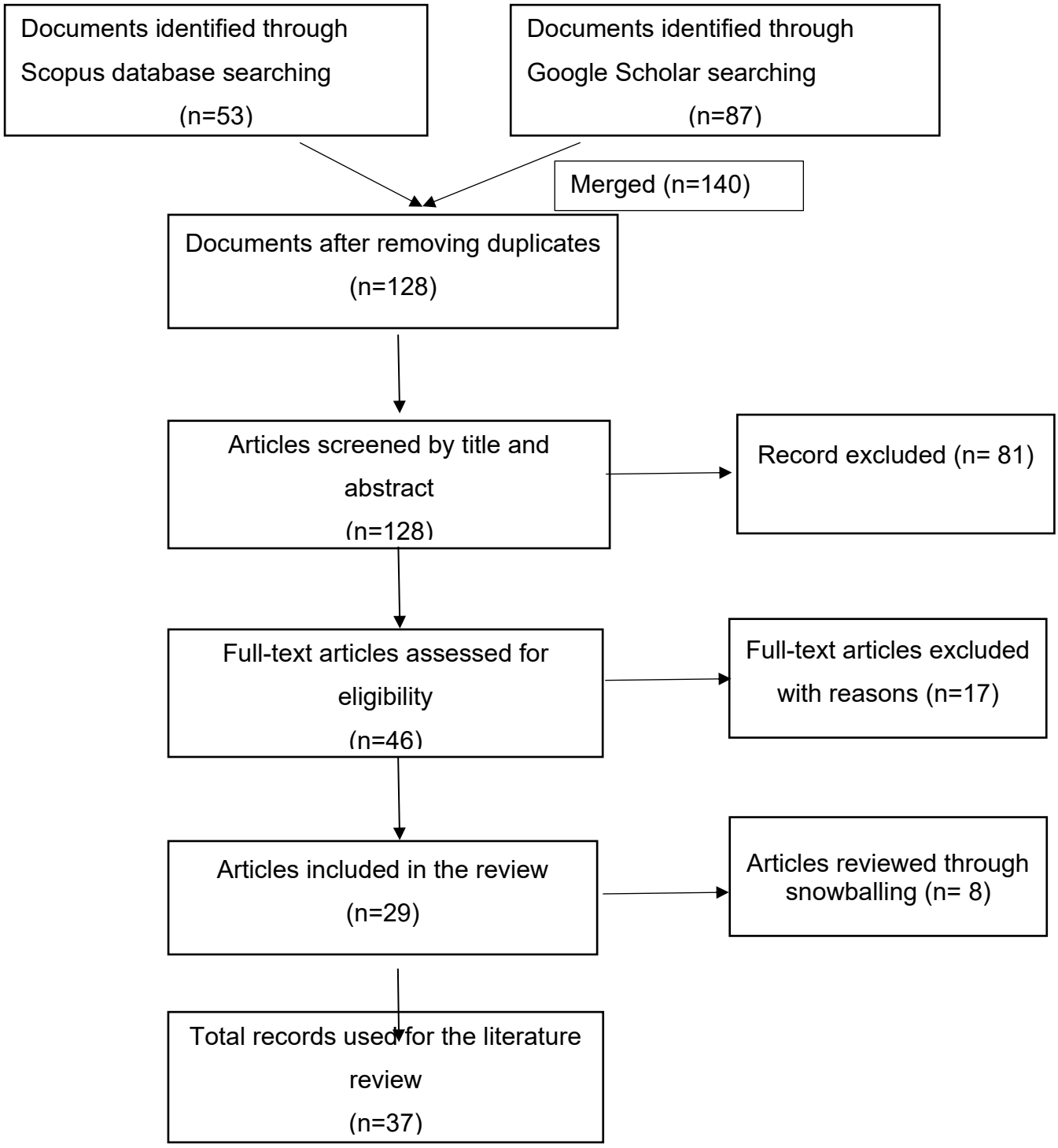
- Only studies conducted within the Higher Education context were considered, maintaining consistency with the study's scope
- The learning activity must be independently organised by students and take place outside formal education settings designed to complement formal learning. This criterion excluded studies that involved external intervention such as facilitators, teachers, lecturers or institutions. This ensured that the review focused on student-initiated learning activities rather than structured or guided approaches.

A meticulous review of the full text of 46 documents was conducted, studies that focused on group projects within formal learning settings or those that explored the implementation of self-organised learning environments were excluded as they did not align with the research focus.

Based on the outlined criteria, 29 articles were deemed relevant for the review. An additional 8 articles were identified through snowballing by examining the references of the selected articles, bringing the total to 37 documents reviewed for this study. It is important to note that the selection process aimed for representative coverage rather than an exhaustive compilation.

Figure 2.1

Flowchart of the Literature Review Search Criteria (Adapted from Keren et al., 2017)



2.2.4 Analysis of the Literature

In relation to my research, the primary objective in reviewing the literature was to extract claims and findings related to SOL in HE. In response, I recognised the need for my review to highlight key arguments, align them with the focus of my study and critically assess their arguments. This process involved identifying common themes across the selected studies within the SOL research area and presenting aspects that require further exploration, which my study could potentially address.

It is important to note that while conducting the literature review, it was noticed that authors used different terminologies to describe non-formal SOL in ways that align with this study. For instance, Keren et al. (2017) referred to SOL as social study learning, they described the social study learning as ‘‘any independent, elective, self-directed and self-organised approach to learning that involves students working with their peers for the purposes of study, learning or revision’ (p.353). However, the search for these terminologies revealed studies not relevant to this research.

Having established the context for my project within the SOL literature and conducted a thorough review of research topics within this area, I have identified four themes as the focus for my literature review:

- SOL as a feature of an informal learning setting
- Students’ motivation for engaging in SOL
- Social and group dynamics of SOL
- Use of technology in SOL

The following section explores the key themes identified during the review of the literature. These themes provide a foundation for understanding the current landscape of research on students’ SOL within Higher Education and highlight areas requiring further investigation. Each of these themes will be discussed in detail, with a focus on identifying gaps in the literature and their relevance to this research's objectives.
The section below provides a brief overview of students’ SOL in higher education.

2.3 Students' SOL in Higher Education

Self-organised learning (SOL), where students independently manage their learning outside formal educational settings, is not a new phenomenon. While substantial research exists on implementing self-organised learning environments (SOLE) in higher education, there is limited exploration of non-formal SOL strategies. This research aims to understand why students opt for non-formal SOL, the processes they undertake, and the benefits and challenges they encounter, emphasising the importance of understanding non-formal SOL practices in diverse higher education contexts. Grounded in social-constructivist principles, particularly Vygotsky's theories, this research posits that learning is inherently social, occurring within collaborative environments where knowledge is co-constructed. Table 2.1 shows the characteristics of reviewed papers. It should be noted that some papers were used as reference purposes and not included in the reviewed papers.

Table 2.1

Characteristics of the Reviewed Sources

	Author	Published date	Discipline	Country	Student Voice	Level
1.	Archana	2022	Technology	India	Yes	Undergraduate
2.	Bertram	2003	Education	South Africa	Yes	Undergraduate
3.	Boud et al.	2014	All	Australia	No	HE Students
4.	Bradshaw & Hendry	2006	Medical program	Australia	No	Undergraduate
5.	Brydges et al.	2010	Medicine	Canada	No	Not specified
6.	Crookall et al.	2000	All	Singapore	No	Undergraduates
7.	Glaister et al.	2023	All	UK and Spain	Yes	HE Students
8.	Harri-Augstein & Thomas	2008	N/A	UK	No	N/A
9.	Havnes	2008	All	Norway	No	Undergraduate
10.	Hendry et al.	2005	Medicine	Australia	Yes	Undergraduate
11.	Jayathilake & Huxham	2022	All	Sri Lanka	Yes	Undergraduate
12.	Kagwesage	2014	Accounting	Rwanda	Yes	Undergraduate
13.	Keerthirathne	2020	N/A	Sri Lanka	No	N/A
14.	Keren et al.	2017	Medicine	Canada	No	N/A
15.	Keren et al.	2020	Medicine	Canada	Yes	Undergraduate
16.	Kommalage & Thabrew	2011	Medicine	Sri Lanka	No	Undergraduate and Postgraduate
17.	Krause	2007	Humanities and Social sciences	Australia	Yes	Undergraduate
18.	Li et al.	2010	Different disciplines	Australia	Yes	Undergraduate and Postgraduate

	Author	Published date	Discipline	Country	Student Voice	Level
19.	Lizzio & Wilson	2005	Psychology	Australia	No	Undergraduate
20.	Luchembe et al.	2021	Adult education	Zambia	Yes	Undergraduate
21.	Melzner et al.	2020	Different disciplines	Germany	Yes	HE Students
22.	Pi, et al.	2020	Different disciplines	China	No	Undergraduate and Graduate
23.	Rybczynski, & Schussler	2011	Science Major	USA	Yes	Undergraduate
24.	Sandoval-Lucero et al.	2012	STEM	USA	Yes	Undergraduate
25.	Sawyer & Benson	2004	Science Major	USA	Yes	Undergraduate
26.	Scager et al	2016	Life science courses	Netherlands	Yes	Undergraduate
27.	Schenk & Strickroth	2024	Different disciplines	Germany	No	Undergraduate
28.	Sharma & Fiedler	2007	N/A	USA	No	Undergraduate
29.	Sjølie et al.	2022	STEM	Norway	No	Undergraduate
30.	Skinner et al	2012	Dentistry	Australia and Ireland	Yes	Undergraduate
31.	Spielhofer & Haselberger	2021	Informatics	Austria	Yes	Undergraduate
32.	Steenkamp & Brink	2020	Accounting	South Africa	Yes	Postgraduate
33.	Tsai et al.	2020	Finance	Taiwan	No	Undergraduate
34.	Vines	2010	Law	Norway	Yes	Undergraduate
35.	Wang et al.	2014	Engineering	Italy	Yes	Undergraduate and postgraduate
36.	Wilson et al.	2015	Engineering	USA	Yes	Undergraduate
37.	Wilson, K.F, & Wilson, K.	2019	Engineering	Australia	Yes	Undergraduate

Research spans multiple disciplines, highlighting non-formal SOL's broad relevance, including Medicine (Keren et al., 2020; Kommalage & Thabrew, 2011), Engineering (K.F. Wilson & Wilson, 2019; Wilson et al, 2015) Accounting (Kagwesage, 2014, Steenkamp & Brink, 2020) and Social Sciences (Bertram, 2003; Luchembe et al., 2021). With several studies originating from Australia (Li et al., 2010; Skinner et al., 2012; Wilson & Wilson, 2019), Asia (Archana, 2022; Crookall et al., 2000) and Africa (Bertram, 2003; Kagwesage, 2014; Luchembe et al., 2021). Notably, the UK has limited representation, with only two studies featured. While STEM fields, particularly Medicine and Engineering, are well-studied (Keren et al., 2020; Hendry et al., 2005; Wilson et al., 2015), Humanities, Arts, and Social Sciences (HASS) remain underexplored and most research focuses on undergraduates.

Literature highlights SOL in HE as emerging in both formal and non-formal learning contexts. Formal SOL in higher education includes structured learning environments such as group projects and problem-based learning, where students collaborate under the guidance of instructors (Dolmans, 2005; Hmelo-Silver, 2004). These settings are characterised by clearly defined goals, instructor involvement, and assessments that ensure accountability. However, this research focuses on non-formal SOL context, according to Johnson and Majewska (2022), non-formal learning can be

> systematic and planned, and can occur in settings where formal, compulsory education is provided. It is intentional from the student's perspective and motivation for learning is more likely to come from the student than from other extrinsic factors (p.24).

Non-formal learning includes student-initiated learning activities such as SOL where students collaboratively explore concepts, resolve challenges and teach one another without external guidance. These groups can emerge organically or be intentionally formed by learners (Crookall et al., 2000; Sawyer & Berson, 2004). The literature also highlights the homogeneity of such groups, with studies indicating that students in homogeneous groups engage in more verbal exchanges and benefit from ease of communication, cultural familiarity and a relaxed environment (Kagwesage, 2014;

Keren et al., 2017; Li et al., 2010; Schenk & Strickroth, 2024; Wilson & Wilson, 2019).

Research indicates that students engage in SOL either to bridge gap in formal education or supplement the formal education (Archana, 2022; Glaister et al., 2023; Keren et al., 2017) Glaister et al. (2023) found that students use SOL to reinforce concepts, share ideas, and access additional resources beyond the formal curriculum. Keren et al. (2017), in their scoping review discussed how medical students engage in informal learning to supplement the structured education while Archana (2022) highlights how SOL provides flexibility and accessibility, allowing students to navigate knowledge acquisition at their own pace.

The literature suggests that SOL in higher education promotes critical thinking, continuous reflection, problem-solving skills, and academic success (Archana, 2020; Bertram, 2003; Boud, et al., 2014; Keren et al., 2017; Vines, 2010). Vines (2010) highlights how law students benefit from self-organised discussions that reinforce knowledge through interactive and collaborative learning structures. The collaborative nature of SOL enables students to develop a support network that enhances engagement and deeper understanding (Kagwesage, 2014; Lizzio & Wilson, 2005). Wilson et al. (2015) argue that collaborative SOL groups enhance academic success by fostering environments where students solve problems collectively and reinforce learning. Similarly, Sawyer & Berson (2004) highlight how structured discourse within SOL study groups enhances cognitive processing and analytical skills. Bradshaw and Hendry (2006), in their study found that students who participate in collaborative study groups perform better academically than those who do not. Furthermore, Bertram (2003) reported in his study that students reported performing well in their exams due to studying in groups rather than studying alone.

Literature suggests that SOL fosters resilience among HE students, enabling them to navigate academic challenges. In the work of Wilson and Wilson (2019), they highlight that students who engage in peer-led collaborations are better equipped to manage academic and personal challenges. This is supported by Krause (2007), who found that students that participate in non-formal SOL reported higher satisfaction with their academic progress and an improved ability to balance their studies with other aspects of life. Archana (2022) emphasises that SOL allows

students to develop resilience by finding alternative strategies to overcome learning barriers. Vines (2010) further notes that informal peer colloquia help students develop persistence and adaptability, which are crucial traits for academic and professional success. Wilson et al. (2015) discusses how study groups serve as a support system, helping students persist through academic difficulties. However, these literatures failed to establish how these students navigate these academic difficulties.

In addition to fostering resilience and academic success, literature discusses SOL in HE as providing an avenue where students explore different learning strategies through diverse perspectives of their peers (Archana. 2022; Glaister et al., 2023: Havnes, 2008; Wang et al., 2014). Havnes (2008) offers an insightful perspective on student SOL in HE, emphasising its transformative potential. Havnes argues that SOL fosters creativity and innovation by encouraging the use of diverse strategies and exploring conflicting arguments among peers. Havnes highlights the value of a learning environment where students are encouraged to think independently while seeking solutions collaboratively. Furthermore, the absence of direct intervention by instructors allows students to take greater ownership of their learning process.

Although existing studies highlight the benefits of students' SOL in HE, significant gaps remain in understanding the challenges faced by students and how they navigate these challenges. Many studies overlook the tensions that arises in students' SOL, creating a significant research gap. This research seeks to address these gaps, contributing to a more comprehensive understanding of non-formal SOL practices in higher education. It will be one of the key focuses of my research, as elaborated in section 6.3, contributing new insights to the field, by addressing these gaps, future studies can provide valuable insights into how student SOL enhances the higher education experience, preparing students for academic and personal success.

To gain a deeper understanding of students' SOL, the next section explores key themes that emerged frequently in the literature. These includes the role of informal settings in shaping SOL experiences, students' motivations for engaging in SOL, the social and group dynamics that influence SOL and the impact of technology on student-led learning. Each of these themes provides critical insights into how

students independently manage their learning and how these practices contribute to their overall academic development.

2.3.1 SOL as a feature of an informal learning setting

This section examines the theme of how SOL manifests within informal learning environments. Drawing on 14 out of the 39 literature sources reviewed, it explores the ways in which informal settings are understood to provide students with autonomy and flexibility, enabling them to take charge of their own learning. This is discussed in terms of flexibility, open communication, diverse perspective, academic progress, sense of belonging and the challenges associated with informal learning environments.

The literature highlights that informal settings provide a rich environment for SOL by allowing students the flexibility to manage their own learning (Archana, 2022; Glaister et al., 2023; Keren et al., 2017; Krause, 2007; Vines, 2010), creating a relaxed and enjoyable atmosphere that enhances learning (Jayathilake & Huxham, 2022; Kagwesage, 2014; Keerthirathne, 2020; Keren et al., 2020; Li et al., 2010). According to Keerthirathne (2020), peer learning fosters a more relaxed environment where students feel comfortable, as they are not under the same pressure as in traditional teacher-led classrooms. This relaxed nature of the learning process offers enjoyable opportunities for students.

The informal setting of SOL encourages open communication and risk-taking, which is often hindered in formal settings due to students fear of being judged or failure (Glaister et al., 2023; Jayathilake & Huxham, 2022; Wang et al., 2014). Jayathilake and Huxham (2022) highlights that students not only value the flexibility and informal nature of peer led SOL but that that this environment helped reduce fear, boosting confidence and encouraging students to ask questions freely. However, it is important to acknowledge that while these settings foster a sense of freedom, they may also lack the structure necessary to guide students who struggle with self-discipline. Boud et al. (2014) argues that peer learning requires the engagement of lecturers to make it effective.

Keren et al. (2020) examined how SOL enables medical students to navigate their demanding curriculum, finding that self-organised study groups provided opportunities for collaboration and knowledge sharing. While Keren et al. (2020) focused mainly on medical students, it provided a great insight on students' SOL while incorporating students' voices, highlighting the interactive and enjoyable nature of such non-formal SOL environments in a high-pressure academic context. Similarly, Kagwesage (2014) found that SOL provided a relaxed and less formal learning environment that encouraged students to actively participate in the learning process through asking questions, seeking clarification and negotiating meaning. However, Archana (2022), in her study reported that students can be discouraged from interacting with their peer due to judgemental attitude, not being receptive of each other's opinion or a sense of superiority complex from their peer leading to lack of openness and being uncomfortable within the learning environment. This could suggest that while SOL promotes autonomy, the social dynamics within study groups can significantly impact its effectiveness.

Research also suggests that the informal setting of SOL encourages learners' autonomy and diverse perspectives among learners. Archana (2022) highlights how non-formal SOL environment allows students to experiment with different learning approaches, enhancing adaptability and creativity. Archana argues that such flexibility nurtures lifelong learning skills, as students tailor methods to their individual needs. Similarly, Wang et al. (2014) highlight how software development students benefit from diverse viewpoints in SOL informal setting, leading to innovation and problem-solving efficiency.

Several studies highlight the positive impact of SOL in informal settings, particularly in relation to academic satisfaction, accountability, and resilience (Bertram, 2003; Krause, 2007; Kagwesage, 2014; Luchembe et al., 2021; Wilson & Wilson, 2019). Krause (2007) found that students engaged in SOL reported higher levels of satisfaction with their academic progress and were more likely to perceive themselves as capable of managing their study workload and balancing various aspects of life within and beyond university. Similarly, Kagwesage (2014) found that students who engaged in SOL study groups before exams reported improved performance. Hendry et al. (2005) further argued that independent study groups

empower students to shape their academic journey, fostering teamwork skills and resilience. In addition, Wilson and Wilson (2019), found that 26 out of 27 students interviewed found benefits with learning, teaching and working with peers. However, Bertram (2003) cautioned that deep learning may not always occur in study groups, suggesting that while students may enjoy working together, the quality of learning varies depending on group dynamics and the strategies employed.

Studies highlight non-formal SOL settings as having the ability to foster a sense of belonging among students (Li et al, 2010; Vines, 2010; Wilson and Wilson 2019). Learning in self-organised groups allows students to develop supportive peer relationships, which can contribute to motivation and engagement (Krause, 2007; Wilson & Wilson, 2019). Students who participate in SOL often report feeling a stronger connection to their academic community, as these environments encourage collaboration and collective problem-solving. This sense of belonging can enhance resilience and emotional well-being, helping students navigate academic challenges more effectively (Keren et. al, 2020; Luchembe et al., 2021). However, some students may feel alienated if group dynamics are not inclusive, (Archana, 2022; Keren et. al, 2020; Wilson and Wilson, 2019) indicating that fostering a positive group culture is crucial for maximising the benefits of SOL. According to the work of Wilson and Wilson (2019), over 70% that who participated in SOL preferred the social learning environment as opposed to working alone. This will be explored further in the section 2.3.3 on social and group dynamics of SOL.

Literature identifies that SOL in informal settings presents challenges such as social loafing, distracting social conversations and time-consuming peer assistance (Crookall et al., 2000; Glaister et al., 2020; Keren et al., 2020; Wilson & Wilson, 2019). In the work of Wilson and Wilson (2019), students identified social loafing as a potential issue however, these students indicated that it was not tolerated within groups. Crookall et al. (2000) found that over 50% of students cited distractions from social conversations as a major drawback. This highlights possible tension between the social and academic aspects of informal learning, where the strength of peer relationships can be both an asset and a hindrance.

Additionally, students may experience stress due to peer pressure, comparisons and unmet expectations (Bertram, 2003; Glaister et al., 2023). Archana (2022) noted that

mismatched learning paces within groups could lead to demotivation, while Pi et al. (2021) found that activities such as learning by teaching and self-explaining, though beneficial, could increase cognitive load and cause fatigue. Although these challenges are recognised, there is limited research on how students actively navigate and overcome them, suggesting a gap in the literature regarding coping mechanisms and support structures in non-formal SOL settings.

Previous studies, such as Melzner et al. (2020), investigates how self-organised study groups regulate their learning processes when faced with problems such as issues related to comprehension, coordination, and motivation during collaborative activities. Their analysis of homogeneity of problem perception, immediate strategy uses and strategy intensity to resolve these issues revealed high group satisfaction among students. However, focusing solely on satisfaction provides an incomplete picture of success. Outcomes like academic outcomes and group cohesion could offer deeper insights into the effectiveness of SOL.

The literature acknowledges the benefits and challenges of SOL in an informal setting. While studies like Melzner et al. (2020) acknowledges certain challenges and how students regulate their learning, there is limited research on how students manage broader challenges in non-formal SOL settings. This study seeks to address that gap by examining coping strategies and support systems used by students, as well as exploring additional challenges they may face. It seems that SOL is not merely a feature of informal learning, it is a set of practices with its own objectives and dynamics. This research aims to contribute to the existing body of knowledge by considering SOL as a practice in its own right, with its own social mechanisms and implications for student success.

2.3.2 Students' motivation for engaging in SOL

This section explores the theme on students' motivations for engaging in SOL in higher education. The discussion is structured around key areas identified in the literature, the role of SOL in developing critical thinking and practical skills, its function as a mechanism for academic reinforcement, particularly in exam preparation and coursework, the social and emotional support SOL provides, intrinsic motivation and autonomy as drivers of SOL, its role in supplementing formal

education and finally the challenges and limitations associated with SOL. Each of these factors will be explored in detail, drawing from 22 out of the 37 reviewed studies to illustrate how SOL serves both academic and social functions in student learning.

Studies highlight that students engage in SOL to enhance critical thinking, problem-solving, and autonomy, which are essential for academic success and professional readiness (Harri-Augstein & Thomas, 2008; Havnes, 2008; Vines, 2010). Harri-Augstein and Thomas (2008), highlights that SOL fosters reflective dialogue, encouraging greater self-awareness and deeper engagement with learning. It strengthens personal skill, competence and creativity, and offers value such as tutoring and coaching. Archana (2022) found that over 82% of students agreed that SOL among peers enhanced their critical thinking. Additionally, Havnes (2008) argues that SOL equips students with practical skills often neglected in formal education, making it a valuable supplement to traditional learning structures.

One of the most frequently cited reasons for engaging in SOL is academic reinforcement, particularly for exam preparation, coursework, and assignments. (Archana, 2022; Crookall et al., 2000; Hendry et al., 2005; Kagwesage, 2014; Keren et al., 2020; Kommalage & Thabrew, 2011; Luchembe et al., 2021; Sandoval-Lucero et al., 2012; Rybcznski & Schussler, 2011; Sawyer & Berson, 2005). Archana, (2022) in their study of SOL at a highly competitive university, found that students structured their learning collaboratively to support one another in navigating academic exams and projects, believing these challenges were too difficult to tackle alone. Similarly, Luchembe et al. (2021), found that distance learners form self-organised study groups to compensate for limited formal contact, particularly during exam preparation and assignment discussions.

In a study involving 457 undergraduate students, Crookall et al. (2000) found that SOL often manifests as out-of-class activities such as tutorials, project work or exam preparation. According to their work, students identified ‘better understanding’ (p.11) as a key advantage of SOL, achieved through improved recall, collaborative learning and equal participation. This aligns with the work of Kagwesage (2014) who highlighted how peer interaction facilitates negotiation of meaning, leading to a deeper understanding of subject matter, her investigation revealed how students

organise themselves to analysing a given task through actively asking questions, seeking clarification and making sense of the given task. This view is also supported by Sandoval-Lucero et al. (2012) who found that students proactively form study groups to tackle challenging course materials. Similarly, Spielhofer and Haselberger (2021) observed that self-organised team learning improved students' grasp of course content, while Havnes (2008) highlighted the cognitive benefits of peer interaction. Additionally, Sawyer and Berson (2005) highlight that students utilise lecture notes as a mediating tool to support their learning, establishing shared goals through discussion and clarification. This suggests that SOL encourages meaningful social interactions, enabling knowledge construction through group discussions, projects, and collaborative tasks.

Beyond exam preparation and academic reinforcement, literature identifies SOL as playing a crucial role in fostering accountability and emotional support among students (Boud et al., 2014; Havnes, 2008; Krause, 2007; Keren et al., 2017; Vines, 2010; Wilson & Wilson, 2019). Literature highlights that peer collaboration creates a sense of community, offering students a safe and relaxed space to navigate academic challenges without fear of judgment. (Archana, 2022; Glaister et al., 2023; Keerthirathne 2020; Vines, 2010; Wang et al., 2014; Wilson & Wilson, 2019). Keren et al. (2020) in their study highlights emotional support as significant among medical students, helping them cope with the rigorous demands of medical curriculum, with peer collaboration serving as an effective strategy to mitigate academic stress, deepen understanding, and foster emotional support networks. Similarly, Vines (2010) also highlights the role of emotional support in SOL groups emphasising how friendship and informal peer interactions foster a motivating and encouraging learning environment. The study suggests that students feel more comfortable seeking help and discussing academic challenges when surrounded by supportive peers, who provide encouragement, helping to maintain motivation and engagement in their studies. Self-organised peer learning fosters an engaging and collaborative atmosphere, motivating students to support each other (Keerthirathne, 2020; Boud et al., 2014)

Wang et al. (2014) argues that SOL may not happen if the students are not motivated to interact or learn from each other. Archana (2022) underscores intrinsic

motivation and autonomy as central drivers of SOL. Her research illustrates how informal learning environments empower students to experiment with personalised strategies, effectively addressing individual needs. These insights align with the work of Hendry et al. (2005), who describe independent student self-organised study groups as mechanisms that provide learners with control over their educational journeys through teamwork and mutual accountability. Additionally, Havnes (2008) argues that peer-mediated learning is intrinsically motivating, as it relies on the active and meaningful participation of all group members. However, Tsai et al. (2020) investigation on the impact of SOL and Learners as Designers (LED) on students' computing skills, academic motivation, and engagement in a blended course demonstrated that while LED showed a positive impact, SOL showed limited influence on these attributes.

Apart from academic, skill development and emotional support, literature suggests that students' SOL is often motivated by the need to supplement formal education. Havnes (2008) suggests that students turn to SOL when formal instruction does not adequately address needs. In addition, Archana (2022) characterises SOL as an adaptive strategy that enables students to take control of their learning, filling gaps left by traditional teaching methods. Crookall et al. (2000) reinforce this view, noting that students frequently engage in SOL to tackle challenging content.

Literature highlights that SOL presents challenges such as Isolation, surface-level learning and risk of misinformation (Bertram, 2003; Glaister et al.,2023; Sjølie et al., 2022). Sjølie et al. (2022) observed a negative impact on virtual self-organised student teams transitioning to online learning. Kommalage & Thabrew (2011) noted that students' SOL when focused on assessment, can lead to reduced knowledge retention and the potential for students to acquire inaccurate information or misconceptions from their peers. In line with Bertram (2003), who argues that SOL may not always foster the deep academic engagement necessary for mastering complex concepts. They found that some students relied heavily on group discussions without engaging with the material independently, leading to surface-level learning.

Some studies highlight that unequal contributions and dominant individuals can undermine the effectiveness of SOL (Rybcznski & Schussler, 2011; Scager et al.,

2016), while Luchembe et al. (2021) in their study noted that students faced several challenges such as access to lecturers for clarification when faced with difficulties. Excessive socialising within self-organised study groups may reduce academic effectiveness of SOL (Crookall, 2000; Rybcznski & Schussler, 2011) while Brydges et al. (2010) further stress that the absence of structured reflection and self-assessment strategies, within SOL may fail to yield meaningful academic outcomes.

The reviewed literature highlights the significant role of SOL in fostering academic reinforcement, skill development, emotional support and bridging gaps in formal education. While also serving as an effective coping mechanism for students navigating academic challenges, providing both academic and social support. The review underscores the value of SOL as a complementary learning approach that enriches traditional education and fosters student autonomy. However, the limitations identified such as distraction, surface level learning, lack of access to formal academic guidance might highlight the need for structured academic support and a balanced approach to maximise the benefits of SOL while addressing its limitations. While existing literature explores individual motivations for engaging in SOL, it does not consider the evolving nature of these motivations as SOL progresses. This research aims to contribute a new perspective by examining the dynamic aspects of SOL beyond initial engagement.

2.3.3 Social and Group Dynamics of SOL

This section examines the social and group dynamics of SOL, focusing on how students form study groups, the role of friendships and shared interests and the impact of group size and composition on SOL approach. The discussion highlights both the benefits and challenges of social and group dynamics of SOL, such as trust-building, collaboration accessibility issues and the influence of group size on learning effectiveness. This analysis draws on 15 of the 37 identified literature sources.

The first aspect to consider is how students form SOL groups. The literature highlights that SOL groups are typically formed among friends, course mates, or roommates (Crookall, et al., 2000; Hendry et al., 2005; Li et al., 2010; Vines, 2010), with shared schedules, interests, and goals (Keren, 2017; Keren, 2020; Wilson & Wilson, 2019). Crookall et al. (2000) in their study of 457 undergraduates found that

over 80% of SOL groups were formed by friends and about 76% are formed by the students within the same module or tutorial group. While Li et al. (2010) found that student-initiated SOL group could be formed mainly due to friendship and social connections it provided rather than the academic benefits. Skinner et al. (2012) emphasising that personal relationships among students significantly impact the quality of interactions and overall collaboration success. While many studies emphasise on the importance of shared goals in SOL, Li et al. (2020) found that student-initiated study groups often lacked shared objective, unlike the structured, assigned group work.

The next looks at student preferences with regards to SOL group formation. Research suggests that students favour SOL when it arises naturally rather than being externally mandated (Keren et al., 2017). Hendry et al. (2015) found that students prioritised forming study groups with friends, as they believed this enhanced their learning experience. Such informal study groups were found to be more effective due to their supportive, cohesive and trusting dynamics, creating a positive and conducive learning environment.

However, Keren et al. (2020) found that SOL appeared more accessible to individuals with higher social skills and confidence. Their findings suggest that this approach can inadvertently marginalise students lacking these qualities, leading to feelings of isolation. Similarly, Wilson and Wilson (2019) noted that mature students often struggled to find suitable collaborators due to a lack of confidence or prior knowledge. However, their study highlighted that the culture of teamwork and ‘mateship’ (p.1511) was integral to successful collaboration, particularly in smaller groups where members understood each other and were motivated by mutual success. Furthermore, Boud et al. (2014) highlights that, Informal meetings outside class tend to favour friendship groupings and some students might not have the time or the social skills necessary to build successful relationships. Hence these students including already disadvantaged ones are excluded from the peer learning experience, Boud suggests that peer learning should be incorporated into formal academic programmes to ensure equal access to such opportunities. However, this could undermine the informal nature of SOL, where students have the freedom to choose who they work with.

Studies suggest another critical factor influencing SOL which are group composition, particularly size and homogeneity (Glaister et al., 2023; Hendry et al., 2005; Keren et al., 2020; Melzner et al., 2020; Rybcznski & Schussler, 2011; Steenkamp & Brink, 2024; Vines, 2010; Wilson & Wilson, 2019). Studies demonstrate that smaller groups, typically consisting of two to four participants, provide a conducive learning environment. This is attributed to several key factors such reduced distractions while still enabling peers to effectively collaborate and share knowledge among themselves. Additionally, they are perceived as easier to coordinate and less intimidating compared to larger groups. (Keren. et al., 2020).

Literature highlights the benefits of smaller SOL group such as promoting higher levels of participation, stronger interpersonal connections and more open communication (Kagwesage, 2014; Vines, 2010). Hendry et al. (2005) similarly found that small, independent study groups encouraged open dialogue, individual accountability and a relaxed learning environment. Wilson and Wilson (2019) further highlight that smaller SOL groups facilitate focused discussions and equitable role distribution, enhancing collective productivity. Likewise, Vines (2010) further notes that smaller SOL groups allowed members to be more fully involved and reflective in their task engagement. Bertram (2003) noted that in such groups, members contributed equally, with no single leader dominating discussions. Conversely, the impact of larger groups on SOL has received less attention in the literature. Glaister et al. (2023) observed that while smaller groups foster intimacy and trust, they may also lack diverse perspectives, potentially limiting their ability to tackle complex tasks. Additionally, smaller groups can place disproportionate workloads on individual members if some participants fail to engage fully.

The literature suggests that smaller groups excel in focused, collaborative tasks, while socially inclined learners benefit most from the advantages offered by SOL. However, challenges such as accessibility for less confident students and potential workload imbalances in small groups require further investigation. Research is needed to understand the mechanisms that facilitate inclusive and equitable group dynamics in SOL settings.

This study seeks to address some of these gaps and contribute to the ongoing discourse in this area. It will investigate how shared objectives are established and

maintained in self-organised groups, exploring whether these objectives emerge naturally through group interactions or are explicitly discussed and agreed upon by members.

While existing studies provide valuable insights into the social and group dynamics of SOL, much of the literature focuses on the benefits of group formation, trust, and collaboration. However, there is limited exploration of how these groups navigate challenges such as conflict resolution, role distribution and how group cohesion is sustained. Addressing these aspects will contribute to a more comprehensive understanding of SOL in higher education.

2.3.4 Use of Technology in SOL

This section explores the role of technology in SOL, with a particular focus on how digital tools facilitate communication, resource sharing and task management among students. Of the 37 sources reviewed in this study, only seven engaged with the use of technology in SOL, highlighting a significant gap in the existing literature. The subsequent discussion will examine the extent to which technology has been integrated into SOL, the specific tools employed, and the challenges or benefits these technologies

Despite the increasing reliance on digital tools in education, current research on SOL has yet to fully explore the role of technology within this learning approach. The most literature primarily acknowledges the presence of technological tools without providing in-depth analysis of their impact. Glaister et al. (2023) identified that students commonly use social media platforms such as WhatsApp and Facebook primarily for scheduling meetings but did not explore the broader role of these technologies in facilitating learning. Even though the authors acknowledged the need to investigate technology's role, they only briefly mentioned students use of social media platforms. Similarly, Wilson and Wilson (2019) identified that some students used whiteboards and Facebook groups for collaboration but did not examine the ways in which these tools were used, and whether they facilitated or hindered the learning process. While Krause, 2007 acknowledged that the use of technology did not feature strongly however they noted that students used email to seek help from their peers, especially by students who felt overwhelmed by the workload. However,

Sandoval-Lucero et al. (2012), identified that students not only use phones, email and texting for communication, they also used their smart phone applications as study aids. Vines (2010) highlighted how institutional communication technologies facilitated easier access to learning resources; however, these communication technologies were not explored further. However, Spielhofer and Haselberger (2021) noted how students used tools such as discord to arrange meeting, Moodle as a knowledge base, Zoom for interactive sessions, a digital whiteboard for team building and Google Docs for collaborative writing. In addition, Sharma and Fiedler (2007) discussed how personal web publishing can enhance self-organised learning by enabling students to record, reflect upon, and engage in learning conversations about their educational experiences, emphasising its evolving social usage in informal settings.

Other studies suggest that collaborative digital tools are transforming learning by overcoming geographical barriers and enhancing real-time interaction. Sayem et al. (2017) reported positive student satisfaction with Zoom's interactive learning processes. According to Gedera (2014), the use of Adobe virtual tools in online collaboration can support active participation among peers due to their audio and video functionalities, revealing positive perceptions of real-time interaction and visibility. Similarly, Altinay (2017) highlighted how Adobe Connect program foster learners' autonomy, teamwork and the reflective skills necessary for effective self-evaluation.

Given the limitations identified in the literature, this research aims to develop a clearer understanding of how technology facilitates SOL in HE. Rather than simply acknowledging the presence of digital tools, it will examine the specific ways students use them to support their learning. By examining both widely used platforms and emerging tools, the research will explore their prevalence and their effectiveness in enhancing or hindering SOL. In doing so, it aims to contribute valuable insights into the evolving role of technology in SOL bridging the existing gap by providing detailed evidence of how technology might shape, support and transform SOL in higher education. It also hopes to provide a nuanced perspective on how the impact of technology varies depending on the objectives and contexts of SOL practices.

2.4 Conclusion

This literature review provides a comprehensive analysis of SOL, highlighting emerging themes such as students' motivations for engaging in SOL, SOL as a feature of informal learning setting, the social and group dynamics involved, and the use of technology.

While existing research highlights the benefits of students' self-organised learning (SOL), there is a limited understanding of the processes and strategies students use to establish and sustain effective SOL. Much of the literature focuses on the outcomes of SOL rather than the mechanisms students take to engage and structure their learning. This limitation leaves questions about how students organise their learning, set goals and navigate the complexities of SOL learning environment.

Another key limitation in the literature is the insufficient exploration of challenges and coping mechanisms within non-formal SOL settings. While studies such as Melzner et al. (2020) discuss regulatory difficulties, they do not provide a comprehensive perspective on how students manage broader obstacles such as maintaining motivation, handling distractions or balancing SOL with formal academic commitments. There is also a need to explore the various support systems that students use to overcome these challenges, whether through peer networks, digital tools, or other strategies.

Social and group dynamics in SOL have been acknowledged as beneficial, particularly in fostering collaboration, trust, and academic reinforcement. However, existing studies do not deeply investigate how students navigate conflicts, distribute roles, or sustain group cohesion over time.

The role of technology in SOL is another area that remains underexplored. While previous studies acknowledge the presence of digital tools in self-organised learning, they often fail to assess their specific impacts on student experiences. There is little research on how students select and integrate technology based on their learning objectives or on the effectiveness of different platforms in supporting SOL practices. By bridging this gap, research can offer a more detailed understanding of how technology shapes and transforms student-led learning.

Additionally, existing literature largely focuses on students' initial motivations for engaging in SOL but does not consider how these motivations evolve over time. As students' progress in their learning journeys, their needs, goals, and engagement strategies may shift, yet little research has examined these dynamic aspects of SOL. Investigating these changes could provide a more comprehensive understanding of the long-term sustainability and effectiveness of SOL practices.

While SOL is widely recognised for its benefits, including emotional support and academic reinforcement, it also presents several challenges. Issues such as distraction, surface-level learning and the absence of formal academic guidance can hinder its effectiveness. These limitations highlight the possible need for structured academic support to maximise the advantages of SOL while addressing its shortcomings. A more balanced approach could help ensure that students reap the full benefits of SOL while mitigating potential drawbacks.

This research aims to address some of these limitations through its key research questions.

RQ1: What are the *objects of activity* in students' self-organised learning

Explores the specific object of activities students pursue in SOL, providing insight into the activities and learning objectives that drive student engagement.

RQ2: What roles do *tools* play in students' self-organised learning?

Investigates the role of tools, particularly technology, in supporting or hindering SOL, contributing to minimal exploration of this area and a deeper understanding of how students integrate resources into their learning.

RQ3: In what ways do social dynamics and the group structure within student self-organised learning activity systems influence learning experiences?

Contributes to the discourse on social and group dynamics by exploring how roles are distributed, conflicts managed and how group cohesion is maintained in SOL settings.

RQ4: What challenges or *contradictions* emerge during self-organised learning among students?

Contributes to the limited research on how students navigate challenges in SOL, offering a comprehensive view of the difficulties students encounter and the strategies they employ to navigate them.

Table 2.2 offers a critical and reflective summary of these key points, outlining how this project aims to contribute to the literature by addressing the research questions. By addressing these questions, this study contributes to a more nuanced understanding of SOL in higher education. It hopes to provide valuable insights into the processes, challenges and mechanisms that shape self-organised learning, ultimately informing strategies to enhance student success and academic development.

Building upon these themes, this study adopts a unique approach by exploring SOL through the lens of Activity theory as will be explained in the next chapter. It examines why students choose to engage in SOL, the challenges they face, and how they navigate these challenges. In addition, this research aims to address the limited exploration of the use of technology and its impact in SOL, contributing new insights to this underdeveloped area in the existing literature.

Table 2.2

Summary of Addressing Limitations in the Literature

Themes	Summary of Literature	Addressing Gaps through Research Questions
Students' Motivation for Engaging in SOL	While the literature highlights several benefits of SOL, including enhanced motivation, peer collaboration, and academic support, various shortcomings necessitate further investigation such as excessive reliance on group discussion resulting to shallow learning (Bertram, 2003) and unequal participation and dominant individuals (Scager et al. (2016)) or lack of resources (Luchembe et al. (2021)	**RQ1:** What are the *objects of activity* in students self-organised learning? Using activity theory, the research will explore primary objectives of SOL and their impact on academic engagement.
Use of Technology in SOL	Literature primarily acknowledges the existence of technological tools in SOL without delving into how it is used and their specific impacts.	**RQ2:** What roles do *tools* play in students self-organised learning? This research will explore how students use resources to support their SOL learning journeys. By examining both widely used platforms and emerging tools. It will explore the prevalence of these technologies and assess their impact on the learning process, determining whether they enhance or hinder student progress.

Themes	Summary of Literature	Addressing Gaps through Research Questions
Social and Group Dynamics	Literature emphasises the benefits of group formation, trust and collaboration in SOL but offer limited exploration of how groups navigate challenges such as conflict resolution, role distribution, and sustaining group cohesion.	•**RQ3.** In what ways do social dynamics and the group structure within student self-organised learning activity systems influence learning experiences? It will also investigate how shared goals are established and maintained in self-organised groups, exploring whether these goals emerge naturally through group interactions or are explicitly discussed and agreed upon by members.
SOL as a Feature of Informal Learning Settings	The literature highlights benefit of SOL as an informal settings however broader issues such as how students navigate challenges remain underexplored	**RQ4.** What challenges or *contradictions* emerge during self-organised learning among students? This study seeks to provide a comprehensive understanding of students' challenges and possible tensions within SOL informal setting and how they navigate these challenges.

Chapter 3: Theoretical Framework

3.1 Introduction

This chapter aims to introduce the theoretical framework underpinning this study and elucidate its application within the research context. To explore self-organised learning (SOL) in higher education (HE) from students' perspective, a comprehensive discussion and analysis of the theoretical framework governing this investigation will be undertaken.

- Section 3.2 discusses my ontological and epistemological positions and how they influence this research.
- Section 3.3 elaborates on the justification for adopting Activity Theory (AT) for this project, shedding light on its application to the study of SOL in HE.
- Section 3.4 discusses the overview of AT.
- Section 3.5 introduces the Activity system (AS).
- Section 3.6 introduces some examples of prior uses of AT in relevant projects
- Section 3.7 discusses the use of AT within this research.
- Section 3.8 draws together the key theoretical underpinnings of this study, offering a cohesive conclusion to the framework that guides the research.

3.2 Ontological and Epistemological Position

This section outlines the ontological and epistemological assumptions underpinning my research on students' SOL in HE. My stance aligns with dialectical materialism, operationalised through Activity Theory.

As discussed in Section 1.3, my personal and professional experiences have shaped the philosophical stance that underpins this research. My earlier work in this programme particularly my empirical study on e-assessment during the Covid-19 pandemic highlighted how students engage with, adapt to and sometimes resist institutional structures in order to sustain their learning. Observing my son's experience during the same period also revealed the deeply social nature of learning. His ability to reconnect, regain agency and succeed academically emerged not from individual perseverance alone, but from collaboration, mutual accountability and shared purpose. From such experiences, I have come to believe that learning is

best understood not as a solitary cognitive pursuit, but as a socially mediated and materially situated activity. The consequences of this belief for my research are significant, as it positions SOL as a collective and relational process that unfolds through interaction between people, tools and institutional structures.

Crotty (1998) defines ontology as “the study of being. It is concerned with 'what is', with the nature of existence, with the structure of reality as such” (p10). I regard reality as dynamic, relational and historically situated, constituted through ongoing interaction between human beings and their material and social environments. From this perspective, students’ SOL practices are therefore fluid and negotiated within the complex interplay of institutional expectations, digital technologies, peer relations and personal motivations. Understanding SOL requires attention to both the structures that enable or constrain learning and the human agency that transforms these structures through practice.

From a dialectical perspective, I contend that advancing our understanding of the world involves recognising the interconnected and constantly evolving nature of seemingly unrelated phenomena (Bligh & Flood, 2015). The contradictory nature of these phenomena drives development and can lead to the creation of new knowledge. SOL thus represents a dialectical unity of individual and social dimensions. The consequence of this position for my research is that it treats SOL as an evolving phenomenon, foregrounding the tensions and transformations that define how students learn on their own terms. Consistent with Engeström’s (1999) view, human beings do not merely interpret their environments but transform them through purposeful, situated action. While my stance is constructivist in acknowledging that knowledge is shaped by human interpretation, it also resonates with dialectical materialism in its attention to the material and social conditions that mediate human understanding.

Epistemologically, I adopt an interpretivist stance informed by this dialectical view of reality. According to Scotland (2012), “Epistemological assumptions are concerned with how knowledge can be created, acquired and communicated, in other words what it means to know” (p.9). In this study, participants are treated as knowledgeable agents who are capable of reflecting and articulating their own learning practices.

The consequence of this stance for my research to understand the meanings students attribute to their self-organised learning.

In line with my ontological position, the knowledge I aim to generate in the findings chapter is situated, dynamic and collective, extending beyond individual experiences to capture the evolving nature of SOL as it unfolds within and across different systems of practice. Rather than representing knowledge as static or owned by individuals, I view it as emergent and relational arising from interactions between people, tools, rules and communities.
In the following sections, this stance provides the foundation for both my selection and application of AT as the analytical lens through which I examine SOL.

3.3 Theory Selection

In choosing a theoretical framework, I was guided by three interrelated priorities. First, the theory needed to be consistent with my ontological and epistemological stance, a view of learning as socially and materially situated and of knowledge as interpretive and practice based. Second, I sought a framework that would allow me to analyse complex social interactions rather than reduce SOL to individual cognition. Third, and most decisively, I wanted a systemic, practice-oriented lens capable of capturing the relational, tool-mediated, and historically evolving character of student activity. These priorities reflected both my lived experience and the research questions that drive this research.

Activity Theory (AT) fits with my ontological stance that reality is shaped through material, social and historical activity, and with my epistemological stance that knowledge emerges through praxis and transformation. Guided by Bligh and Flood's (2017) rationale, I regard AT as an effective framework for exploring how students in higher education organise their own learning, how contradictions shape their experiences and how new practices and possibilities might emerge. My choice of AT was not only theoretical but also grounded in the type of understanding I sought to achieve, a systemic, practice-oriented view of how students learn on their own terms.

On this basis, I selected AT as my theoretical framework. AT is well suited to the study's aims because, as explained further in section 3.4, it positions human activity

as the unit of analysis and foregrounds how tools, communities, rules and divisions of labour mediate learning. For this study, AT enables me to identify distinct student-led activity systems and their objects of activity, examine how tools mediate learning practices, communities they form, the rules and expectations of higher education and the contradictions that arise across these elements. This approach makes it possible to examine SOL not as an individual phenomenon but as a socially situated and materially mediated practice that develops through contradiction and change.

In making this choice, I also drew on Bligh and Flood's (2017) discussion of the rationale for employing, selecting and valuing AT in empirical higher education research. Their categorisation of AT's strengths helped me to clarify why it is well suited to SOL: it offers a way to handle complexity, foreground contradictions as drivers of change, and trace the interplay between individual learners and institutional contexts. In alignment with their analysis, I see AT not only as consistent with my philosophical stance but also as a practical framework for making sense of students' lived experiences of SOL.

Through my experiences as an educator, I have seen that learning never occurs in isolation. It involves tools, people and institutional contexts. I wanted a theory that could reflect this relational and situated character of learning, rather than one that treats learning as an individual, cognitive process. This perspective shapes the way I conceptualise SOL not as a set of individual strategies, but as a socially embedded activity system. AT enables me to examine how people, artefacts and institutional expectations interact to influence how students manage and sustain their own learning.

In my professional experience, I have often found that learning and innovation arise from moments of tension when expectations clash or systems fail to align. This observation resonates with AT's dialectical principle that contradictions are not problems to be eliminated but should be treated as drivers of transformation. This is particularly relevant for SOL, where students constantly negotiate tensions and adapt their practices in response. This means that in my analysis, I do not treat students' struggles or conflicts as shortfalls but as productive opportunities to understand how new learning practices evolve. Using AT allows me to investigate how students respond to contradictions such as balancing institutional requirements

with personal autonomy and how these responses generate transformation in their learning activity.

My background in technology has made me particularly aware of how tools such as digital platforms, shared documents, online forums mediate learning in complex ways. I wanted a framework that would allow me to examine how these mediations shape both individual and collective learning. AT's emphasis on mediation provides a structured way to explore how students use technological, social and cognitive tools to organise their learning, collaborate with peers and navigate institutional structures. It enables me to interpret technology not merely as an aid to learning but as an active component that reshapes how learning occurs.

Having worked with diverse student populations, I understand that background, prior experience and social expectations deeply influence how learners approach autonomy and collaboration. I wanted a theory that could accommodate such diversity, AT helps me account for how students' social contexts shape their engagement in SOL, and how differences in background can lead to distinct contradictions or learning pathways. This is crucial for understanding the plurality of student experiences within higher education.

In shaping this research, I considered a range of theories, including Communities of Practice (CoP) before deciding on AT. CoP was of interest because it foregrounds learning as social participation and identity formation. CoP is about a group of individuals who share a common domain or interest and come together to learn and develop their expertise (Lave & Wenger, 1991). However, CoP tends to assume more stable, bounded communities with established norms. By contrast, the SOL among university students is far more fluid, negotiated and adaptive. The groups students form is often temporary, driven by emergent goals, and shaped by shifting digital and institutional contexts. For this reason, CoP was not the best fit for capturing the dynamism of SOL. I also considered agile methodologies as a possible conceptual lens. Having a background in software development, I was drawn to agile methods such as iteration, collaboration and adaptability (Neumann & Baumann, 2021). These resonated with the ways students seemed to self-organise their learning. Yet, on reflection, agile approaches are designed as management frameworks prescribing how such collaboration should occur, it lacks the

philosophical and methodological depth needed to explore the socio-cultural and historical dimensions of learning. What I needed was a theory that could integrate individual agency, social interaction, material mediation and historical development within a single, systemic perspective.

While Activity Theory (AT) offers a powerful and comprehensive framework for analysing complex learning practices, its selection is not without challenges. It is important to acknowledge these challenges, as they have direct implications for how the theory is applied within this study.

A primary consideration is the complexity of Activity Theory as an analytical framework. AT requires attention to multiple interacting elements, including subject, object, tools, rules, community, and division of labour, often across multiple interconnected activity systems (Engeström, 1987). This systemic perspective makes the analysis both time-consuming and methodologically demanding. Furthermore, the need to trace relationships and tensions within and between activity systems adds additional layers of complexity (Kaptelinin & Nardi, 2006). As a result, there are practical challenges in managing the scope of analysis while maintaining conceptual clarity and coherence.

For this research, this means that the application of AT must be carefully bounded and systematically managed. It is neither feasible nor desirable to capture every possible interaction within an activity system. Instead, the analysis will focus on those elements and relationships most salient to students' self-organised learning practices, guided by the research questions and supported by empirical data. This selective approach is consistent with recommendations for pragmatic applications of AT in educational research (Yamagata-Lynch, 2010).

A further challenge lies in the interpretive demands of Activity Theory, which require a high level of theoretical familiarity. Core concepts such as mediation, object-orientation, and contradiction are theoretically nuanced and may be misapplied if not carefully understood (Engeström, 2001). The interpretive nature of AT means that analysis is not purely descriptive but involves theoretically informed judgement, increasing the risk of inconsistency or superficial application (Foot, 2014).

To address this, I have engaged extensively with both foundational and contemporary literature, as outlined in Section 3.6, to develop a robust understanding of the framework. This has informed my decision to applying AT in a transparent and reflexive manner, ensuring that key concepts are clearly defined, consistently applied and explicitly linked to the empirical findings. Such reflexivity is essential to maintaining rigour in interpretive research using AT (Sannino et al., 2009).

A key conceptual challenge concerns the identification and interpretation of contradictions, which are central to AT as drivers of change and development. Despite their importance, there remains a lack of clarity and consistency in how contradictions are defined and operationalised in the literature. Engeström and Sannino (2011) distinguish between systemic contradictions and their manifestations, identifying four forms: dilemmas, conflicts, critical conflicts, and double binds. However, studies do not always apply these distinctions consistently. For example, Murphy (2022), in a review of 27 Cultural-Historical Activity Theory (CHAT) studies, found that the majority failed to clearly differentiate between these categories.

This lack of conceptual precision risks weakening the analytical value of contradictions, potentially leading to superficial or inconsistent interpretations. The implication for this study is that careful and systematic approach will be taken in identifying and analysing contradictions ensuring that they are grounded in the structure of the activity system and supported by empirical data. This requires a deliberate and transparent analytical process to maintain conceptual clarity and rigour.

Despite these challenges, my position is that Activity Theory remains a highly appropriate and useful framework for this research. Its capacity to capture the systemic, socially mediated, and dynamic nature of learning aligns closely with the aims of this study. Importantly, it provides the conceptual and analytical tools needed to examine self-organised learning not as an individual endeavour, but as a complex and evolving activity shaped by interactions, tensions, and transformations within and across systems.

3.4 Activity Theory

Kuutti (1996) describes Activity Theory (AT) as a “philosophical and cross-disciplinary framework for studying different forms of human practices as developmental processes, both individual and social levels interlinked at the same time” (p. 24). In AT, as highlighted by Leontiev (1978), there are three major concepts: activity, action and operations.

Activity refers to collective and sustained effort, regulated by an object of activity, and having both sense and meaning. Action refers to something more time-bounded and granular, regulated by a particular goal, which may be undertaken by an individual (though in a conscious, premeditated way) (Bligh and Flood, 2015, p.22). Operations do not have their own goals; rather, they refer to routine processes that adjust actions to current situations and are regulated by prevailing conditions (Kaptelinin & Nardi, 2006, p. 65).

In this research, my focus is on the activity rather than on actions or operations. Following Leontiev’s hierarchical model of human activity, activities are driven by objects that give them purpose and direction, whereas actions are goal-oriented, and operations are condition-dependent and often routine. As Engeström (2001) argues, activity is inherently object-oriented, mediated and collective, meaning that it embodies both the individual and social dimensions of human practice. In contrast, actions and operations are the constituent elements through which an activity is realised but do not, in themselves, capture the developmental or transformative dynamics of a practice. Therefore, focusing on activity enables a deeper understanding of not just what is happening, but why it is happening, its meaning to those involved and the pressures driving potential change.

Focusing on the activity level allows me to explore students’ SOL as a collective and evolving process shaped by shared objects, rather than as a series of isolated or individualised tasks. Each activity system within the study is defined by the object that motivates why student organise their learning. As Kuutti (1996) highlights, activities are “forms of doing directed to an object” and can be distinguished from one another according to those objects (p. 23). By foregrounding the activity level, my analysis will capture students object, how contradictions arise around these

objects, and how those tensions drive transformation in their learning practices. The focus, therefore, is not on what students do moment by moment, but on how they organise and sustain purposeful, socially mediated activity over time. This is central to understanding the phenomenon of SOL in higher education.

3.5 Activity System

Within AT, the activity system serves as the core unit of analysis, focusing on collective, object-oriented human activity rather than on isolated individual actions or operations (Engeström, 1987; Kuutti, 1996). Human practice can be understood as comprising multiple activity systems, therefore, the focus of this study is on the activity system as the central analytical unit.

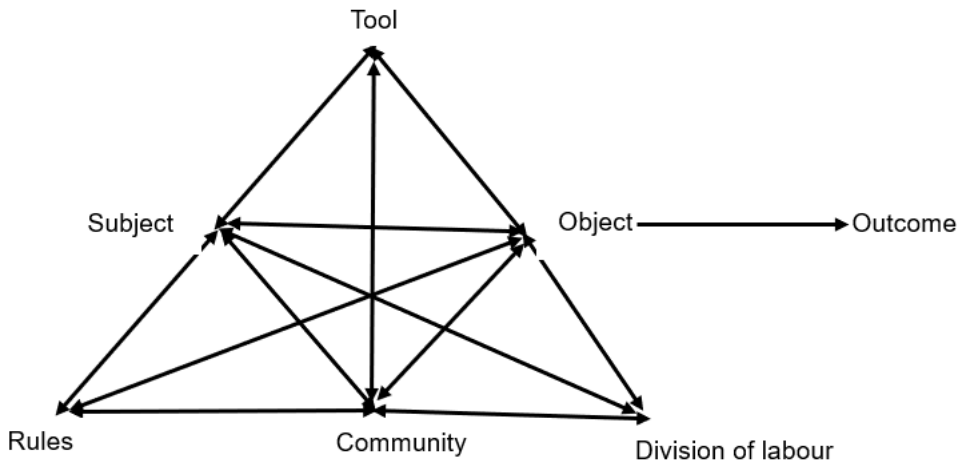
According to Engeström (2000), “activity systems are driven by communal motives that are often difficult to articulate for individual participants” (p. 960). This perspective highlights that activity is not simply the sum of individual actions, but rather a socially situated system of relationships. Activity is described as a collaborative system directed towards a specific object that motivates participants’ engagement (Engeström & Pyörälä, 2021).

Gedera (2014) explains that an activity system “comprises a variety of mediators such as tools, rules, community, and division of labour, and that these elements in an activity system act as mediators and the relationships between these elements are constantly mediated” (p. 94). In addition, Scanlon and Issroff (2005) emphasise that activity systems are not isolated structures but exist within interconnected hierarchies and networks, continuously influenced by other systems and contexts.

Engeström’s (2001) model of the activity system identifies seven interrelated components: subject, object, tools (mediating artefacts), community, rules, division of labour, and outcome. These elements interact dynamically as depicted in a triangular model (see Figure 3.1), illustrating the multidirectional relationships that shape human activity. Table 3.1 further describes each component and its relevance to the activity system. Engeström (2001) also outlines five guiding principles for analysing activity systems, including the idea that activity is collective, mediated and object oriented and that internal contradictions serve as sources of change and development.

Figure 3.1

Activity System Model (Engeström, 2001).



Activity Theory highlights the interaction between individuals, their social context, and the cultural artefacts that mediate their actions. In line with Engeström's first principle, activity is collective, artefact-mediated, and object-oriented. Consequently, SOL is best understood not as a series of individual actions but as a shared activity system involving multiple interacting elements.

In the context of this research, an activity system may involve a group of students collaboratively organising their own learning around a shared academic objective. Here, the subject (e.g., student) works towards an object (e.g., understanding course content) through the use of tools (e.g. lecture videos). The subject is an integral member of a community governed by rules (e.g., participation norms) and the division of labour specifies how responsibilities are distributed among participants. The object of the activity may be material, symbolic, or intangible such as a shared understanding or conceptual goal which evolves as the activity unfolds (Kuutti, 1996).

As Yamagata-Lynch (2010) emphasises, the activity system model provides a systemic framework for analysing change and interaction within complex learning environments. In this research, it is applied to examine the SOL system, enabling an understanding of how learners, tools and social structures interact and transform over time.

Table 3.1

Components of the Activity System (Yamagata-Lynch, 2010, p.2)

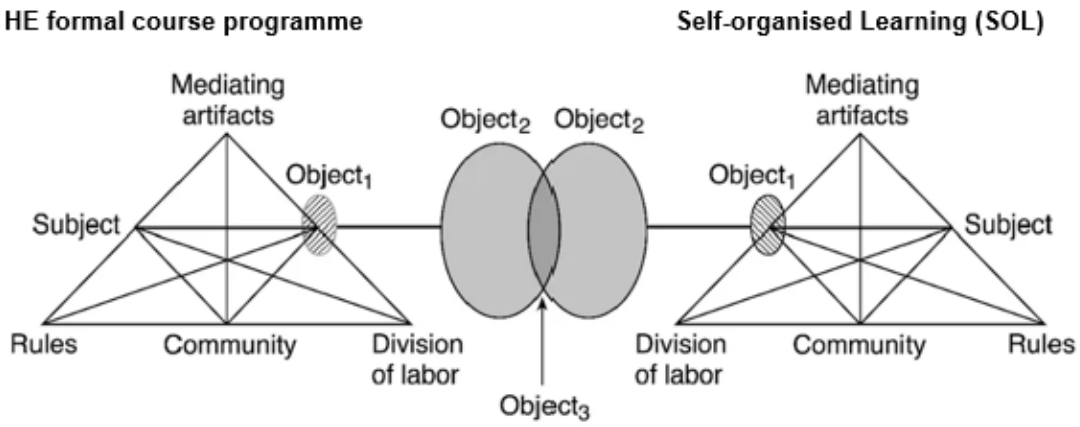
Components of Activity System	Role within the Activity System
Subject	Is the individual or group of individuals driving the activity.
Object	is what subjects are working on as the focus of their activity.
Tool	includes social others and artefacts that can act as resources for the subject in the activity.
Rules	are any formal or informal conventions that to a varying degree can affect how the activity takes place.
Community	is the broader social grouping that has some stake in the activity.
Division of Labour	refers to how the actions are shared among and differentiated within the community.
Outcome	is what the subjects are aiming to achieve by working on the object.

3.5.1 Third Generation of Activity Theory

Engeström's (2001) third generation of Activity Theory (AT) expands the analytical lens from examining a single activity system to exploring networks of interacting activity systems (See an example in Figure 3.2). This development reflects a recognition that human activity rarely occurs in isolation rather, multiple systems co-exist, overlap and interact within shared social and institutional contexts.

Figure 3.2

Higher Education (HE) formal course program and SOL Activity Systems and a potentially shared object. (Adapted from Ding, 2020)



In this framework, each activity system is shaped by the diverse perspectives, roles, and histories of its participants. As these systems engage with one another, each with its own object, rules and division of labour, points of intersection and tension inevitably emerge. Such contradictions between systems are not simply sources of disruption but can also drive expansive learning and innovation, as participants negotiate meanings, adapt practices, and transform shared objects of activity (Engeström, 2001, 2010).

This relational view is particularly relevant to SOL in higher education. In this research, SOL is conceptualised as an activity system that operates in parallel with and in interaction with the formal HE course system. While the HE system is typically structured around institutional rules, assessment frameworks and formal teaching roles, the SOL system is characterised by learner autonomy, peer collaboration and flexible use of digital and social tools.

The overlap between these two systems creates a dynamic space of interaction. For instance, students (subjects) participating in both systems may bring institutional expectations, resources and constraints from the formal HE system into their self-organised learning contexts; while also transferring insights, strategies and artefacts developed in SOL back into formal coursework. These boundary crossings can give rise to contradictions, for example, between formal assessment criteria (rules of the

HE system) and the exploratory, self-directed nature of SOL (object of the SOL system). Yet, such contradictions can also serve as sites of transformation, where new practices and understandings emerge that enrich both systems.

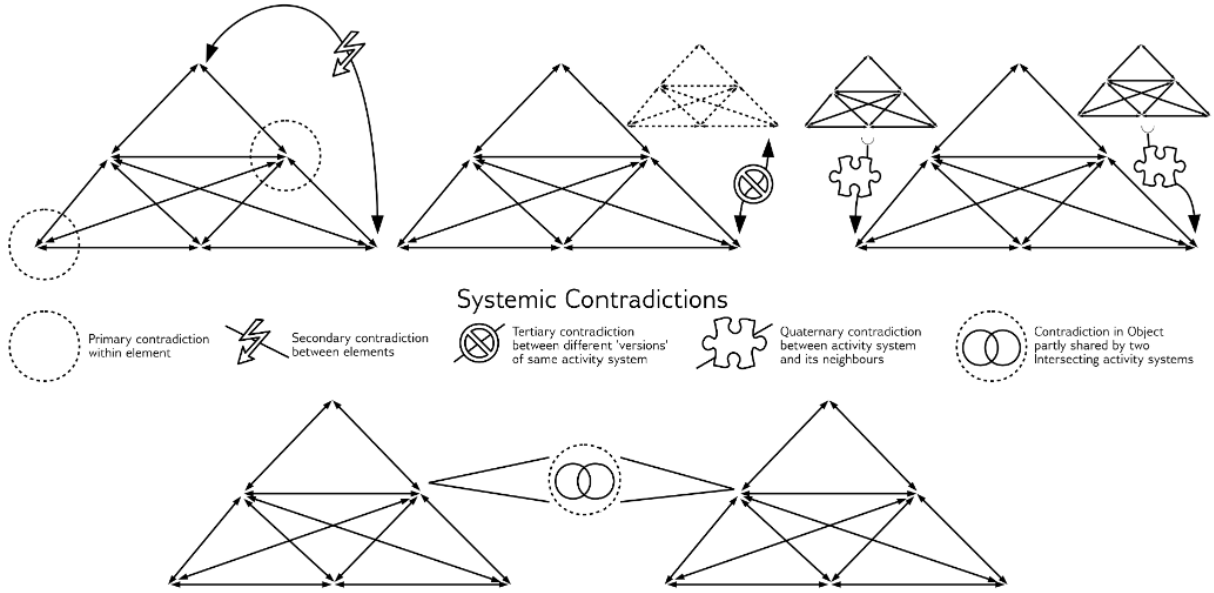
3.5.2 Contradictions

In AT, contradictions are understood as the historically accumulating structural tensions that exist within and between components of an activity system or between activity systems (Engeström, 1987, 2001). They represent the mismatches, conflicts or misalignments that arise as people pursue shared objects within complex social and institutional contexts or within and between activity systems as these develop over time. Rather than being viewed as purely negative or disruptive, contradictions are considered the driving forces of change and development within activity systems (Engeström, 2001, p. 137).

Contradictions are important in AT because they reveal the instabilities and developmental potentials of human activity. They expose the limitations of existing practices such as mismatches between institutional rules and learner needs, or between available tools and desired outcomes and, in doing so, create opportunities for reflection, innovation and transformation. Without contradictions, activity systems would remain static, reproducing existing norms rather than evolving in response to new challenges. By identifying and analysing contradictions, researchers can better understand why systems become unstable, how breakdowns occur, and what opportunities these tensions create for expansive learning and systemic change (Engeström, 2001; Bligh & Flood, 2015). Figure 3.3 provides a visual representation of how tensions can arise both within and between the components of an activity system.

Figure 3.3

A graphical representation of systemic contradictions (Bligh & Flood, 2015)



Engeström and Sannino (2010) distinguishes four levels of contradictions within and between activity systems. These levels describe how contradictions are understood in relation to the activity system model:

- *Primary contradictions emerging within each and any of the elements of the activity system.* (Engeström & Sannino 2010, p.7).
- *Secondary contradiction between two or more nodes (e.g., between a new object and an old tool)* (Engeström & Sannino 2010, p.7)
- *Tertiary contradictions, between the existing forms of the activity system and attempts to apply a new model.* Example “when activity participants face situations where they have to use an advanced method to achieve an objective (e.g. when they are introduced to a new technology)” (Gedera and Williams, 2013, p.34)
- *Quaternary contradictions, between an activity system and those that neighbour it.* e.g., a doctor refers a patient for care in a hospital that uses a less evolved form of diagnosis and treatment (Murphy and Rodríguez-Manzanares, 2013, p. 81).

Contradictions are considered as a driving force behind development and change within activity systems. Resolving contradictions often leads to transformations and improvements in the activity, promoting individual and collective learning and development.

3.6 Prior uses of Activity Theory in relevant projects

This section reviews five studies that have applied Activity Theory (AT) in research relevant to my study. These studies were selected for their use of AT to examine learning practices, technology integration, peer interactions and contradictions within learning contexts. The review highlights how AT has been employed and how its features have shaped different aspects of research design and interpretation. Its purpose is twofold: to demonstrate the versatility of AT in exploring learning environments and to identify insights that inform the design and implementation of my own study. This analysis establishes a foundation for integrating AT across my methodology, findings and discussion, enabling a deeper understanding of interactions, contradictions, and mediating tools within learning systems.

The first study to discuss is *"*Activity Theory and Higher Education: Evaluating Learning Technologies*"* by Scanlon and Issroff (2005), which applied AT framework to evaluate learning technologies in UK higher education. The authors analysed interactions among components of the activity systems: subjects (students and lecturers), tools (learning technologies), community (institutions), rules (policies), and the object (learning outcomes) to understand how these elements shape the effectiveness of learning technologies. They found that conventional evaluation methods overlook the socio-cultural and contextual factors influencing technology use, such as differing expectations about rules and division of labour within the community. Scanlon and Issroff argued for AT informed evaluation approaches that recognise the dynamic and interconnected nature of educational activities and the contradictions within them.

This study informs my research by demonstrating how AT concepts can illuminate the processes underpinning SOL. It highlights the importance of examining how tools, rules, community, and division of labour interact to shape learning outcomes. Building on this, my research will adopt a similarly holistic approach to analyse how

students navigate and construct their learning experiences through these interrelated components.

The second study is “An activity-theoretical approach to investigate learners” factors toward e-learning system” by Liaw et al. (2007). Liaw et al. (2007) employed AT to explore learners' attitudes towards e-learning systems. Their study highlighted how individual motivations, technological competence and social interactions influenced engagement with e-learning. They applied AT to examine how these factors interacted with the object of learning, mediated by tools and the broader institutional context. For my work, this study underscores the importance of considering learner motivation and technological mediation in SOL. It also provides methodological insights into how AT can guide the identification of possible contradictions e.g. between learner objectives and system constraints. In addition, it gives me an idea of how I might structure my data collection instruments to probe both internal and external social contextual factors. By examining the motives of students within their activity systems, I can gain insights into what drives student engagement and motivation in SOL contexts.

The third study is *“*Students’ experiences of learning in a virtual classroom*”* by Gedera (2014). Gedera employed AT to investigate students’ experiences of synchronous virtual classrooms using Adobe Connect. Gedera’s analysis revealed that the tool’s affordances, such as real-time audio and video, promoted reciprocal communication, instant feedback, and deeper interaction among participants. However, limitations also emerged: while synchronous sessions supported stronger social presence and motivation, they simultaneously reduced flexibility due to scheduling demands across time zones. Technical challenges, limited opportunities for practice, and unfamiliarity with the tool further constrained participation, illustrating how mediating artefacts both enable and restrict human activity. The study provided detailed insights into how students adapt to and transform their learning environments. This work guides my approach in thinking about mediating role of technology and how it contributes or hinders achievement of the object.

The fourth study, *“*Evaluating Peer Learning and Assessment in Online Collaborative Learning Environments” by Altınay (2017), employs Cultural Historical Activity Theory (CHAT) to investigate online peer learning and assessment in higher

education. Using CHAT, Altınay conceptualises online learning as a socially and culturally mediated activity system rather than an individual cognitive process. The study examines how peer interaction and digital tools, particularly Adobe Connect, mediate learning outcomes and shape collaborative culture. Findings show that online collaboration fosters critical reflection, self-assessment, and the development of communication, teamwork and reflective thinking skills. Students viewed peer learning as a socially interactive process of negotiation and knowledge reconstruction, with motivation, communication and role distribution identified as key factors influencing learning quality.

For my research, this paper reinforces the view that self-organised learning (SOL) is socially mediated and collectively negotiated. It underscores the importance of analysing peer networks and role negotiation within self-organised activity systems and demonstrates how Activity Theory can reveal social and technological mediators of learning outcomes. These insights will inform both the design of my interviews and the data analysis stage of my study.

My final study, “Using Activity Theory to Understand Contradictions in an Online University Course Facilitated by Moodle” by Gedera and Williams (2013). They employed Activity AT to examine tensions between students, instructors and the Moodle platform. Their analysis revealed that contradictions often stemmed from misalignments between institutional expectations and students’ actual technology use, illustrating the dynamic and negotiated nature of online learning systems.

This study informs my research by offering a guide for identifying and categorising contradictions within SOL, where students independently coordinate learning objectives, tools and peer interactions. It highlights how tensions between individual and collective objectives, learning tools and institutional expectations can shape learning experiences. Drawing on this approach, I will design interview questions to explore how participants recognise and negotiate such contradictions in their learning processes. I intend to investigate conflicts that occur between students’ individual and collective objectives, between the different tools or resources used for learning, and between students’ understandings and the expectations of their academic community.

Across these studies, several key insights emerge that have informed the design of my research:

- AT provides a robust framework for analysing learning as a socially mediated and historically situated activity.
- Contradictions between elements of the activity system are central to understanding learning processes.
- Technology functions as both a mediating tool and a potential source of tension, shaping the ways learners organise and engage in learning activities.

These insights have directly informed my research design, guiding the focus on multiple, distinct activity systems shaped by students' objects of learning and the systematic identification of contradictions and mediating factors within SOL contexts.

3.7 The Use of AT within this Research

Within this research, SOL is conceptualised as an activity system that operates alongside, yet intersects with, the formal HE programmes. As illustrated in Figure 3.2, SOL has its own internal structure and dynamics while sharing certain elements of its object with the institutional system. This dual perspective allows me to examine SOL not as a peripheral or isolated process but as one that coexists with, and occasionally challenges, formal educational structures.

The use of AT in this research serves as both a conceptual lens and an analytical framework for the collection, analysis and interpretation of data. Through this lens, I am able to move beyond individual accounts of learning to explore how students' activities are mediated by tools, communities, rules and social expectations. Following Yamagata-Lynch (2010), I use activity systems analysis to map and interpret the interactions among these elements revealing how learning is shaped by the broader social and material contexts in which it occurs.

As my understanding of AT developed, I came to see that one of its strengths lies in its capacity to identify and interpret contradictions. In this study, I will use qualitative data to uncover such tensions: for instance, between institutional expectations and students' personal objectives or between peer collaboration and individual

responsibility. These contradictions are not viewed as obstacles but as potential drivers of change and development within activity systems (Engeström, 2001). My analysis will interpret them as drivers of change, helping to explain how students adapt and reorganise their learning activities.

The research also applies AT to examine mediation through tools and artefacts, this entails analysing participants' accounts of how digital technologies, social networks, and learning resources are used, repurposed or resisted in SOL contexts. This focus enables a detailed understanding of how the affordances and constraints of tools shape students' capacity for autonomous learning and collaboration.

Similarly, AT offers a lens for exploring how students negotiate roles and responsibilities within peer groups. I am particularly interested in understanding how informal hierarchies, expectations and mutual support mechanisms evolve within SOL contexts. This involves understanding how the actions of individuals relate to the collective object of the group and how these interdependencies shape learning outcomes.

One of the insights that has emerged for me through this process is that AT invites the researcher to think systemically and developmentally. It compels me to consider not only what happens within a single activity system, but how multiple systems interact and transform each other over time. This enables me to visualise the evolving nature of learning as students navigate and redefine their own educational trajectories.

Engeström (1987) emphasises that understanding activity requires engaging directly with those who participate in it. This study employs a qualitative survey methodology to elicit participants' reflections on their own SOL experiences, enabling them to describe, in their own terms, the tools, relationships, and tensions that shape their learning. These accounts will be analysed using activity systems analysis to identify mediating factors and contradictions within and between systems.

Applying AT enables me in capturing the complexity of SOL as a socio-cultural and material process, explaining not only what students do but also why and how their

practices evolve. Insights from AT inform both the research design and the interpretation of findings, as discussed further in Chapter 4.

3.8 Conclusion

In this chapter, I have outlined the theoretical framework that underpins my study and explained how my ontological and epistemological positions have informed the selection of Engeström's (1987) Activity Theory as the guiding framework. I have discussed how my philosophical stance rooted in a dialectical understanding of social reality aligns with the principles of Activity Theory, particularly its focus on mediated, object-oriented and collective human activity.

The rationale for adopting Activity Theory (AT) has been detailed, along with an exploration of how it is applied throughout the study. I have also reviewed five key studies in which AT served as the primary analytical lens, drawing insights that have shaped the structure and focus of my own research. These studies demonstrated the use of AT in revealing the dynamic interactions and contradictions that occur within educational contexts. It provided insights that directly inform my investigation of SOL among university students.

AT provides the overarching framework through which this research is conceptualised, designed and analysed. Its principles underpin the formulation of my research questions, the construction of the methodological approach, and the interpretation of findings. The seven elements of Engeström's activity system have guided the design of my data generation instruments and provide the analytical structure for identifying and interpreting the contradictions and mediations within the SOL activity systems.

In line with Engeström's (1987) emphasis on accessing participants lived experiences through engagement with those directly involved in the activity, this study adopts a qualitative survey methodology. This approach, described in the next chapter, enables the exploration of learners' perspectives and practices as they navigate, negotiate and transform their SOL practices.

Chapter 4: Research Design

4.1 Introduction

This chapter outlines the research design employed to explore students' perspectives on Self-Organised Learning (SOL) within Higher Education (HE). Grounded in Activity Theory (AT), the study examines the components and dynamics of SOL activity systems, focusing on tools, norms and objectives that shape students' learning experiences.

By employing a qualitative survey methodology with semi-structured interviews, this study captured a detailed examination of students' experiences with SOL, allowing for a comprehensive analysis of the benefits, challenges and tensions they encounter in their academic environments. The chapter is organised as follows:

- Section 4.2 discusses the rationale for choosing a qualitative survey methodology, highlighting its alignment with the research objectives and the theoretical framework.
- Section 4.3 describes participant recruitment, the data collection process and the analytical strategies employed to interpret the findings.
- Section 4.4 details the ethical protocols adhered to throughout the research process to protect participant rights and ensure the study's integrity.
- Section 4.5 acknowledges the study's constraints, including methodological and practical challenges.
- Section 4.6 summarises the research design and sets the stage for the presentation of findings in subsequent chapters.

4.2 Selecting a qualitative survey design

A qualitative survey methodology was selected to explore the nuanced and subjective experiences of students engaging in SOL. This approach was guided by the need to capture diverse, in-depth insights into students learning strategies and behaviours (Jansen, 2010). It should be noted that qualitative survey methodology refers to a research design and not an instrument; it does not refer, for example, to the use of questionnaires as a research instrument. Jansen (2010) defines qualitative surveys as "the study of diversity (not distribution) in a population" (p.3),

aimed at uncovering a range of meanings and individual experiences. “The qualitative type of survey does not aim at establishing frequencies, means or other parameters but at determining the diversity of some topic of interest within a given population” (Jansen, 2010, p.3). These characteristics align with the study’s goal of capturing authentic, detailed accounts of students’ SOL strategies, motivations and challenges across diverse UK universities. The qualitative survey methodology provided the flexibility to explore the complex and context-dependent nature of SOL using semi-structured interviews with a small sample.

According to Fink (2003), a survey is “a system for collecting information from or about people to describe, compare, or explain their knowledge, attitudes, and behavior” (p.2). While traditional surveys often focus on distribution within a population, qualitative survey “does not count the number of people with the same characteristic (value of variable) but it establishes the meaningful variation (relevant dimensions and values) within that population” (Jansen, 2010, p.3).

The qualitative survey methodology allowed the study to explore the broad spectrum of SOL experiences and understand the intricate dynamics influencing students' choices. Unlike fixed-response traditional surveys, which may restrict participants' ability to express unique perspectives, open-ended semi-structure interview allowed for in-depth exploration and adaptive questioning based on participant responses. This is particularly important for my project, as it captures the diverse, personal strategies and motivations that underpin students’ SOL experiences. Activity Theory (AT), which conceptualises learning as a socially mediated process within specific cultural and social contexts (Engeström, 1987), served as the theoretical framework for this study. By focusing on SOL and its activity systems shaped by students’ motivations, this methodology facilitated a thorough exploration of how students’ learning behaviours emerge within and are influenced by their unique academic environments.

Semi-structured interviews facilitated a dynamic conversation where follow-up questions could delve into specific areas, uncovering unexpected themes or aspects of SOL that might not emerge from more rigid survey formats (Kvale & Brinkmann, 2009). The semi-structured format of the interviews allowed for discovery and adaptation, making it possible for the study to evolve as insights are gathered. This

approach provided the flexibility, richness and adaptability needed to capture the complexities of how students across UK universities engage in SOL. The ability to adapt in real-time ensured that the research captured the complexity of students' learning practices and their interplay with cultural, social and institutional contexts, as emphasised in Activity Theory (Engeström, 2001).

This study employed a strategy of cross-institutional sampling to enhance its capacity to reflect the varied academic environments of UK universities. By including students from multiple universities, the qualitative survey captured a rich diverse perspectives and experiences, shedding light on the broader social-cultural factors central to AT. Limiting the study to a single institution might have narrowed its focus, potentially overlooking the diversity of influences shaping SOL.

The qualitative survey design aimed to empower participants to express their experiences in their own words, reducing response bias often associated with restrictive survey formats (Fink, 2003). This approach aimed to facilitate an authentic and nuanced understanding of students' attitudes, motivations and responses to SOL, aligning with the study's aim. While qualitative surveys offer depth and flexibility, they may face challenges in generalisability due to the smaller sample sizes typically involved. Additionally, the adaptability of semi-structured interviews introduces a risk of interviewer influence, which must be mitigated through careful design and consistent application of the interview protocol.

The qualitative survey methodology, underpinned by AT, was an effective choice for examining the multifaceted nature of SOL among HE students in the UK. Unlike traditional applications of AT, which often focus in depth on a single activity system, this study adopted a qualitative survey approach to explore a broad range of learning contexts. The aim was to explore the diverse forms SOL may take among university students and to categorise these into different types of activity systems. This approach allows for the identification of patterns and variations in how students engage in SOL. By enabling participants to describe their experiences in their own words, the methodology provided valuable insights into how SOL is practised, what drives it, and the challenges students face.

4.3 Research Design

This section outlines the implementation of the research design, detailing the steps taken to explore students' perspectives on SOL. It provides a thorough account of how participants were recruited, data collection method and the strategies employed for data analysis.

As set out in chapter 3, the research design was guided by the principles of Activity Theory (AT) including object-orientedness, mediation, hierarchical structure, social and cultural context and contradictions, alongside the qualitative survey methodology, ensuring a robust approach to capturing the nuanced dynamics of SOL activity systems. Semi-structured interviews served as the primary data collection tool, enabling participants to share their experiences in their own words while allowing the flexibility to explore emerging themes.

Figure 4.1 and Table 4.1 represent an adoption of Jansen's (2010) stages of the research process for qualitative survey. According to Jansen (2010), *Defining the knowledge aim* specifies the topic to be studied, then the aspect of the topic to be studied, the empirical domain be covered and the unit to be observed. The *sample* represents the diversity of phenomenon under study within the target population.

Figure 4.1

Stages of the research process for qualitative survey

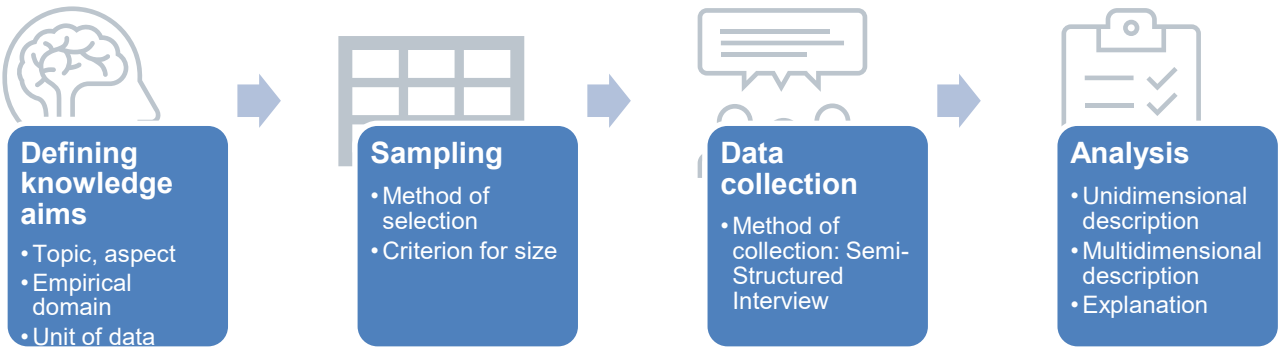


Table 4.1

The Logic of the Qualitative Survey (Adapted from Jansen, 2010)

Steps	Parameter	Qualitative Survey
1. Defining knowledge aims		
Topic (material object)	Any topic	Exploring Students Self-Organised Learning (SOL) in Higher Education
Aspect (formal object)	diversity	Diversity in students experiences and perspective
Empirical domain	any population (collection)	Students in UK Higher Education who engaged in SOL
Unit of data collection	members of population	Students
2. Sampling		
Method of selection	diversity; by purpose	inductive description of diversity
Criterion for size (16)	saturation, coverage of population diversity	until saturation of diversity in SOL experiences
3. Data collection		
Method of collection	Any	Semi-Structured Interview
4. Analysis		
1st-level analysis Unidimensional description	coding data (downward and upward) in objects, dimensions and categories	Downward coding - breaking data into categories (e.g., different activity systems). Upward: grouping categories into broader SOL dimensions
2nd-level analysis Multidimensional description	case oriented: combinatory synthesis of diversity: property-space analysis, typology construction concept oriented: holistic synthesis by core concept	Case-oriented: synthesising categories across activity systems to identify types of SOL practices. Concept-oriented: exploring SOL as a core concept to see how SOL practises interrelate in a holistic framework of student learning.
3rd-level analysis: Explanation	deterministic explanation	Identifying explanatory patterns. Explaining how different factors generate or constrain different SOL patterns.

Data collection is the method used in collecting the data while the *analysis* involves first-level analysis- unidimensional description involving coding data in objects, dimensions and categories, second-level analysis – multidimensional description which could be concept- oriented synthesis or case- oriented synthesis. “Concept-oriented synthesis consists of compiling (explicitly or implicitly) a number of dimensions and/or categories into one abstract core concept, while case-oriented

synthesis consists of grouping similar cases into types (categorical classes)" and third-level analysis is the explanation. According to Jansen, in qualitative analysis the boundaries of multidimensional description and explanation overlaps (pp.12 -16).

By employing qualitative survey approach and organising the study within the AT framework, this research aims to describe, interpret and evaluate the experiences of students engaged in self-organised learning (Merriam,1998). By adopting AT framework as discussed in the theoretical framework (Chapter 3) the research mapped the activity systems of SOL in which the participants are engaged. The AT provided the lens to identify and conceptualise the SOL activity systems through identifying the object of activity and defining the elements such as the subject, tools, community, rules, division of labour and outcome while identifying contradictions and tensions that could arise within these activity systems. It informed the research design by highlighting the interactions between elements ensuring the data collection aligns with the AT's systemic focus. AT guided the semi-structured interview questions formulation by structuring the questions to closely align with the components of AT (as described in more detail below, in section 4.3.2). The data analysis was structured around AT principles through examination of contradictions and tensions with the activity systems and by examining the interconnected components of the activity system, it allowed for a comprehensive understanding of how activities are structured and mediated.

4.3.1 Participant Recruitment

This study targeted HE students enrolled at UK universities who self-identified as been actively engaged in SOL. Potential participants were identified as those who collaborate with peers to create informal learning environments where they discussed, exchanged knowledge and taught each other. Students from any academic discipline or level of study were included, provided they were currently enrolled at a UK university and actively engaged in SOL practices.

A purposive sampling strategy was employed to recruit participants who could provide rich insights into their experiences of SOL practice. The recruitment process began by sharing an invitation to participate in the study within two LinkedIn higher education student communities that included UK university students. The invitation

briefly outlined the purpose of the research, eligibility criteria, and the voluntary nature of participation, and invited students who considered themselves actively engaged in SOL to express their interest in taking part in an interview.

Interested individuals contacted the researcher directly through LinkedIn messaging. Following these expressions of interest, individualised emails were sent to potential participants across various UK universities. Each email included a detailed participant information sheet outlining the purpose of the study, research objectives, interview procedures, and ethical considerations, including the voluntary nature of participation and the right to withdraw at any stage. A consent form was also attached.

The consent form provided a definition of SOL as used in the study and asked recipients to confirm that they were currently engaged in such learning practices. Responses were reviewed against the study's inclusion criteria, which required participants to be students currently enrolled at a UK university and actively involved in SOL practices outside formally structured coursework. This process ensured that participants had relevant experience of the phenomenon under study. By purposefully selecting participants who were actively engaged in SOL, the researcher aimed to maximise the richness and depth of the data collected (Patton, 2002).

To broaden the participant pool, a snowball sampling technique was also employed. Participants who had already agreed to take part were invited to recommend peers within their academic networks who were also actively engaged in SOL. This approach helped reach additional participants across different academic disciplines and learning contexts, thereby enhancing the diversity of perspectives represented in the study.

Of the twenty-two individuals who responded, sixteen met the inclusion criteria and agreed to participate in the study, while four did not meet the criteria and two did not proceed to the interview stage. The final sample of sixteen participants therefore included students recruited through both the LinkedIn invitation and the snowball sampling process.

Table 4.2

Anonymised details of participants, with pseudonyms applied.

Name	Course	Ethnicity	Gender	Level	University Region (UK)	University Type
Alina	Renewable and Sustainable Energy Technologies	Asian British	Female	Masters	North East England	Post-92
Asher	Clinical Anatomy	Asian British	Male	Fourth year	North of England (Yorkshire)	Pre-92
Caden	Clinical Psychology	White British	Male	Masters	South East England (Kent)	Post-92
Chika	Clinical Pharmacology	Black British	Female	Masters	London	Pre-92
Chima	Quantum Physics	Black British	Male	Masters	South West England	Pre-92
Dante	Computer Science	Asian British	Male	Masters	London	Pre-92
Ebube	Pharmacy	Black British	Male	Final year	Midlands (East Midlands)	Pre-92
Elena	Classics	White British	Female	Second year	North East England	Pre-92
Helen	Digital Media Culture and Technology	White British	Female	Second year	South East England (Surrey)	Pre-92
Henry	Computer Science	White British	Male	Final year	North of England	Pre-92
Kara	Medicine	Black British	Female	Second year	East of England	Pre-92
Nonso	Chemical Engineering	Black British	Male	Final year	North of England	Pre-92
Sach	Computer Science	Asian British	Male	Final year	North of England	Pre-92
Ulric	Sports Science	White British	Male	Second year	North of England	Pre-92
Victor	Architecture	Black British	Male	First year	South of England (South East)	Post-92
Zara	Public Relations	Black British	Female	Masters	London	Post-92

The participants represented a range of academic disciplines and universities across the United Kingdom (see Table 4.2). This sample size was considered appropriate for an in-depth qualitative study, allowing for detailed exploration of participants' experiences while remaining manageable for rigorous data collection and analysis (Baker & Edwards, 2012). To protect confidentiality, each participant was assigned a pseudonym that was culturally appropriate and phonetically similar to their real name. The diversity of participants enabled the study to capture a broad range of perspectives on self-organised learning, including motivations for engaging in SOL and the strategies students used to organise and manage their learning experiences. Following recruitment, interviews were scheduled with participants at mutually convenient times.

4.3.2 Data collection method

A semi-structured interview technique was employed for data collection. This qualitative survey approach provided both flexibility and depth, enabling the exploration of participants' perspectives on SOL, including their motivations, challenges and strategies. By using a pre-determined set of open-ended questions, ensured that the interviews remained focus on the research objectives while allowing for the spontaneous exploration of emerging themes. This approach aligns with the principles of qualitative research, which prioritises rich, contextualised data (Merriam,1998; Miles et al., 2020). The semi-structured format allowed for follow-up questions tailored to the interviewees' responses, offering deeper insight into each participant's perception of SOL. This flexibility proved effective in uncovering nuanced views and complex experiences, supporting the study's aim to capture diverse student perspectives.

4.3.2.1 Interview

4.3.2.1.1 Interview Protocol

Using Patton's (2015), interview guideline, all sixteen interviews were conducted online via Lancaster University's Microsoft Teams platform, providing both convenience and accessibility. Each session lasted approximately 30 to 45 minutes,

with recordings made to ensure accuracy and enable thorough analysis. Following the interviews, recordings were anonymised and transcribed for in-depth examination (see Appendix One for interview protocol).

I initially conducted pilot interviews with two participants, going through each stage of the data collection process: obtaining consent, scheduling, conducting the interviews, transcribing conversations and collecting feedback on the interview experience. After completing these first interviews, I paused to analyse the data. This interim analysis allowed me to assess the alignment of my questions with the research objectives, offering valuable insights into my questioning techniques. Consequently, some questions were refined to better capture relevant information for subsequent interviews.

The data from these pilot interviews was also used in the final analysis because it provided early, rich insights into the research topic and helped establish a foundation for identifying key themes. Including this data ensured that the analysis benefited from the full range of participant perspectives, while the refinements improved the depth and relevance of data gathered in later interviews.

The Activity Theory and Mwanza's (2002) Eight-Step Model helped with the formulation of the interview questions as it provided a clear framework to explore the essential components of an activity system. Mwanza's (2002) Eight-Step Model (Table 4.3) was used to design my interview questions. The model was chosen because it ensured that the interview questions covered all key components of the activity system. Each element represents a factor that influences the activity. By aligning questions with these elements, it helped uncover not only the individual components but also the interactions and interdependencies between them. Table 4.4 presents sample interview questions and their relevance to the research questions, while table 4.5 presents the core interview questions mapped to the components of AT. From my point of view, the activity of interest is to understand students self-organised learning in Higher Education. The object-ive is not known at this stage until the interview is carried out.

These questions were oriented towards the elements of the activity theory model (Fig.3.1) By systematically addressing elements like tools, rules, community and

object, the model ensured that questions where comprehensive while aligning with the research focus. This structured approach helped elicit detailed and relevant responses, enabling me to uncover the complex interactions and dynamics within the activity systems.

Table 4.3

Mwanza's (2002) Eight-Step Model

The Eight-Step Model		
Identify the: -		**Question to Ask**
Step 1	*Activity of interest*	What sort of activity am I interested in?
Step 2	*Object-ive*	Why is the activity taking place?
Step 3	*Subjects*	Who is involved in carrying out this activity?
Step 4	*Tools*	By what means are the subjects performing this activity?
Step 5	*Rules and Regulations*	Are there any cultural norms, rules or regulations governing the performance of this activity?
Step 6	*Division of Labour*	Who is responsible for what, when carrying out this activity and how are the roles organised?
Step 7	*Community*	What is the environment in which the activity is carried out?
Step 8	*Outcome*	What is the designed outcome from carrying out this activity?

Table 4.4

Core interview questions mapped to research questions in line with Mwanza's Eight-Step Model

Research Questions	Example of Interview questions	Component of Activity theory
RQ1. What are the objects of activity in students self-organised learning?	Why engage in SOL? What motivated you to engage in SOL activities? How does SOL align with your personal learning goals and aspirations? What outcomes were you aiming to achieve?	Object and Outcome
RQ2: What roles do tools play in students self-organised learning??	What technologies or resources did you use while learning with your peers, how did they contribute or support your learning journey?	Tools.
RQ3. In what ways do social dynamics and the social structure within student self-organised learning activity systems influence learning experiences?	Who are the individuals that participate in your SOL endeavours?	Subject and Community
	How do you organise the SOL and what roles do each person play within the SOL practice? How does the team structure affect the way team members achieve their objectives? How were task distributed? How do you collaborate and support each other in SOL environments?	Division of labour and Community
	Are there any rules or norms that guide the SOL	Rules
RQ4. What contradictions emerge in doing SOL?	What challenges or tensions did you encountered while attempting to engage in SOL?	Contradictions

Table 4.5

Core interview questions mapped to components of Activity Theory (See Appendix Two for full questions)

Activity Theory Element	Core Questions
Subject	1. Could you elaborate on your experience with self-organised learning (SOL)?
Object	2. Kindly provide an overview of the SOL process you engage in and explain the factors or motivations that led you to adopt this approach?
Subject / Object	3. Can you narrate a specific instance or your initial encounter with SOL?
Object / Outcome	4. What were your objectives when you embarked on this learning approach? What outcomes were you aiming to attain?
Tools	5. Your use of resources and technology to facilitate SOL is of interest. Could you detail the resources and technology you employ to support your SOL? How did these resources contribute to your learning journey?
Rules / Community	6. How does your engagement in SOL relate to other forms of learning within your university?
Community / Subject	7. I would like to gain insight into the individuals who participated in the SOL activity and the nature of their involvement.
Rules	8. Are there any established or unspoken ground rules governing your SOL activity system?
Division of Labour	9.How are responsibilities and roles distributed among participants? What types of roles are present, and which individuals undertake these roles?
Contradictions	10. What kind of challenges or conflicts have you encountered while engaging in self-organised learning? Could you provide an example and elaborate on how you navigated through it?

4.3.2.1.2 Conducting the interview

Online interviews were designed to capture detailed and rich descriptions of participants' experiences with SOL, which was essential for understanding their unique perspectives within their specific contexts (Miles et, al., 2020). The interviews were structured to ensure efficient data collection within a limited timeframe, following Patton's (2002) guidelines for semi-structured interviews. I aimed to create an open and conversational atmosphere that would encourage participants to share their experiences openly and honestly. To achieve this, I employed active listening techniques, such as verbal affirmations and nonverbal cues, which helped to put the participants at ease and make them feel comfortable throughout the interview.

I used probing questions to delve deeper into specific topics, ensuring that I explored key areas of interest thoroughly. For example, when a participant mentioned, “Sometimes it was difficult to access the software we needed,” I followed up with prompts such as, “Could you tell me more about what made it difficult to access the software… how did you worked around it... did it influence your learning experience?” These follow-up questions helped uncover underlying issues related to tool availability and their impact on the activity system. Care was taken to avoid leading questions, so the responses would remain true to the participants’ experiences.

As I was conducting qualitative survey research, the flexibility of the online format allowed me to reach a diverse pool of participants across different universities, overcoming logistical and geographic constraints (Braun & Clarke, 2006) that would otherwise limit the inclusivity of my study. This is particularly important as it helped to include students from various universities, enriching the data. The virtual setting of the interviews also aligned with findings from previous research, which suggest that online interviews provide wider access to participants (Keen et al., 2021).

Lancaster’s Microsoft Teams was chosen as the platform for the interviews due to its compliance with data protection regulations and its ease of use. I contacted participants via email and allowed them to select a time that worked for them. Once the interview time was confirmed, I scheduled it in my calendar, sending reminders ahead of time to ensure attendance. Before the interviews, I tested my equipment

thoroughly, checking microphones, video settings, and backup systems. I also tested the Microsoft Teams software to ensure that everything worked smoothly on the day of the interview. To eliminate distractions, I conducted the interviews in a private room at my local library, when that was not possible, I used a study space at home, informing my family members not to disturb me. I made sure to have a neutral background to avoid any distractions during the interview.

Fortunately, there were no technical issues during the interviews. All participants were familiar with Microsoft Teams, either using it for lectures or personal use at their respective universities. This familiarity ensured a smooth communication process. Participants were given the option to use either video or audio, depending on their comfort level, though most chose to use video. This decision supported rapport-building by allowing me to observe nonverbal cues, which helped establish a more personal and comfortable connection with each participant. According to Deakin and Wakefield (2014), being able to see the interviewer is a key factor in building rapport and establishing an interpersonal connection. I also followed Salmon's (2014) recommendation of engaging in informal pre-interview conversation, asking participants about their well-being and their progress in their studies. This helped to create a relaxed and approachable atmosphere. I intentionally chose casual attire to help participants feel comfortable and convey approachability. By maintaining a warm and informal manner, I was able to build trust and encourage openness which could be crucial for gathering authentic insights.

The interview was conducted using Salmon's (2014) four interview stages: opening, questioning and guiding, closing and follow-up. During the opening stage, I began with informal chat and ensured that participants were comfortable. I also checked for any technical issues and reminded participants of their right to withdraw from the study at any time (Roberts et al., 2021). I explained that I would be taking notes during the interview, should they see me scribbling or appear distracted. The study and its purpose were reintroduced to reinforce understanding.

During the questioning and guiding phase, semi-structured questions were used to elicit detailed accounts of participants' perspectives on SOL. I referred to the core questions that had been sent to participants in advance, giving them a clear idea of

what to expect. The questions encouraged participants to reflect on their own experiences with SOL, allowing for rich descriptions of their personal perspectives.

As the interviews drew to an end, reflective questions, such as “Is there anything we have not discussed that you would like to share before we conclude?” signalling the end of the interview. This gave participants the opportunity to add any additional thoughts. I also informed participants that they might be contacted for clarification or to validate their responses through transcription reviews, to which they consented. The participants were again thanked for their time and agreeing to participate in the research.

4.3.3 Data analysis

The data analysis for this study combined thematic analysis with Activity Theory (AT) to provide a comprehensive understanding of students' experiences with self-organised learning (SOL) in UK Higher Education. This dual approach allowed for both an in-depth exploration of recurring themes within the data and a structured examination of SOL activities within a framework of activity systems, as outlined by Hashim and Jones (2007). By integrating these methods, the analysis captures both the patterns in participants' experiences and the systemic structures that shape their engagement in SOL.

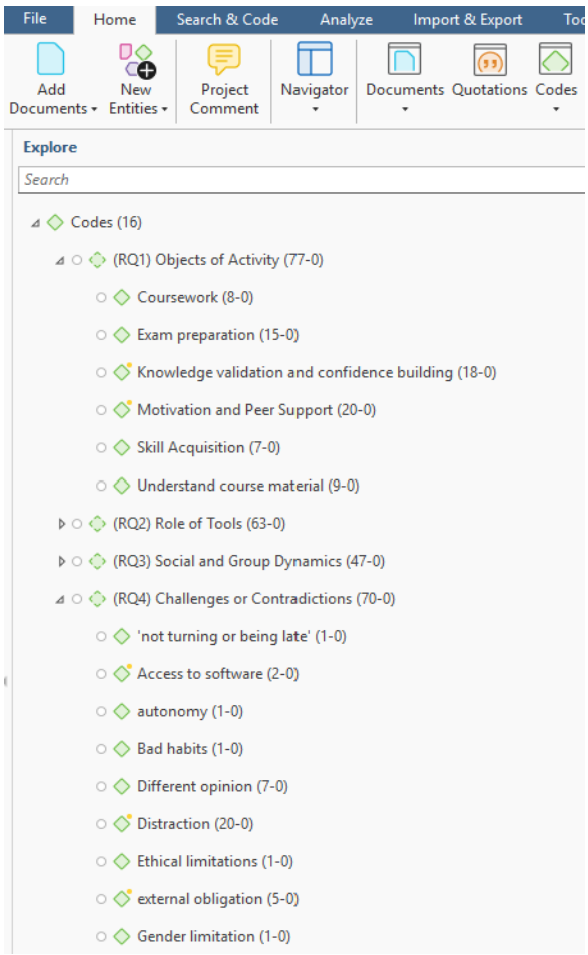
4.3.3.1 Analysis process

The analysis began with careful transcription of each interview, ensuring accuracy by reviewing recordings and transcripts multiple times to capture participants’ statements verbatim. All transcripts were anonymised to protect participant confidentiality. Each transcript was reviewed while listening to the recordings. This process allowed me to become deeply familiar with the data, identifying initial insights. During this initial familiarisation phase, reflective notes were taken to record emerging insights related to SOL activities, motivations and challenges. These notes also highlighted initial patterns within the data, providing an early sense of the themes and elements that would be examined in greater depth.
Following data familiarisation, the anonymised transcripts were then loaded in Atlas.ti software and coded. A thematic analysis approach, as outlined by Braun and

Clarke (2006), was employed to extract meaningful information from the data and assigned descriptive-codes that aligned with the study's research questions. (See Figure 4.2

Figure 4.2

A sample screenshot of coding in Atlas.ti



4.3.3.2 Activity System Analysis (ASA)

To deepen the analysis, ASA was employed to systematically examine SOL activities as activity systems, focusing on key elements such as the object, subject, tools, community, division of labour and rules. ASA enabled me to engage with the data in a manageable and meaningful manner (Yamagata-Lynch & Lisa, 2010). The analysis involved several steps:

1. Identifying Different Objects of Activity: The primary objects of activity were identified, enabling separate analysis of different activity systems.
2. Separating Relevant Data: Data pertaining to different activity systems were segregated to maintain clarity and focus.
3. Labelling Activity System Elements: The remaining data for each activity system were analysed to identify and label other elements, such as tools, community, division of labour, and rules.
4. Identifying Contradictions: Data were further scrutinised to uncover issues representing contradictions within the activity systems.
5. Locating Contradictions: Contradictions identified in each system were categorised and placed appropriately within the activity system.

4.3.3.3 Detailed Analytical Process:

To ensure a thorough examination, the following tasks were undertaken:

- *Identification of Objects:* Each transcript was analysed to identify the primary *object of activity* of participants' SOL processes. This clarified students' motivations and objectives. The identified objects were separated to facilitate analysis across different activity systems.
- *Data mapping:* Interview data were mapped to the respective activity systems they belonged to, ensuring a systematic categorisation.
- *Mapping Activity System Elements:* Following data mapping, each activity system was further examined to identify and label its elements:
    - Tools and Resources: Digital platforms, academic resources, and other aids used in SOL.
    - Community Influences: Peers, lecturers, and other social factors impacting SOL.
    - Division of Labour: The roles and responsibilities within the activity system.
    - Rules: The implicit or explicit rules governing the activity.

  This holistic approach highlighted how each element supported or constrained the learning process within SOL.
- *Identification of Contradictions:* Finally, contradictions within each activity system were analysed by examining tensions or conflicts in participants'

experiences, such as limited access to resources or competing academic priorities. Each contradiction was categorised and labelled within the respective activity systems.

Throughout the analysis, Atlas.ti software was employed to facilitate the organisation and management of qualitative data. Text segments were coded within Atlas.ti, allowing for easy categorisation under both thematic and AT components. This software enabled efficient retrieval of specific information, such as quotes related to elements of the activity system, supporting the structured analysis of each interview and ensuring that both thematic and AT-based insights were systematically captured.

The findings from this combined approach will be presented through a series of labelled activity system models and thematic narratives. Following Yamagata-Lynch's (2010) guidance, which emphasises the researcher's role as a storyteller in Activity Theory, the data will be narrated in a way that captures participants' experiences within the activity systems. As Yamagata-Lynch notes, qualitative activity theory is "an inductive process" (p. 71), requiring the researcher to "put the participants' story into words" so others can fully understand their experiences within the activity (p. 71). In line with this approach, each activity system model will illustrate key SOL activities and the relationships among elements within each activity system, with identified contradictions clearly marked. Relevant participant quotations will accompany each activity system to provide context and add depth to the understanding of each system element, such as the roles of tools, community and division of labour in SOL. This analysis, supported by "thick descriptions" (Yamagata-Lynch, 2010, p. 72), will offer valuable insights into both the individual and systemic factors that shape SOL among students in UK higher education.

4.4 Ethical Considerations

The research study adhered to Lancaster University's ethical approval process. The study received approval from the university's ethics committee, which assessed the research design and methodology to ensure compliance with ethical standards before data collection. Participants were provided with a comprehensive information sheet that outlined the purpose of the study, the research process, and their rights as participants. Written consent was obtained from each participant prior to data

collection, ensuring they fully understood their involvement, the voluntary nature of their participation, and their right to withdraw at any point without any adverse consequences. Consent was also re-confirmed verbally at the start of each interview to respect participants' autonomy.

To protect participants' privacy, all data was anonymised, with pseudonyms used in place of names and identifying details removed from transcripts. Only the researcher had access to identifiable information, and all data was securely stored on password-protected devices. Anonymised data will be retained for the period required by the university's research data management policy, after which it will be permanently deleted. Participants were informed of the measures taken to protect their confidentiality, and their trust was prioritised throughout the data handling process.

As the researcher in a qualitative study, it was important to acknowledge potential influences and maintain a neutral, non-influential stance during interviews. Recognising the role of the researcher as a 'storyteller' within Activity Theory (Yamagata-Lynch, 2010), care was taken to ensure participants' voices were authentically represented. To ensure the credibility and trustworthiness of the research findings, rigorous data management practices were implemented. Interview recordings were carefully transcribed, with each transcription reviewed multiple times to confirm accuracy. Some participants were given the opportunity to review and validate their summaries to ensure their statements were accurately represented. This step fostered transparency and allowed participants to confirm that the data reflected their views.

4.5 Limitations

While the use of semi-structured interviews in this study provided rich insights into students' experiences with SOL in UK higher education, certain limitations inherent to this qualitative survey methodology is acknowledged. These limitations relate to interviewer influence, participant recall bias and the time-intensive nature of the approach. I address how these limitations have influenced the research design here and will discuss limitations related to the overall project in Chapter Seven.

The semi-structured interview format, while flexible and adaptable, can introduce researcher influence. Subtle verbal or non-verbal cues, such as tone of voice or body language, may unintentionally guide participant responses, potentially affecting the data collected. Since qualitative analysis is inherently interpretive, the researcher's own perspectives or expectations could shape the coding and interpretation of data. In addition, the researcher's potential influence in focusing more on meanings and experiences, possibly overlooking certain contextual sensitivities (Silverman, 2010). Efforts were made to mitigate these through reflexive practices, careful documentation and relying on verbatim transcripts and recordings, making the interpretation more transparent.

Interviews rely on participants' self-reported experiences, which can be subject to recall bias or social desirability bias. Participants might have struggled to accurately recall specific details of their SOL activities or may present their experiences in a more favourable light to align with perceived expectations. This can lead to selective or idealised accounts that may not fully capture the complexities or challenges of their experiences with SOL. Rather than asking general questions, recall bias was addressed by prompting participants to recall specific incidents, enabling them to narrate a story about those experiences. To minimise social bias, participants were encouraged to give their own honest accounts, and I clarified that there are no 'right' or 'wrong' answers.

Conducting and analysing interviews is time-intensive, requiring significant resources for transcription, coding, and analysis. This process limited the number of participants that can be realistically included, which may constrain the diversity of perspectives captured. Additionally, the iterative process of revisiting the interviews recording demanded considerable researcher time and attention, potentially impacting the pace at which findings was produced.

4.6 Conclusion

This chapter outlined the research methodology employed to explore students' perspectives on SOL within UK Higher Education. A qualitative survey approach, specifically using semi-structured interviews, was selected to capture the depth and complexity of students' experiences. The chapter detailed the research design,

including data collection and rigorous management practices, to ensure transparency, ethical integrity and validity. Additionally, it addressed the challenges inherent to qualitative research, such as potential biases, while justifying how this approach aligns with the study’s objectives of capturing nuanced, individual insights into SOL.

The findings from the data analysis, guided by Activity Theory, offer a detailed look into the motivations, challenges and strategies students employ in self-organised learning. In the next chapter, I will present the key findings, illustrated through activity system models and thematic narratives, to provide a comprehensive understanding of students' SOL practices and perspectives.

Chapter 5: Findings

5.1 Introduction

This chapter presents the key findings of the study, exploring how students engage in self-organised learning (SOL) activity systems within Higher Education (HE).

The findings address the research questions by analysing the experiences of students as they organise their learning processes, select tools and resources and navigate the challenges inherent in SOL. Through a detailed examination of the different objects motivating students' engagement with SOL, this chapter sheds light on the elements that support or hinder effective learning within these activity systems.

The chapter is structured around six key SOL activity systems, each of which reflects a distinct object of activity. These activity systems are explored in terms of their core components such as tools, rules, community, division of labour and the contradictions/tensions that arise within them. The section is broken down as follows:

- Section 5.2 provides an overview of the identified SOL activity systems.
- Section 5.3 discusses an activity system whose object is understanding and mastering course content, including the associated elements and contradictions.
- Sections 5.4–5.8 cover additional SOL activity systems whose objects are exam preparation, reviewing coursework, skill acquisition, knowledge validation and confidence building, motivation and peer support, each with an analysis of their elements and contradictions.
- Section 5.9 concludes the chapter

This chapter lays the foundation for the subsequent discussion, where these findings will be contextualised within the broader literature on SOL.

5.2 Self-Organised Learning (SOL) Activity Systems

Activity Systems in SOL encompass the tools, community, rules and division of labour that together mediate the learner's pursuit of understanding. Each element of the system plays an essential role in shaping how students engage with content, collaborate with peers and utilise resources to achieve their learning goals. However, the different objects of these activity systems will be crucial for the subsequent analysis, as they drive how students' approach and organise their learning.

Based on the findings and analysis of the data, six distinct activity systems have been identified as key drivers of SOL, each grounded in a specific object of the activity system. As discussed in the theoretical framework (Section 3.6), the primary reason for categorising the SOL Activity Systems based on the object serves several purposes that enhance our understanding of the dynamics within the learning environment. These systems reflect the diverse motivations that lead students to engage in SOL, whether it's mastering course content, preparing for exams, or validating knowledge. Each activity system is oriented towards a different object and centred on the subject (students), often emerging within groups of friends who collaborate to enhance their collective learning. The primary objects of these SOL activity systems are as follows, and participants engaged with these activity systems in distinct ways, as illustrated in Table 5.1.

- *Understanding and Mastering Course Content:* This refers to the deep comprehension and retention of the material presented in the course. It involves grasping the underlying concepts and principles, allowing students to apply this knowledge in different contexts.
- *Exam Preparation:* This involves organising and reviewing relevant course material specifically to perform well in formal assessments. It involves practising and developing strategies to answer questions efficiently under exam conditions. Unlike mastering course content, which is more comprehensive, this is a focused and time-bound process aimed at demonstrating knowledge within the constraints of an exam.

- *Reviewing Coursework:* This involves revisiting and refining assignments, essays, and projects. It allows students to clarify expectations ensuring alignment with the course learning objectives.
- *Skill Acquisition:* This involves developing practical abilities alongside theoretical knowledge. This includes learning specific techniques, tools, or methods, and it is about being able to execute tasks competently and with increasing proficiency.
- *Knowledge Validation and Confidence building:* Knowledge validation involves verifying the accuracy and depth of understanding while confidence building comes from repeatedly testing and applying knowledge in different scenarios, reinforcing the belief in one's own abilities to comprehend and use the material effectively. This differs from simply understanding content, as it focuses on solidifying and trusting one's knowledge.
- *Motivation and Peer Support:* Motivation and peer support are critical components of SOL systems, where group dynamics play a key role in sustaining engagement. Motivation involves the internal and external factors that drive students to persevere amidst challenges.

Table 5.1

How participants engaged with different Activity Systems

	Activity Systems					
Participants	**Understanding and Mastering Course Content**	**Examination Preparation**	**Reviewing Coursework**	**Skill Acquisition**	**Knowledge Validation and Building Confidence**	**Motivation and Peer Support**
Alina				X		
Asher		X				
Caden			X			
Chika	X		X			
Chima	X			X	X	
Dante		X			X	
Ebube		X			X	
Elena						X
Helen				X		
Henry	X	X				
Kara	X	X				
Nonso	X	X		X		
Sach					X	
Ulric		X				
Victor			X			X
Zara			X			X

Note. X represents the participant's involvement in the corresponding activity system.

Based on table 5.1, the analysis of the activity systems reveals distinct patterns in how participants engage in SOL. The most prominent activity system identified was *Exam Preparation*, with the highest number of participants focusing on this object. This indicates a strong emphasis on exam readiness and academic success which is a common pattern in higher education where emphasis is on assessments. *Understanding and Mastering Course Content were* also significant activity systems indicating a strong emphasis on understanding the foundation by revisiting and reflecting on course material. Engagement with *Reviewing Coursework* was evident among several participants, suggesting a reliance on revision as a means of reinforcing understanding and preparing for academic tasks. The activity system of

Knowledge Validation and Building Confidence attracted a number of participants who sought opportunities to confirm their understanding and strengthen their academic self-assurance, suggestion an awareness of the role that metacognitive evaluation plays in effective learning. *Skill Acquisition* was also utilised by a comparable number of participants, reflecting a focus on developing practical competencies that support both coursework and assessment demands. Although *Motivation and Peer Support* appeared to be the least prominent activity system with only a few participants identifying it as their primary object of activity, yet many acknowledged that motivation and peer support were essential components that underpinned their engagement in their activity system, as will be seen in the findings within the activity systems discussed in the subsequent sections.

Interestingly, a significant number of participants describe aspects of multiple activity systems, indicating that many learners adopt a multifaceted approach to their education. This might be interpreted to mean that they balance various aspects of learning, such as mastering content, acquiring skills and ensuring exam preparedness, to achieve a more comprehensive understanding. However, for the present analysis, some participants focus on only one activity system, highlighting their prioritisation of specific learning needs.

In the following analysis, both the SOL and the higher education (HE) formal course programme activity systems are examined. The SOL activity systems are explored in depth, as it is the central focus of this study. The HE formal course programme activity system is also considered, but only in instances where participants identified it as particularly significant to their learning experiences.

5.3 Understanding and Mastering Course Content Activity Systems

This section addresses SOL AS in which the object is understanding and mastering course content. Understanding and mastering course content through a SOL activity system, particularly within a group of peers (subject), provides a dynamic and adaptable approach to education. Participants in this study highlighted that working together with friends allowed them to draw on mutual support, diverse perspectives and active engagement, leading to a deeper and more meaningful grasp of the

course material. This collective approach not only facilitated individual understanding but also enhanced the group's overall learning experience.

Section 5.3.1 elaborates on the elements of this activity system (AS), while 5.3.2 discusses contradictions within this activity system. Figure 5.1 represents the Understanding and Mastering Course Content AS and its inherent contradictions.

5.3.1 Elements of the Activity System (AS)

5.3.1.1 Object

Within this AS, the primary object is to understand and master the course content. Participants focus is being able to grasp course content thoroughly and successfully address questions that arise from it. Those involve hope to achieve a deeper understanding and consolidation of their knowledge of the course content.

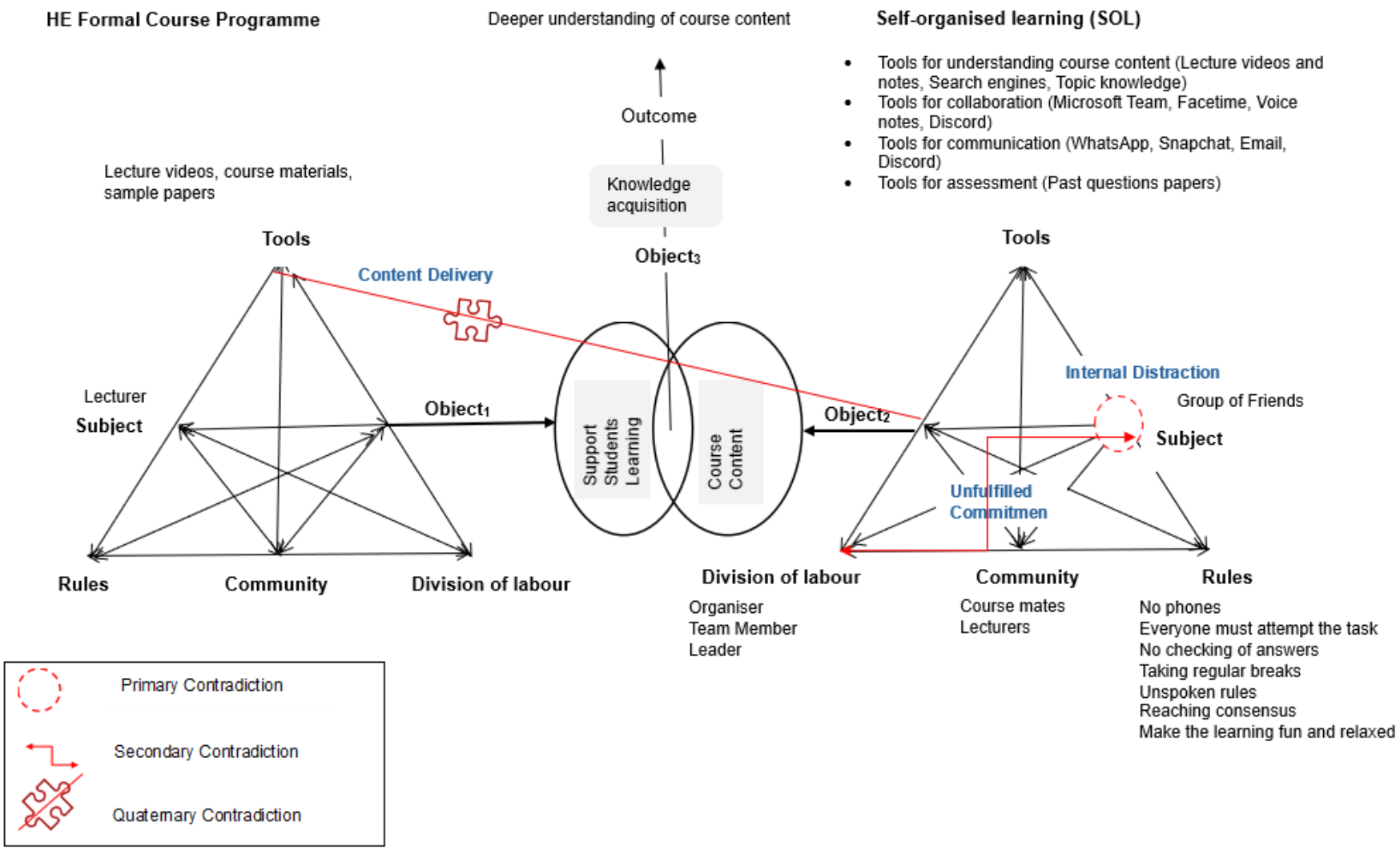
Nonso, a Chemical Engineering student, (as indicated in Chapter 4, participant pseudonyms are used) highlighted the challenge of understanding the course content presented by lecturers:

> Factors that led me to this learning approach were that it was difficult to understand the content the lecturers were presenting; therefore, discussing with peers who had a better understanding and breaking it down made me understand the content a lot easier.

The subjects work on mastering the course content to improve their comprehension. Chika, Clinical Pharmacology student, emphasised the collective purpose, “Often times, our goal is to improve understanding of the course content”. Henry, a Computer Science student, also noted the collaborative aspect of this learning process, “I guess maybe sometimes, like if I don't understand something, but my friends will, it's good to get a second opinion on some math problems and to help each other out as well”. Beyond individual understanding, participants also felt it was essential to ensure that everyone involved fully grasped the content before moving forward. As Nonso, a Chemical Engineering student, further explained,

Figure 5.1

Understanding and Mastering Course Content Activity System



- Tools for understanding course content (Lecture videos and notes, Search engines, Topic knowledge)
- Tools for collaboration (Microsoft Team, Facetime, Voice notes, Discord)
- Tools for communication (WhatsApp, Snapchat, Email, Discord)
- Tools for assessment (Past questions papers)

> My objectives and goals behind my participation in Self-Organised Learning are to ensure that everyone involved comes out of the 2/3-hour session feeling as if they have learned a new skill or have further developed their understanding of the topic at hand, even if it is just one new method or topic.

5.3.1.2 Subject

The group of friends within this AS are the subject because they are the central agents driving the process of understanding and mastering course content. The subject collaborate and actively engage in SOL to accomplish their shared objective. Their role as subject is defined by their initiative to support one another, share knowledge and leverage each other's strength to deepen their understanding of the course content. This collaborative effort among friends is crucial for maintaining engagement, making the group dynamic an effective strategy for mastering complex content. As noted by Nonso, a Chemical Engineering student,

> I believe that learning from our fellow peers, enables us to share ideas and gather a deeper understanding of the content as it is easy to relate with one another in comparison to learning from a teacher or lecturer. I believe SOL makes learning and understanding content more engaging and enjoyable for all parties and everyone benefits from the total experience.

The participants in this study are not passive recipients of knowledge, they are active subjects, who drive the learning process within the Understanding and Mastering Course Content AS. This is evident in how they interact with one another, assume roles within their study groups and contribute to both their own and their friends' learning.

For instance, Chima, a Quantum Physics student reflects on his experience within the group,

> In that situation, yeah, it could maybe sometimes be more the other way around, where they come to me and say, ‘Oh, I see you're comfortable with

the topic, do you want to work together on it?' In such cases, the benefit may be more for them than for me. But then, I guess the benefit for me would be...

This illustrates how Chima takes on an active role, becoming a resource for his peers and shaping the learning experience within the group. However, Chima, Quantum Physics student also acknowledges the reciprocal nature of this interaction,

'Sometimes, when you're explaining the topic to someone else or helping someone, it helps you to make sure that you actually know what you're talking about, and you learn from that as well. So, I think that's a benefit for both'.

This statement highlights the dual benefit of his engagement, while helping others, Chima reinforces his own understanding, thereby deepening his mastery of the course content.

Through such interactions, subject like Chima are not only supporting their group of friends but are also actively engaging with the material in a way that reinforces their own learning. This demonstrates their agency and subjectivity within the SOL activity system, where they take on leadership roles, make deliberate choices about how to engage with the content, and ultimately drive their own educational outcomes.

5.3.1.3 Community

In the context of the understanding and mastery of course content AS, the community comprises individuals who are not directly involved in the group's daily task but play a crucial supporting role in its success. These members typically include lecturers and other course mates who can provide additional guidance or clarification when the group encounters challenges that they cannot resolve on their own.

While the primary focus of the SOL activity system is on independent and collaborative learning within the group, the subject acknowledges the importance of consulting external community members when necessary. For instance, lecturers

and course mates are often approached for help when the group struggles with a particular concept or question. As Nonso, a Chemical Engineering student, noted,

> We really work on our own and try to use the lecture videos and course material to validate our understanding, however if we are still struggling, we could ask other course mates, but this is usually the next day.

This demonstrates that while the group strives for autonomy, there is an understanding that external support is valuable when internal resources are insufficient.

Similarly, Kara, a medical student, highlighted the role of the community in providing clarity on difficult topics:

> …This is what we're supposed to know, but there were actually times that we had questions, some things were not just clear. So, what we did is we had someone put down the question and we go back to lecturer.

This shows that the community acts as a safety net, offering expertise and reassurance when the group's internal efforts fall short.

5.3.1.4 Tools

The analysis of tools within the Understanding and Mastering Course Content AS focuses on how these tools mediate the relationship between the subject (group of friends) and their object (Understand and Master Course Content). Four distinct forms of tool mediation were identified, and clusters of tools were categorised accordingly. These mediation forms are:

- Tools for understanding course content: (Lecture videos and notes, search engines, topic knowledge)
- Tools for collaboration: (Microsoft Teams, Discord, Facetime, voice notes)
- Tools for communication: (WhatsApp, Snapchat, discord, email)
- Tools for assessment: (Past question papers)

5.3.1.4.1 Tools for Understanding Course Content

The tool mediation form in this AS focuses on understanding and mastering course content. Participants primarily used lecture videos and course materials as their main resources for grasping the content, allowing them to study and review at their own pace. As Nonso, a Chemical Engineering student, explained,

> We use videos and tutorials to watch as a group to analyse the lecturer's lesson and ensure that the engagement is well understood. This enables us to explain to our peers who may not understand the content in an easier format.

Henry reinforces the importance of lecture notes, stating, "Yeah, the lecture notes are usually a good source to use, and we go over that quite a lot". However, the subject does not rely solely on videos and lecture notes, they used other sources such as academic articles, internet to enhance and reinforce understanding and clarity of concepts. As noted by Chika, "We of course use different search engine like the university's search engine, Google Scholar. Team members suggest materials they've found useful, and we log in and explore more".

In addition to these tools, subjects also drew on the pre-existing knowledge or background information that their peers brought to the learning process. This collective knowledge allowed them to connect new concepts with what they already knew, thereby deepening their understanding.

5.3.1.4.2 Tools for Collaboration

The tool mediation form in this AS emphasises collaboration to enhance understanding and mastery of course content. Participants utilised various tools to facilitate group work, share resources, and engage in discussions that deepened their learning. Platforms like Microsoft Teams, Facetime and voice notes were integral to their collaborative efforts.

Microsoft Teams, in particular, was frequently used for collaboration. As mentioned by Chika, "We use Microsoft Teams, where we are able to work on a particular project together and we are able to populate our idea and work on them". Discord

was also found to be useful and often used to share resources as stated by Chima, “We did like to use discord in terms of when we were discussing because this was quite nice in terms you can actually send files directly, like very quickly and you can do drag and drop files into a group chat, that I think was quite nice one to use”.

Facetime and voice notes was another tool that participants relied on for real-time, face-to-face discussions. As Nonso notes, “Sometimes, a quick video call on Facetime helps us clear up confusion faster than endless texting. Seeing each other’s reactions and being able to talk it out really makes a difference”. While Henry shares his experience with voice notes “When I'm on the go, I just send a quick voice note with my thoughts or a solution to a problem we’re working on. It’s faster and more personal than typing it out...”.

Through these collaborative tools, participants were able to engage more deeply with the course content, benefiting from diverse perspectives and collective problem-solving.

5.3.1.4.3 Tools for Communication

The tool mediation form in this AS centres on communication, which was key for coordinating and managing the learning process. Subject primarily used tools like WhatsApp, Email and Snapchat to facilitate smooth and efficient communication within their study groups, ensuring that everyone was aligned in their efforts to understand and master course content. WhatsApp was the go-to platform for scheduling and coordinating study sessions. Participants used it to agree on times, locations and tasks, ensuring that everyone stayed aligned. As Kara explained, “We had a group WhatsApp chat, that’s where we organised everything. This is our task, this is what we’re going to do today’. It kept us all focused and on track”.

Snapchat was also utilised for quick updates and reminders, as noted by Chima, “Snapchat is great for those quick check-ins or reminders. We use it to make sure everyone’s aware of what’s happening, without needing a long message…” This constant connectivity seems to help maintain the group’s momentum and keep everyone engaged.

By leveraging these communication tools, participants streamlined their coordination efforts, ensuring that study sessions were well-organised and productive, ultimately facilitating the achievement of the activity system's object (to understand and master the course content).

5.3.1.4.4 Tools for Assessment

To achieve a deep understanding and mastery of course content while tracking their progress, subjects frequently used assessment tools, particularly past exam papers provided by their lecturers. By practicing with these past papers, they were able to gauge their understanding of the course content and identify areas for improvement. As Nonso, a Chemical Engineering student, noted,

> Key resources and tools that we use for our self-organised learning are past exam papers. They help us consolidate our knowledge on the chosen topic and understand the methods needed to answer each type of question.

By working through these past papers, the subjects were able to identify gaps in their understanding and focus their studies on areas that required further attention, ultimately leading to a more comprehensive grasp of the course content.

Each tool contributes to the AS of understanding and mastering course content by addressing different aspects of the learning process. The understanding content tool focuses on directly engaging with and understanding the course material, while the collaborative and communication tools enhance participants understanding through collaboration and communication with peers. The assessment tool serves as a practical tool for self-assessment, allowing participants to measure their mastery of the content and identify gaps in their knowledge.

5.3.1.5 Division of labour

Within this AS, the subject typically assumes various roles and responsibilities, each contributing uniquely to the group's effectiveness. These roles include the organiser, team member and leader.

The organiser aids in coordinating activities and resources to achieve the group's learning objectives. This person is responsible for setting up study sessions, ensuring access to necessary materials like lecture notes, videos, past exam papers, and managing logistics such as scheduling meetings and assigning tasks. The organiser ensures the study group remains focused and on track, facilitating a structured approach to understanding and mastering the content. As Chima, Quantum Physics student explained,

> I think if I know the task or the project very well, I prefer to be the organiser because I can guide the ship in the direction, I want it to go. When I have confidence in what to do, it's more beneficial for me to organise and help others come along with me.

The team members actively participate in the collaborative learning process, contributing to discussions, sharing insights and supporting their friends. They engage in group activities, such as reviewing course materials, practising with past exam papers and discussing concepts to clarify understanding. Team members bring their strengths and knowledge to the group, helping fill gaps in understanding and reinforcing collective learning. This role is vital in creating a balanced and supportive environment where all members benefit from shared knowledge and perspectives. As Nonso noted, "Everyone will need to review and do the given task; the person that feels most confident with the topic will lead the discussion". Similarly, Chika, Clinical Pharmacology student, highlights,

> Our approach varies based on the task. Sometimes we share topics, breaking them into different subheadings, and assign each person to research and present their ideas. Other times, it's more spontaneous, as we discuss topics that we already have some knowledge about.

Chima, Quantum Physics student, highlighted the dynamic nature of these roles, noting,

> If there's a module where I'm not as confident, then I'd prefer to be in the other seat, just being told, 'OK, this is the approach we're going to take,' and then we can work from there.

This flexibility allows individuals to switch between leading and following based on their expertise and confidence in a given topic.

The leader guides the group, providing direction and motivation to achieve learning objectives. This individual often has a strong grasp of the course content and uses their expertise to help others understand complex concepts. The leader facilitates discussions, ensuring everyone has the opportunity to contribute and that the group stays focused on their objectives. According to Nonso, a Chemical Engineering student,

> The 'smartest/most confident 'person in the group, is the one that leads the group through the content as they understand it by teaching the others in the group, not only sharing knowledge but also reinforcing what they know.

While the leader and organiser roles can overlap and are dynamic and may shift between subject depending on the task or the group's needs. For instance, a team member might take on the role of leader during a discussion on a topic they are particularly strong in. This flexibility allows the group to adapt to different challenges and ensures all members have the opportunity to contribute effectively.

5.3.1.6 Rules

Within this AS, subject did not feel there was a need for rules due to the informal nature of SOL, however as time went on, they decided to put some rules to ensure that the group remained focused, productive and collaborative. Below are the key rules identified within this AS:

No Phones: To minimise distractions and maintain focus, the group implements a strict 'no phones' rule during study sessions. This rule is essential because, as Kara, a medical student, mentioned,

> People would come with their phones, so there could be distractions... there had to be rules. OK, within this time we are going to put our phones on silence... to avoid distraction because your phone could distract me as well, and then we end up not achieving what we want to achieve.

By agreeing to keep phones on silent or away, the group ensures that everyone remains engaged with the task at hand.

Everyone Must Attempt the Task: One of the group rules is that everyone must attempt the tasks set during the study sessions. This rule encourages active participation and ensures that all members are equally engaged in the learning process. As Nonso noted, “We also agreed on not checking the answers till everyone has attempted the question; we then compare, and the one with the correct answer leads in the discussion to explain to the group”. This approach not only fosters a deeper understanding but also promotes accountability within the group. It encourages independent problem-solving, ensuring each person participates fully before group discussion.

Unspoken rules: There are unspoken rules that help maintain a respectful and productive environment where everyone’s contributions are valued as Chika notes, “… sometimes, especially with mature students, unspoken rules emerge... you learn to listen and understand that, regardless of your own opinions, it's important to consider the perspectives of others”.

Taking Regular Breaks: Recognising the importance of maintaining focus and preventing burnout, the group incorporates regular breaks into their study sessions. Nonso explained, “We agree that we take regular breaks … to ensure that total focus is obtained, and it feels like a reward after we finish”. These breaks help sustain energy levels and keep the atmosphere positive and relaxed.

Make the Learning Fun and Relaxed: The group emphasises the importance of creating a fun and relaxed learning environment. While the object is to understand and master the course content, the group understands that a positive atmosphere enhances learning. As Chima pointed out, “The main thing was it is not just a general

socialised time; it is actually time to do work". However, by keeping the sessions enjoyable and not overly rigid, the group maintains a balance between focus and relaxation, which might support better learning outcomes.

5.3.2 Contradictions

5.3.2.1 Unfulfilled Commitment Contradiction

This is a secondary contradiction, it occurs between the subjects (group of friends) and the division of labour (how tasks are distributed and executed). It emerges when there is a misalignment between the agreed-upon tasks and the actual contributions of group members.

This contradiction manifests when some group members do not uphold their agreed responsibilities, such as watching the lecture videos or pre-reading lecture notes before a meeting. This lack of preparation creates inefficiencies during the study sessions, as more time is spent revisiting content rather than progressing through new material. As Nonso, a Chemical Engineering student, mentions,

> Sometimes we agree on reading a certain lecture note before meeting to make it easier to collaborate and reduce time wasting; however, if one of us does not do this, it usually slows us down as more time is spent revisiting the content and explaining.

The inefficiency caused by uneven participation can lead to tension within the group, as it can affect the group's ability to collaborate effectively. It can lead to frustration, diminished group morale, and potentially lower learning outcomes if not addressed. However, subject tend to address this issue through peer support and encouragement as noted by Chika," ...even when I'm not in the mood to work, I'm forced to because I don't want to let them down. I'm encouraged, …, rather than judged". A proactive approach, where friends encourage and motivate each other, can help reduce lapses in commitment while maintaining a positive group dynamic.

5.3.2.2 Internal Distraction Contradiction

This contradiction is a primary contradiction which emerges within the same element (the subject – group of friends). The group of friends serves dual roles as both learners and social companions, which creates a tension. While their friendship supports collaboration and continuity in the SOL activity system, it also leads to distractions, where some members might not really engage and are more focused on the social aspect. As noted by Henry “Some members are not as focused, which leads to additional distractions”. Similarly, Kara points out, “Lack of focus, so distractions sometimes occur. So there could be one or two persons that are not really maybe at a particular point, they're not really ready …So it derails us from what we actually want to achieve”. Chima also acknowledges this issue “Distraction is a big one in terms of, especially when you're with your friends. The discussion can easily go off course and you know, into things that are not particularly important…”

This contradiction is significant as it impacts the effectiveness of study sessions, slowing progress and reducing overall productivity. While subjects acknowledge the importance of setting boundaries, in order to navigate this contradiction, they admit these measures are not foolproof. Chima, admit that working alone might seem like a more focused solution “I guess if you did it by yourself, at least you know you'll be focused, there would be no time to be talking to anyone” but emphasise the unique value of group support that can't easily be replaced as noted “…but it's not as efficient as working together as a group and also it's just more stimulating as well, when you're working together”.

5.3.2.3 Content Delivery Contradiction

A quaternary contradiction emerges between the tools (lecture videos) in the HE formal activity system and the object (Understand and Master the course content) in the SOL activity system.

The *Content Delivery Contradiction* arises due to a mismatch between the students' ability to efficiently process and comprehend course content and the nature of the tools they are using. The lecture videos, which are meant to facilitate understanding, instead become a source of frustration due to the extensive time required to watch

and take notes effectively. This makes it challenging for students to keep up with the pace of their learning objectives. As Nonso, a Chemical Engineering student, highlights,

> ‘It's overwhelming sometimes, trying to keep up with the videos and make sense of everything in such a short time, just watching a video can take two to three hours as you are trying to make notes so you have to keep pausing the video’.

This highlights the tension between the tool’s intended object (to aid understanding), and the practical difficulties students face when using the tool.

The *Content Delivery Contradiction* impacts the students' ability to efficiently manage their study time and achieve the learning outcomes. The overwhelming nature of the task can lead to decreased motivation, burnout and an overall sense of being behind. However, groups of friends started addressing this contradiction by collaborating to divide the task of watching lecture videos, with each member summarising key points and sharing them with the group (see section 5.3.1.4.4). This approach reduces the individual time burden while ensuring that everyone benefits from the material, allowing the group to collectively keep pace with their learning objectives.

5.4 Exam Preparation Activity System

This section addresses SOL AS in which the object is Exam Preparation. Exam Preparation highlights the goal-oriented nature of the activity and situates it within a broader social and cultural context, considering how various elements interact to influence the activity. This helps in understanding not just the subject’s actions, but also the collective processes and structures that shape the activity.

Figure 5.2 represents the Exam Preparation AS and its inherent contradictions. The following section elaborates on the elements of this AS and its contradictions.

5.4.1 Elements of the Activity System (AS)

5.4.1.1 Object

In this AS, the object of activity is exam preparation, which provides direction and purpose to the activity. The subject's focus is on being well-prepared for exams. The intended outcomes for the subject involve not only passing the exam but also building confidence, enhancing their understanding and achieving a high score in the exam. Dante, a Computer Science student, reiterates the object of activity.

> I've made group revision sessions a key part of how I prepare for exams. It's become a staple thing to organise or join study groups where we review material together and test each other's understanding. For example, I have an exam coming up in about a month, and my group and I have already started preparing through discussions in our group chat. As the exam gets closer around two weeks before we plan to meet in person more frequently, likely on a daily basis, to revise and practise collaboratively.

Similarly, Henry highlights the object of the activity "… towards exam season we set out to do a past paper, we will have the objective of completing it". However, the deeper motivation behind this object extends beyond just preparing well for the exams. As Ulric, a Sport Science student, emphasises, "The motivating factor is wanting to do well in exams and eventually in the job, when you have to do it for real, like a patient in medical context anyway". Here, Ulric highlights how the object of exam preparation is not merely about short-term academic success but also about preparing for the realities of future practice.

Asher, a Clinical Anatomy student illustrates this further by discussing the unique challenges posed by practical exams, like Objective Structured Clinical Examinations (OSCEs),

> … I found myself trying to do my practical examinations, like asking questions to a teddy bear. And obviously, the teddy bear can't answer back. So it's a bit

> harder to actually do something yourself, but we found ourselves self-organising a lot, like meetings with other students to try and learn how to do these OSCEs examinations properly.

Asher's experience highlights the importance of collaboration, as certain exam skills especially practical ones, are more effectively developed through interaction with others. Ebube, Pharmacy student, reinforces this importance:

> Self-organised learning is very helpful, especially with any of the clinical subjects at university 'cause we have to do OSCEs. So without people to practice with, like in person, it would be a lot harder. So it's good to practice doing the oral exams with other people.

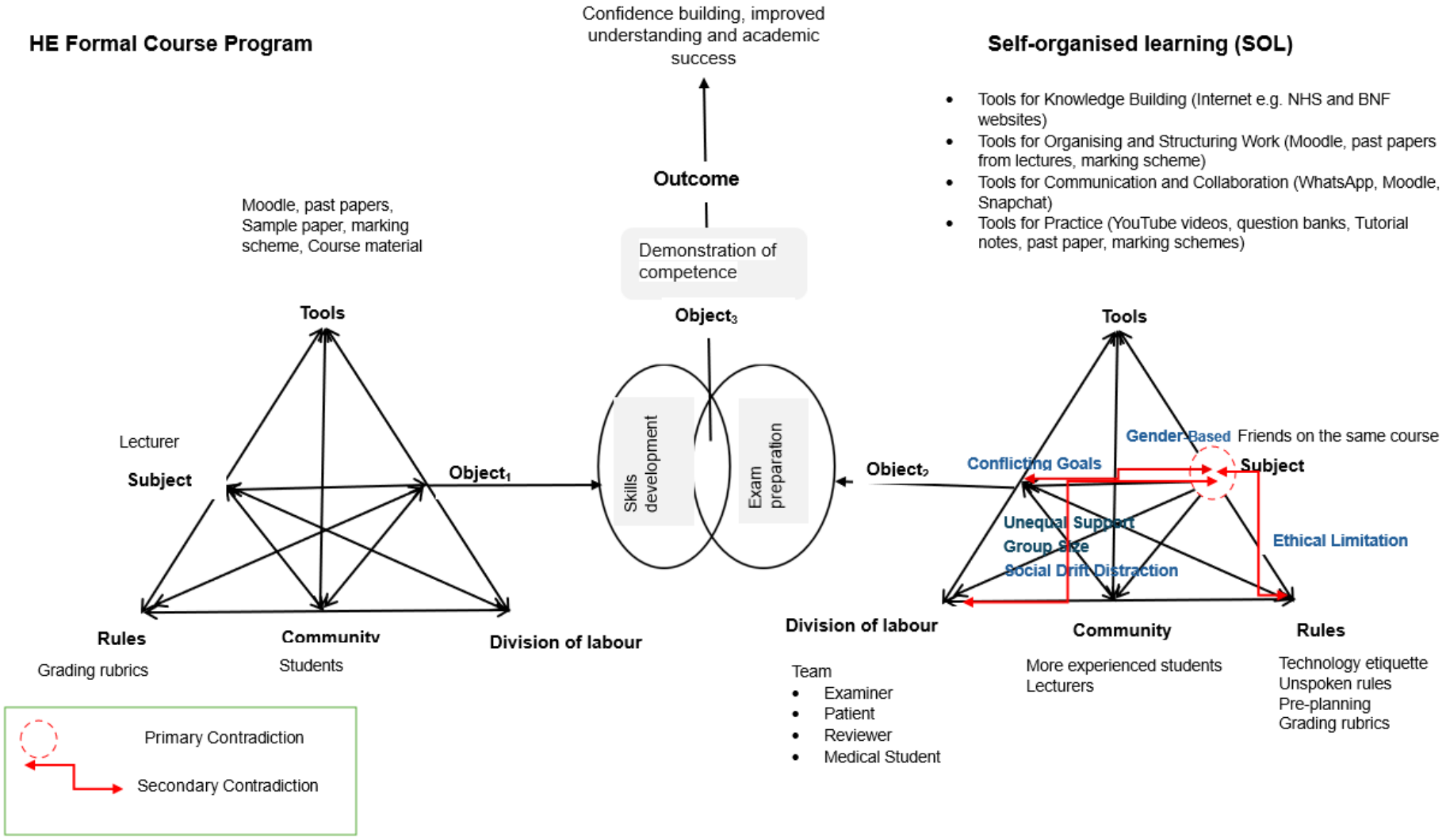
By practicing with peers, students can refine both their practical and interpersonal skills in realistic scenarios. Ebube also notes how repeated practice improves performance: "…and obviously your consultation skills get stronger as you do more of those professional practice sessions". This iterative practice not only prepares students for the exam but also sharpens their skills, which are vital for success in both the exam and future settings. In addition, Ulric, a Sport Science student, views it as a form of peer support.

> Sometimes it's nice to just like help people if you think that you're quite good at something and you can help someone else learn it better. Sometimes it's nice to like just meet up anyway, if you're just meeting up with your friends, you can have a chat as you work, so it's nice.

The aim of this collective effort, as Ebube points out, is for everyone involved to achieve the best possible score: "The overall goal is just to help everyone get as high a score as possible, really". This collaborative environment fosters mutual learning, as students help each other improve by sharing knowledge and practicing exam scenarios together. Ulric remarks, "... it comes down to wanting to do well yourself and you can also learn from other people…"

Figure 5.2

Exam Preparation Activity System



5.4.1.2 Subject

The subject in this AS are friends on the same course, working collaboratively to prepare for their exams. According to Ebube “To organise learning with other people means that, like you're learning things that you actually kind of care about and you're motivated”. These subjects are active participants in the learning process, sharing their knowledge and providing feedback to help one another improve. Nonso, a Chemical Engineering student, provides an insight on how they work.

> I’ve found that things usually work best, like, two or three weeks before exams, everyone is slightly stressing a bit and that’s normally when everyone starts coming together, you know, working as a team. We will pick up a paper and we’ll all sit down and go through it together. We make sure we answer every single question, no matter how long it takes. Sometimes it’ll take, like, four hours, and with discussions and breaks it can end up being six or seven, but it’s actually really good, ’Cause, like, everyone’s at different levels, some people know more about certain topics, some people are still figuring things out but we all help each other. It’s more of a team effort and no one really feels like they’re doing more than anyone else or getting left behind.

Asher emphasises the importance of working with different people, “...learning with different people, because people will react differently. I can't just read it off a script because every patient’s going to be different”. By working collaboratively, subjects not only practice their skills but also develop adaptability, learning how to respond to various scenarios.

Asher, a Clinical Anatomy student also notes the benefits of group learning for personal improvement and time management*:*

> It's a great help to help you and figure out what you need to learn and what you are weak at and what you're strong in. Really good for time management in the individual exam.

Similarly, Henry, a Computer Science student highlights “getting more familiar with exam questions and knowing how to solve them better”’. Through these group sessions, subjects gain insights into their own strengths and weaknesses, allowing them to focus on areas that need improvement while also managing their time more effectively during exams.

Kara, a medical student adds another perspective, emphasising the diversity of thought that group learning brings, “Getting it from other people's perspectives, then everybody brings their own thoughts, different thoughts. Someone may explain it better or get it better than you, and you just pick it up from there”.

This collaborative environment fosters a richer learning experience, where subjects can learn from the varied approaches and explanations provided by their peers. Ulric also highlights the value of role-playing in group practice*,* “Nice to do in groups. We can pretend that like your group members are patients, or you know, I'll be a patient and they'll be like the pretend doctor examining me or taking history”. Furthermore, Ulric, a Sport Science student, touches on the emotional safety that comes with practicing among peers:

> ...Sometimes it's nice to be in an environment where you're not afraid of messing up. You don't want to mess up in front of a patient, but you can, you know, get stuff wrong in front of your peers.

This safe learning environment encourages experimentation and learning through trial and error, without the pressure of making mistakes in a real-life setting. The subject engages in collaborative learning, where they support each other’s exam preparation by offering feedback, simulating real-life scenarios and fostering a sense of safety that allows for constructive mistakes. Through this peer interaction, the

subjects enhance their own understanding while contributing to the success of the whole group.

5.4.1.3 Community

The community in this AS provides shared knowledge, resources and experience, acting as a collective source of support for the subject. This community helps in driving the activity, fostering collaboration, encourages feedback and guides the subject through the learning process. As Kara, a medical student, notes, the role of more experienced students in the HE community is essential for providing direction:

> When it comes to writing all these academic exams, professional exams, I mean there are people who have gone ahead of us, people who have passed. So these are people, they come with their own experience. This is what we experienced during our exams. How it should be? So I think with their knowledge, they're the ones who put us through.

Here, Kara highlights how experienced members of the community contribute to guiding less experienced students. Their insights, based on real-world experiences, offer valuable knowledge about how to approach exam preparation. This sharing of expertise shapes the learning strategies of the subject, helping them to better understand what to expect and how to succeed.

While the immediate community includes peers and more experienced students, the lecturers also play a significant, though indirect, role in the students' exam success. Lecturers not only provide study materials and practical resources, but they also offer professional guidance through regular sessions, ensuring that the students are aware of exam expectations and know how to meet them effectively. Ebube notes, "We always have professional practice from our lecturers, like sessions throughout the different modules. I feel like every two weeks". These ongoing practice sessions help students hone their skills, receive expert feedback and stay aligned with the standards required for success in both exams and future professional practice.

5.4.1.4 Tools

The tools within the Exam Preparation AS play a pivotal role in mediating the relationship between the subject (friends on the same course) and their object (exam preparation). Tools serve as both physical and conceptual instruments that enable the students to achieve their objectives more effectively. In this case, four distinct categories of tools were identified based on their function in the exam preparation process and these tool mediation forms are as follows

- Tools for knowledge building: websites such as National Health Service (NHS) and British National Formulary (BNF)
- Tools for organising and structuring this work: Moodle, marking scheme and sample paper
- Tools for communication and collaboration: WhatsApp, Moodle, Snapchat
- Tools for practice: Lecturers sample questions, past question papers and marking schemes, patient information leaflet.

5.4.1.4.1 Tools for Knowledge Building:

These tools help students gather and deepen their understanding of both theoretical and practical components of their exams. Example, the NHS and BNF website serve as key resources, providing accurate and up-to-date information. As Ebube explains, *'We use the NHS website quite a lot, it gives one different ailments, so it tells you the symptoms they have for each one—then for side effects and interactions, we use the BNF'* .These tools help the students build their knowledge base by offering reliable reference points that aid in decision-making which is essential for success in their exams.

5.4.1.4.2 Tools for Organising and Structuring Work

Tools in this category help students plan, structure and manage their exam preparation. Platforms like Moodle provide students with course materials, marking schemes, sample papers, and practical guidelines for structuring their work during exams. As Ebube notes, "My university uses Moodle….. If there's an OSCE exam, they'll have practice questions and example questions. Also, we have the mark scheme that they use to mark us in the exam". These resources provide a clear

framework for what students are expected to do and how they will be evaluated. By using these tools, the students can structure their study sessions effectively, aligning it with the exam requirements. Ebube further reinforces this, "…so that's really good for structuring your consultation. And so we use that to make our own SOPs (Standard Operating Procedures)". This indicates how students are using structured guidelines to streamline their approach, ensuring they are practicing in a way that aligns with professional standards.

5.4.1.4.3 Tools for Communication and Collaboration

Effective communication is crucial in collaborative study groups, and tools like WhatsApp played an essential role in facilitating coordination and feedback. As Asher mentions, "When meeting with other students, someone will have to message on WhatsApp and then find a place and a time". WhatsApp is particularly useful for organising study sessions and sharing information quickly among the group. Apart from WhatsApp, other tools like Snapchat were used, as highlighted by Ulric, "WhatsApp's pretty easy to do sometimes I think a lot of people got Snapchat, so we were on Snapchat". These tools created a communication network that facilitated the group to remain organised and ensured everyone was aligned with the study plan. Ebube mentions how collaborative tools mediate the learning process: "We had sample questions that the lecturer provided, so we just go through those. We'll take turns being the pharmacist and then give feedback". This dynamic exchange of roles, facilitated by shared materials and communication tools, helped ensure that students are not only practicing but also learning through peer review.

5.4.1.4.4 Tools for Practice

Practice tools are essential for students to simulate the real-life conditions of their exams. These include resources like lecturers' sample questions, past question papers, marking schemes and patient information leaflets. Ebube highlights "patient information leaflet is like all medications. It is always a good reference. You can use that during exams as well". These materials provide quick access to essential information, ensuring that students can practice accurately and reinforce their knowledge. In addition, role-playing enabled by practise tools like sample questions,

helps students develop the skills they will need during the exam, as Ebube notes, “Like asking the right questions … just like the dialogue is what we're practicing”.

Additionally, question banks, YouTube tutorials and tutorial notes provide further opportunities for students to practice theoretical aspects of their exams. As Ulric mentions, “If we're learning theory, we often use question banks. You know, watch YouTube, like short YouTube videos and our tutorial material”. These tools allow for self-organised learning and provide a way to practice answering theoretical questions in an efficient manner, which complements the hands-on preparation for practical exams.

5.4.1.5 Division of Labour

In the division of labour within the exam preparation AS, roles and responsibilities are clearly defined to enhance learning and ensure that the process mirrors real-life exam conditions.

One key aspect of this division is how students alternate between different roles during practice sessions. Typically, groups of three or more students simulate exam scenarios by rotating between the roles of examiner, medical student and patient, reflecting the setup of actual practical exams. As Ulric, a Sport Science student, explains,

> So, you have someone that's practising doing the heart exams, whatever. Yes, the person being the patient, and then it's nice to have a third person to be the examiner because that's what it'll be like in your actual OSCE exams.

This structured rotation not only provides an opportunity for the person acting as the medical student to refine their skills but also allows the examiner to critically observe the practice, offering feedback.

Asher, a Clinical Anatomy student adds that being in different roles deepens the learning experience:

> We did it in groups of three. We have one acting as a patient, one acting as a med student, and one examiner. As the examiner, you notice what they’re

> doing right or wrong, and you can implement that into your own technique. As the patient, you feel when they do something that makes you uncomfortable, so you avoid that when you're practising.

This feedback loop from each role helps students identify strengths and areas for improvement, making the process highly reflective and iterative.Another dimension of the division of labour is seen in how the group allocates specific topics or tasks to different members to maximise efficiency in preparing for exams. As Kara, a medical student, explains,

> We found it was better to divide it... there were just particular topics, OK? You read this portion, you read this portion. What we do is that you are going to explain your own portion in your own words as simply and as best as you can, and then every other person takes their turns and does their own presentations.

This method allows each student to become an expert in a particular area and then teach the rest of the group, facilitating a collaborative learning environment where knowledge is collectively built and shared.

Feedback plays a central role in the division of labour in exam preparation AS, with each participant providing constructive input from their perspective. As Ebube explains, "We had example questions that the universities provided, so we just go through those. We'll take turns being the pharmacist and then give feedback on how they did on their consultation". This system of taking turns and offering targeted feedback fosters a collaborative environment where students can identify specific areas that need improvement. Ebube further elaborates, "Maybe like the pace of your consultation, just some highlighting stuff that you've missed out or that you could improve on". The feedback ensures that learning is incremental and continuously refined through peer input.

The division of labour also extends to the coordination of study sessions. Tools like WhatsApp are often used to organise these activities, with different students taking

on the responsibility of scheduling and managing group meetings. As Asher notes, “When meeting with other students, someone will have to message on WhatsApp and then find a place and a time”. This role distribution allows the group to remain organised and efficient in their study approach.

5.4.1.6 Rules

In the exam preparation AS, rules could play a crucial role in shaping how students interact with one another and maintain productivity. These rules serve as guidelines that ensure focus, minimise distractions and enhance the effectiveness of collaborative study sessions. While some rules are explicitly agreed upon, others evolve through unspoken agreements as the group work together over time.

Ulric mentioned that they had no rules however stated that no phone rule could be a good rule while acknowledging that phone usage had to be flexible as it can be a useful study tool. “I don't think we come in with any specific rules, no phones would be a good rule, but sometimes we're using them to check mark schemes”.

Technology etiquette: For virtual meetings, new rules emerged to ensure the smooth running of online collaboration. Kara explains that in these sessions, participants must adhere to specific protocols: “There are set rules... every other person mute. If you know you are not presenting, mute and listen... there are tools where you virtually raise up your hands, take your turn”. These rules help manage communication effectively in the digital space, ensuring that all voices are heard and that interruptions are minimised during discussions or presentations.

Unspoken rules: There are also unspoken rules that guide the group’s interactions. These informal agreements reflect the group’s shared goals and mutual understanding of boundaries. As Ebube notes, “I guess the unspoken rule is generally, let’s try and get some work done, ’cause that’s obviously the target of the session”. This unspoken rule reflects the collective focus on productivity and goal-oriented learning. The group understands that their sessions are meant for serious preparation, even if they don’t always explicitly state this at the start of each session. Asher brings up another unspoken rule related to ethical boundaries in exam practice “There are some examinations we obviously can't do on each other... we

might be asked to do that in the exam, but obviously we can't really practise that on each other. That's a bit too intimate".

Pre-Planned Task: The group's rules around preparation evolved with experience. Early on, they realised that showing up to sessions without a clear plan led to inefficiency, which prompted them to introduce more structured approaches. Kara explains, "Initially, we came together and agreed, OK, this is what we're going to do. But we found that took more time because we were not prepared... so we had to plan, OK, this is what we're going to do for the next session". This reflects a shift from spontaneous, less organised study sessions to more deliberate and goal-oriented meetings, where the tasks for each session are predetermined, ensuring they maximise their time together.

Grading rubrics: Participants talked about using the marking schemes and grading rubrics provided by their lecturers to ensure that they are following the guidelines in terms of the grading.

5.4.2 Contradiction

5.4.2.1 Conflicting Goals Contradictions

This is a secondary contradiction; it arises between the subject and the object. The tension here is between the individual goals (e.g., personal high scores) and the collective object of group (exam preparation). While the object of the AS is to prepare for the exam, some subjects may prioritise personal success, while others may focus on group learning, causing a conflict between these goals and the overall object of exam preparation. This can create friction, as Ulric noted, "...it comes down to wanting to do well yourself and you can also learn from other people…"

5.4.2.2 Ethical Limitation Contradiction

These contradictions arise between the subject (friends on the same course) and the rules (unspoken rule). This tension occurs because certain sensitive practical examinations that cannot be practised within the group due to their intimate nature, even though these types of exams may appear in the actual examination. The friends understands that while these procedures are essential, practising them on

each other could cross personal and ethical boundaries. As Asher highlights, “There are some examinations we obviously can't do on each other... we might be asked to do that in the exam, but obviously we can't really practise that on each other. That’s a bit too intimate”. This contradiction creates a gap in their ability to fully prepare for certain types of examinations.

5.4.2.3 Gender-Based Contradiction

This is a primary contradiction that arises within the subjects (group of friends). The tension occurs due to differing levels of comfort when performing mixed-gender interactions during practical exams. While the group shares the common object of exam preparation, internal conflicts emerge because some members may feel uncomfortable or are unable to perform certain physical exams. As explained by Asher, “A lot of these examinations require, like removing a shirt just to access the chest, like taking the heartbeat, listen to the lungs and guys and girls can't always do that together. So typically, boys will do it with boys and girls will do it with girls”. To navigate this discomfort, the group resolves the contradiction by splitting into smaller, gender-based subgroups for particular tasks, allowing them to maintain their focus on exam preparation while respecting personal boundaries.

5.4.2.4 Unequal Support Contradiction

This contradiction is a secondary contradiction that arises between the subject and the division of labour within the SOL activity system. This contradiction emerges from an imbalance in the exchange of help and support among group members. Although the aim of collaboration is to benefit all participants, the contradiction surfaces when one individual perceives that they are contributing more than they are receiving, leading to a sense of unfairness or inequality.

Ebube illustrates this imbalance, noting, “And sometimes you feel like it’s more one-sided in the help, you feel like you’re putting in more, and they’re not really giving any value back to you”.

5.4.2.5 Group Size Contradiction

This contradiction is a secondary contradiction between the subject and the division of labour. Participants indicated that smaller groups, typically between three and five members created a more focused and productive environment. Kara, a medical student, states her preference

> I prefer the smaller groups because it helps me participate more. Larger groups we have limited time, so not everybody is able to make their own contributions or even have opportunities to ask their questions there.

While Ebube notes, “The best study group we've had was like just four of us... all of us were contributing and getting a lot of value out of the sessions, and our sessions were more focused”.

However, contradiction seems to arise when there is a larger group as illustrated by Nonso “… I think between three and five is a good number …, six gets too big because there's more distraction”. Navigating this challenge might be having subgroups as stated by Ebube, “When there's too many people, sometimes you lose focus, or like you end up splitting into smaller groups anyway”.

5.4.2.6 Social Drift Distraction Contradiction

A secondary contradiction emerges between the subject (friends on the same course) and the division of labour. While students intend to collaborate on assigned tasks, this often conflicts with the inclination to involve in social activities as highlighted by Ulric, “Too much of a social thing and you can kind of get a bit sidetracked … it can go off on tangents and you're not very focused and then it can end up taking more time than it should have”.

The tend to navigate this contradiction by sometimes given themselves a time to focus on work then socialise and then go back to work again as illustrated by Nonso, “with peers it is easy to get distracted therefore we agree that we take regular breaks after every question answered and attempted to ensure that total focus is obtained and feels like a reward after we finish”.

5.5 Reviewing Coursework Activity System

This section addresses SOL AS in which the object is reviewing coursework. Based on the findings, SOL seem to emerge as an effective approach for students aiming to navigate complex course assignment. Using this approach student collectively review given coursework to determine effective strategies for tackling challenging questions. By leveraging the diverse strengths and perspectives of each group member, students are able to enhance their understanding, foster critical thinking and develop more effective solutions. The next section discusses the elements involved within reviewing coursework AS and encountered contradictions.

Figure 5.3 represents the Review Coursework AS and its inherent contradictions.

5.5.1 Elements of the Activity System

5.5.1.1 Object

Within this AS, the object of the activity is Reviewing Coursework. The outcome for the subject is to produce a high-quality assignment with the goal of improving academic performance. As Victor, an Architecture student notes, “To try to get the best grade possible, I have other people’s inputs and ideas that I can in incorporate in mine”. As the subject (Individual student) works toward this object, they might begin by working independently, like Zara, a Public Relations student, who starts by reviewing the questions on her own.

> I would usually kind of do the background work by myself like I would look at the question by myself and kind of deconstruct it and then usually sometimes if I'm feeling stuck or like if I'm just feeling a bit less motivated. I often invite my friends to study together at the library. This allows us to share insights, see what others are doing, and support each other in tackling the assignment effectively.

However, when faced with challenges, the subject may seek external support, transforming the object into a shared pursuit by involving others as highlighted by Zara above and reinforced by Victor, “If we are working on a coursework and we realise we are struggling, we might decide to set up a session to discuss the problem. ‘We all go to the library to do coursework…” Similarly, Caden, a Clinical Psychology student, adds

> Most would be on assignments that I find particularly challenging... I like to interact with some of my peers who are going through the same assignment and ask, 'Am I doing this correctly, or should it be done another way?

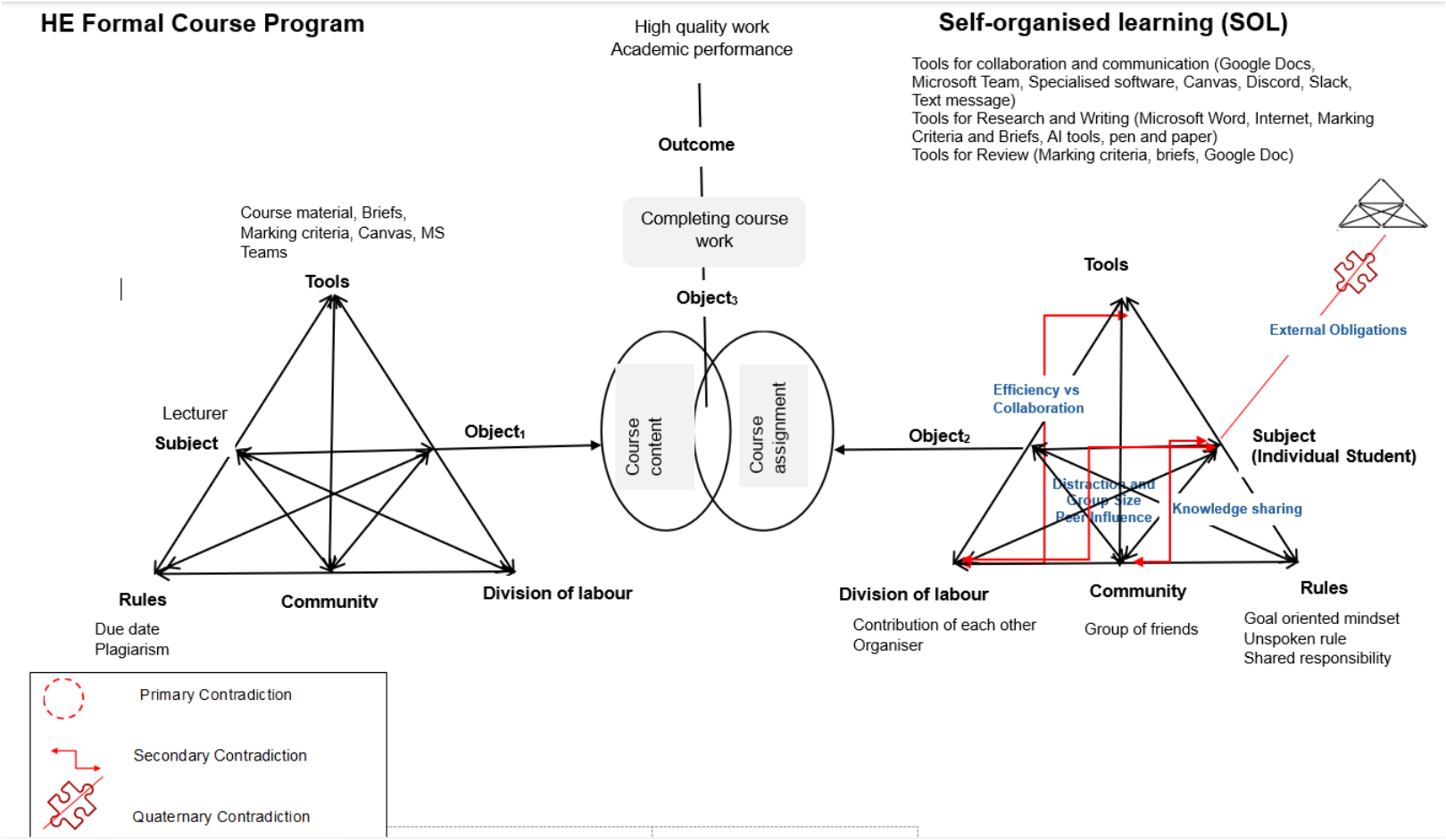
The object of this activity is influenced by the collaborative input of others, enabling the subject to overcome barriers and achieve a higher standard of work.

5.5.1.2 Subject

The subject in this activity is the individual student working on the coursework. Their initial engagement with the task is often solitary, focused on understanding and tackling the assignment. However, if difficulties arise, the subject may transition to a communal approach, where collaboration with friends becomes a key part of the process. Zara highlights “… I feel way more motivated to do an essay if we planned it, if I've planned it like in a group. ..... in a way like, I feel more like confident about writing it”. While Chika, Clinical Pharmacology student emphasises the importance of this collaboration:

> I actually find it very useful. I don't think I would have come this far without their support. Sometimes, life happens, and you're dealing with family, work pressures, and things like that, so having this support network is motivating…

Figure 5.3 *Reviewing Coursework Activity System*



5.5.1.3 Community

The community, represented by group of friends, plays a significant role in this AS. As Victor mentions, studying with others offers valuable insights and motivation, allowing students to incorporate diverse ideas and perspectives into their work. Similarly, Caden highlights how collaboration helps ensure understanding, with friends offering feedback and support when the coursework becomes particularly challenging. Chika's experience reinforces this, as she explains how her support network keeps her motivated and provides encouragement when facing personal challenges that could otherwise hinder her progress.

5.5.1.4 Tools

In the reviewing coursework AS, tools help facilitate the process of analysing, planning and producing high-quality academic work. Four mediating artefacts were identified that aided the subject to achieve the object. These tool mediation forms are as follows:

- Tools for Collaboration and Communication: Google Docs, Microsoft Team, Canvas, Discord, Slack, Specialised software, Text messages.
- Tools for Research, Writing and Reviewing: Google Docs, Microsoft Word, Internet, Marking criteria and Assignment briefs, AI tools, pen and paper.
- Tools for Assessment: Marking criteria, Assignment briefs.

5.5.1.4.1 Tools for Collaboration and Communication

These tools enable students to work together on assignments, share insights and build on each other's ideas. Zara mentions how Google Docs is frequently used for collaborative writing and brainstorming. "We can just all get on one Google Docs and like write things out and brainstorm within the Google Doc". This tool allowed them to work simultaneously on their work providing real-time feedback. It fostered teamwork by letting each group member add their ideas, comments and feedback. Victor also notes that the use of university computers to access specified software encouraged them to work together, "We use the university computers because they have some

software we can't get home…". Caden also reinforces this "…you actually need to be in person, because sometimes you have to use the resources at the university".

Tools like Discord enable students to coordinate effectively, ensuring that they can manage their time and communicate with friends efficiently. Caden highlights the importance of these communication tools: "You have to liaise with each other and find the time that you can all jump on a call, perhaps using stuff like Discord or Slack". These platforms facilitate group discussions, allowing students to share ideas, arrange meetings and keep each other updated. Victor highlights "We text to schedule our sessions". As illustrated by participants, whether through video calls or face-to-face meetings, effective collaboration and communication was key to staying on track and ensuring that all members were aligned with the coursework. In addition, the institution provides lectures on MS Teams and recordings on Canvas as a means of communicating with students and students can revisit these recordings to aid in completing their coursework. As explained by Chika "we have the lectures on team, and the recordings go on canvas…"

5.5.1.4.2 Tools for Research, Review and Writing

These tools are used primarily for gathering information, organising thoughts and producing the coursework. Zara uses the university's marking criteria to shape her work: "I go through that and then find things that like they use to mark with and put that down my plan". This tool guides the student's research and writing process, ensuring that the final product aligns with the academic expectations of the course. According to Caden, "We definitely use a lot of Microsoft Word. We are writing everything down there". For him, Microsoft Word is the primary platform for drafting, organising and refining coursework. Though simple, Caden mentions, "We often might use the standard pen and paper if we've got any notes down". Pen and paper are used for initial brainstorming and rough idea formulation before transitioning to digital tools like Microsoft Word or Google Docs. Google Docs acts as a reviewing tool, by working collaboratively, students provide feedback to each other in real-time. This shared platform allows for easy reviewing and revision based on received feedback.

5.5.1.4.3 Tools for Assessment

These tools are essential for ensuring that the coursework meets academic standards. Marking Criteria and Assignment Briefs provided by the lecturers serve a dual purpose, both for structuring the writing process and for reviewing. As Zara indicates “I go through that and find things they use to mark with and then put that down in my plan”. This self-review process ensures the coursework is aligned with academic expectations before final submission.

5.5.1.5 Division of labour

In the reviewing coursework AS, the division of labour is limited, as much of the task involves individual work, despite collaborative efforts. The process might initial start with individual review then transit to a collaborative review of the coursework, where subjects come together to discuss and understand the assignment requirements, share insights and brainstorm ideas. However, the actual production of work, including research, writing and completing the assignment, is done independently by the subject.

As Zara explains, “the collaborative thing probably would last like an hour, maybe two, then we go separately and start writing or finalising our own plan “. This is further emphasised by Caden, “…we would come together and help each other out and kind of explain to people are this is where I'm at as what I'm doing and kind of do some organised learning through that”.

This demonstrates that while there is collaboration at the outset, particularly in the planning or review stage, the bulk of the work is completed individually. Participants reported maintaining the personal nature of their assignments as a means of ensuring authenticity and avoiding plagiarism, with Zara confirming that “we all do our personal research” and that there is “not much division of labour” to preserve the individuality of their work.

There is, however, some informal role allocation in this system. For instance, an organiser often emerges who coordinates group study sessions or initiates

collaborative efforts. One student might take the lead as the organiser by arranging when and where the group will meet, as explained by Victor, an Architecture student:

> We'll ask each other if we're willing to come in tomorrow, and if most of us say yes, then everyone will end up coming. So, in the mornings or the next day, we'll just text, ask, 'what time do you want to arrive at the building or the library?' and then we'll all meet up together and go to the designated place.

This role is not formalised, but it illustrates how the organiser helps to structure the group study session, ensuring that everyone is aligned with the time and location.

Once the review session ends, the subject then returns to their independent work, as Victor points out: “We won't all do the same exact work, but we'll do the same topic... separately”. Therefore, while the activity of reviewing coursework begins with a shared, collaborative effort, there is minimal division of labour in the actual completion of the work. Each student remains responsible for their own research and writing, only turning to peers for occasional assistance or motivation if needed. Victor sums it up, “…We work independently, but if we need any help, we ask each other”. Thus, the division of labour is primarily centred around the collaborative review, while the doing of the actual task remains an individual effort.

5.5.1.6 Rules

In the reviewing coursework AS, rules provide structure and guidelines for how subject collaborate and work towards their objectives. These rules help maintain both the integrity of individual contributions and the effectiveness of group work. Goal-oriented mindset rule: Victor highlights the importance of leaving a review session with tangible progress: “Leave with more work done however small”. This ensures that time spent in collaboration and reviewing coursework is not wasted. Caden emphasis on reinforcing the importance of being purposeful during these sessions: “Coming to the learning session, wanting to get something out of it”. This rule encourages the subject to approach each session with a clear intent to achieve specific outcomes, driving their focus and determination.

Unspoken rule: Although collaboration is part of the learning process, there is a limit to how much assistance they should offer each other as Zara mentioned, “There's a certain boundary... because we all have our own essay…”. This ensures that each student remains responsible for their own work, preserving the individuality of their assignments and preventing excessive reliance on peers.

Finally, *shared responsibility* rules play a key role in organising group efforts. As Caden notes: “It's shared responsibility... we know to get here for this time and work our way through XYZ”. This rule ensures that everyone is accountable for the group's progress, fostering a sense of collective responsibility while maintaining individual effort.

5.5.2 Contradiction

5.5.2.1 Knowledge-sharing Contradiction

This is a secondary contradiction because it exists between the subject (Individual student) and the community (group of friends). This knowledge-sharing contradiction arises when the subject values their unique ideas but hesitates to share them in a collaborative setting. The subject is torn between contributing their insights to the group and keeping those ideas private to maintain an individual advantage. As Zara mentioned, “I feel like a lot of the essays that get high marks or stand out are unique. So if I feel like I have a unique point, I probably won't like to contribute it to the group”. This tension limits the depth of collaboration, as the subject may hold back on sharing their best ideas in order to maintain a competitive edge in individual performance.

5.5.2.2 Efficiency vs Collaboration Contradiction

This is a secondary contradiction; it reflects a conflict between the division of labour (contribution of each other) and tool (AI tool) used in the AS. While collaboration is valued, Caden finds individual work with AI tools faster and more efficient, reducing the incentive to participate fully in group activities. “I feel like I'm just quicker if I just do it myself or find it online, especially with things like ChatGPT and Google Now…”. The tension here is between the efficiency of individual work using Artificial Intelligence (AI) tools versus the slower, more interactive nature of group

collaboration. However, Caden acknowledges the benefit of the collaborative work particularly in challenging task, *"…*Most would be on assignments that I find particularly challenging. …am I doing it correct this way or is it this way … I like to Interact with some of my peers and like mates who you know are going through the same assignment".

5.5.2.3 Peer Influence Contradiction

This is a secondary contradiction within the subject (student) and division of labour (contribution of each other). The *peer influence contradiction* arises when peer feedback, while valuable might led to self-doubt and second-guessing. Differing opinions from peers during discussions can cause individuals to question their choices and approach. As Zara noted*,* "If I have chosen a topic different from others and we start discussing, I start second guessing myself". Similarly, Caden explained, "…Then I can kind of doubt myself or question my work if they've got different answers…". This peer influence creates hesitation and reduces confidence in the student's individual approach, potentially undermining the benefits of collaboration by introducing uncertainty instead of support.

5.5.2.4 Distraction and Group size contradiction

This is a secondary contradiction between the subject (individual student) and the division of labour. As group size increases, challenges arise, particularly in maintaining focus and ensuring balanced participation. Caden, a Clinical Psychology student, reflects on his experience in larger groups,

> I find that usually the smaller the number, the better, because it's more reflective and dynamic. When you have a larger number, the more likelihood you have one person doing the majority of the work. ...In larger groups, you sometimes feel like you are the one giving while others are taking, and you don't feel the benefit.

This imbalance can create frustration and reduce the learning benefit for both the person doing most of the work and those who are less engaged. Distractions are also more likely in larger groups. Zara observed that “when it's more than four people, it could be distracting”.

Participants often navigated this contradiction by opting for smaller groups, where contributions are more evenly distributed. As Caden observes, “Team roles are usually collaborative and effective when it’s about three people, as it’s more dynamic and reflective, …. There’s a sense of everyone bringing something to the table and everyone contributing”.

Smaller groups seem to foster a more balanced exchange of support, where each individual feels their efforts are recognised and reciprocated. However, some might not find distraction an issue as highlighted by Victor, “We are friends, so we tend to talk too much... but when I’m getting work done, it’s not that bad”.

5.5.2.5 External Obligations Contradiction

This a quaternary contradiction between the reviewing coursework AS and neighbouring AS. This contradiction reflects the challenges students face in balancing their coursework with other responsibilities, such as family, work, and health. As Chika highlights, “… it could range from family pressure, work commitments, to not feeling well or not diarising properly”. This failure to adhere to agreed-upon schedules, either by arriving late or not attending at all, disrupts the collaborative flow, as Caden mentions: “Just not turning up or being late affects the session…”. The participants try to resolve this contradiction through rescheduling as Caden suggests, “If you need to reschedule, you reschedule, and if you need to adapt, you'll do that”.

5.6 Skills Acquisition Activity System

This section addresses SOL AS in which the object is Skill Acquisition. The skill acquisition becomes a dynamic and student-driven process. This SOL AS allows students to take control of their learning experiences, particularly when they encounter gaps in the formal teaching environment. These groups emerge

organically, driven by the shared goal of mastering specific skills relevant to their academic development.

Figure 5.4 represents the Skills Acquisition AS and its inherent contradictions. The following section elaborates on the elements of this AS and its contradictions.

5.6.1 Elements of the Activity System

5.6.1.1 Object

In this AS, the object is the skill acquisition which could involve mastering the use of specific software and/or developing other relevant competencies. The subject (course mates) focus is being able to gain the necessary skills to complete tasks accurately and efficiently. The intended outcome is enhanced academic performance and mastery of relevant skills. Alina, a Renewable and Sustainable Energy Technologies student, highlighted the value of this approach*:* “I find self-organised learning beneficial as the session helps us to understand the tutorial better, be able to do the assessments, have the technical skills to perform the task and it helps us to work independently”. This highlights how SOL extends beyond skill acquisition, promoting a deeper comprehension of the subject matter while fostering independence in learning. Additionally, Nonso noted how this learning approach encourages teamwork and development of key soft skills: “It enhances working as a team... this will give you communication, listening skills and patience”. These interpersonal skills, nurtured in the SOL environment, are invaluable in both academic and professional settings, preparing students for collaborative work and effective problem-solving.

5.6.1.2 Subject

The subject of this AS are course mates working together to achieve the common object of skill acquisition with the outcome of academic performance and mastery of skills. In this SOL AS, they collaborate to fill in the gaps left by formal learning. This collective effort is driven by the course mates themselves. Alina, a Renewable and Sustainable Energy Technologies student, experience exemplifies this dynamic:

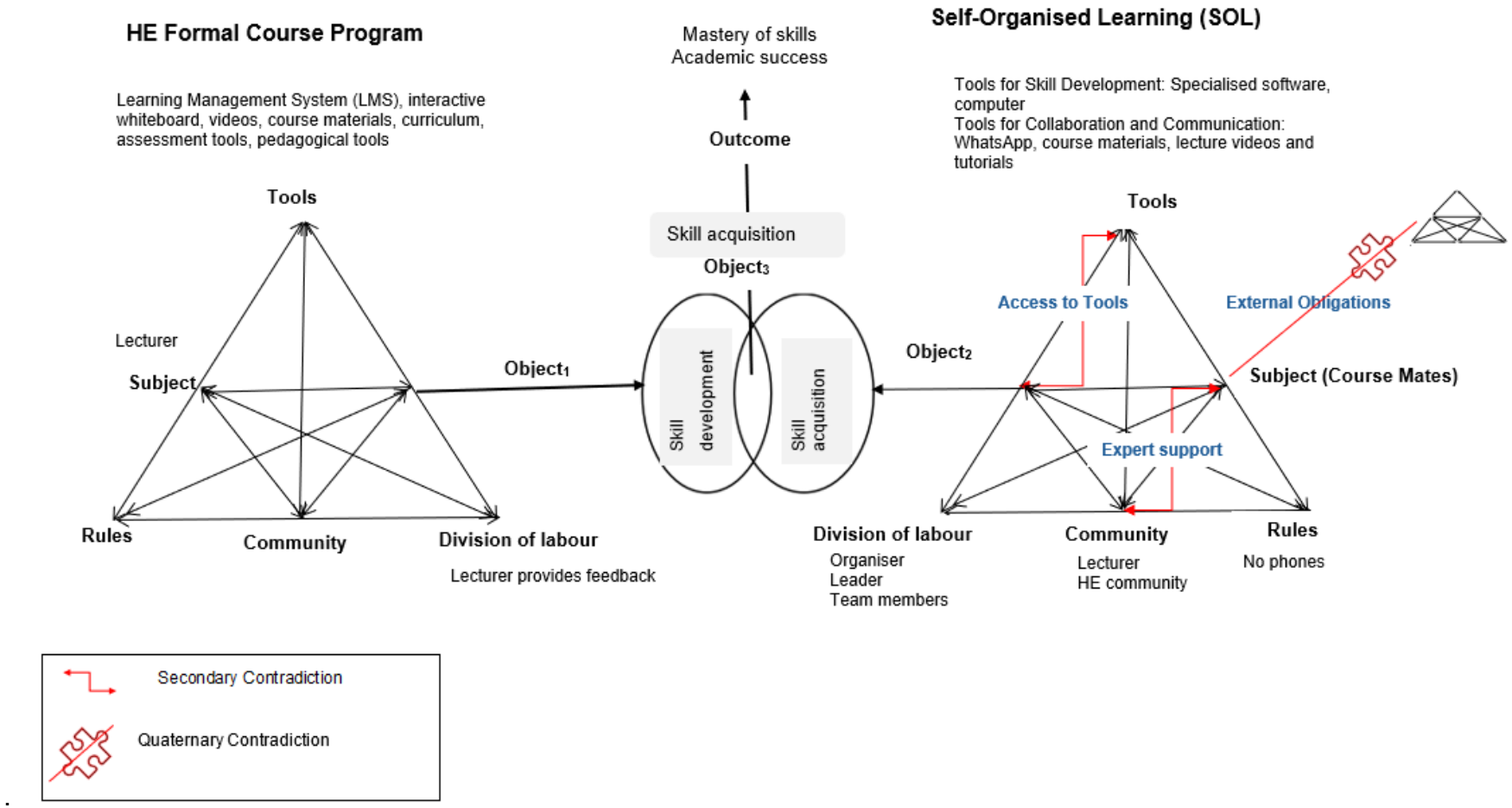
> An instance when a lecturer introduced a software which we were not conversant with, and he had no time to go through it properly with us, we decided to stay back after the lecture and try out the software. After that, we scheduled more time to meet up and learn more about the software.

This initial session sparked the formation of a SOL specifically aimed at skill acquisition. This seems to indicate how students take initiative in addressing learning challenges, stepping beyond the classroom to build practical skills through mutual support. By coming together, they create an informal learning space where experimentation, practice and shared exploration lead to mastery. Apart from skill acquisition, Alina explains the development of friendship and support that arose from this activity system “We’ve developed a deeper friendship, for example one of us just had a baby and we’ve arranged to get a gift and go and see him”.

Nonso further illustrates the benefits of SOL approach: “To ensure that at the end of the day... at least the 'weakest person' in the group feels like they gained more knowledge. And the person who's teaching feels they have now been enhanced in knowledge as well. Therefore, both sides benefit”. This learning dynamic not only uplifts the less confident members of the group but also reinforces the understanding of those who take on teaching roles.

Figure 5.4

Skill Acquisition Activity System



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5.6.1.3 Community

The community in this AS extends beyond the group of course mates to include lecturers, who play a key role in supporting the learning process. While students take the initiative in their learning, lecturers are relied upon to provide expert guidance and technical knowledge, particularly when the group encounters challenges, they cannot resolve on their own. Alina, a Renewable and Sustainable Energy Technologies student, sheds light on this dynamic:

> Sometimes we may hit a roadblock…, or we encounter a technical roadblock that nobody in the group can solve. In such cases, we have to construct an email and send it to the lecturer… most times, we do get feedback from lecturers.

The lecturers act as part of the broader learning community, while SOL is student-driven, it is not entirely independent. It benefits from and, at times, requires external support to ensure the successful acquisition of skills and knowledge.

5.6.1.4 Tools

Within this AS, the tools play a key role in mediating the relationship between the subjects (course mates) and the object (skills acquisition). Two main mediating artefacts were identified and categorised based on the function in the learning process. These tool mediation forms are as follows

- Tools for Skill Development: Specialised software, Computers
- Tools for Collaboration and Communication: WhatsApp, lecture videos and tutorials

5.6.1.4.1 Tools for Skill Development

These tools are essential for practising and developing practical skills, providing students with hands-on experience that directly contributes to their competency in the subject area. Access to computers with specialised software is crucial for the students' skill development. As Helen, a Digital Media Culture and Technology

student explains, “We have big labs that have the editing software we need”. These tools not only support current learning but also prepare students for their future careers. Helen, reflects on the significance of using industry-standard tools:

> The resources that we have at Uni like specialist software such as editing software are industry standard, kind of definitely sets you up for the future. You definitely know how to do it or at least have experience using it.

5.6.1.4.2 Tools for Collaboration and Communication

Effective communication is vital in coordinating group activities and ensuring all course mates are aligned on the goals and tasks. These tools help manage the organisation of study sessions. WhatsApp is used to manage communication and the organisation of collaborative efforts. Alina explains how they use it, “We have the organiser; the person sends out a text via WhatsApp with the topic to be covered, time, and the location…” WhatsApp is instrumental in bringing the group together and ensuring everyone understands the task at hand.

Lectures and tutorials also play an indirect role in communication, especially when students collaborate to understand complex topics. As Nonso, a Chemical Engineering student, mentions,

> If none of us got the answer and then if the lecturer put an example for the question, we'd all watch the video together because it'll make us all understand, or at least one of us would pick it up.

This communal effort is facilitated by the lecturer’s video materials, allowing students to clarify their understanding through discussion.

5.6.1.5 Division of labour

Within this AS, the subject assumes various roles and responsibilities, each contributing uniquely to the group’s overall effectiveness. These roles are not fixed but fluid, with students rotating responsibilities depending on their strengths,

familiarity with the subject matter, or the specific task at hand. This flexibility fosters an inclusive environment where all course mates, regardless of their level of expertise, can participate meaningfully. As Alina, a Renewable and Sustainable Energy Technologies student, noted,

> We have the organiser, the person who sends out a text via WhatsApp with the topic to be covered, time, and location. We also have the lead who takes us through the software, as he is very conversant with it.

In this example, the organiser coordinates the logistics of the study sessions, while the lead takes on a teaching role based on their knowledge of the software. This division of labour allows each member to contribute based on their strengths while promoting collaborative learning.

Roles are flexible, even those with less technical knowledge are encouraged to contribute. As Chima, Quantum Physics student mentioned,

> Even the people who know less can still have different tasks... maybe not a technical role. For instance, course mates with less expertise might take on roles such as collecting information, drafting summaries or asking clarifying questions that benefit the entire group.

This ensures that everyone, regardless of their skill level, feels included and plays an active part in the learning process. The collaborative nature of SOL is further highlighted by Helen, who emphasised how easy it is to engage in peer feedback: “It's easy to just show someone a part of the film and be like, Do you think I should do it this way or that way?’’ This level of collaboration, allows the team to receive feedback, review each other’s work, in addition to getting inspirational ideas.

5.6.1.6 Rules

Within the rules of this AS, there are no formal or strict guidelines governing the behaviour of the course mates during their SOL sessions. However, they have informally adopted practices that mirror those typically enforced by the university

during lectures. These shared norms help maintain focus and ensure a productive learning environment. As Alina, a Renewable and Sustainable Energy Technologies student, explained,

> There are no set rules, however we employ the same rule as we do within lectures, which is all phones on silence to avoid distraction. If anyone has to take a phone call, the person needs to step out to take the call to avoid distracting others.

This practice reflects the course mate's commitment to maintaining an atmosphere conducive to learning, where interruptions are minimised.

5.6.2 Contradiction

5.6.2.1 External Obligation Contradiction

A quaternary contradiction arises between the skills acquisition AS and neighbouring activity systems such as personal commitments, jobs or other responsibilities. As Alina, a Renewable and Sustainable Energy Technologies student, highlighted,

> Time is a factor, sometimes due to personal commitment (work), different schedules. We are not able to convey at a set time, we might have to reschedule, especially if the key person, the leader is not available.

In response to this contradiction, participants actively developed solutions through rescheduling and increased flexibility. By adapting to each other's schedules and using communication tools like WhatsApp to coordinate availability, they found ways to mitigate the impact of conflicting commitments.

5.6.2.2 Access to Tools Contradiction

This is a secondary contradiction as it exists between the tool (Computer) and the object (skill acquisition). Issues arise when the necessary tools such as computer labs with the required software are unavailable. Tension arises when limited access to these mediating tools cause interruptions and delays in the learning process,

forcing the subject to reschedule or change their plans. Alina, a Renewable and Sustainable Energy Technologies student, describes this tension:

> Not all computer rooms have the software, so we must make sure that the computer room that we want to use has the available software. Sometimes we've got another class that would like to use that software, which means we get kicked out and have to reschedule.

To address this issue, these course mates proactively check lab schedules and coordinating their sessions around times when the labs will be free and the software available, however this effort does not always work.

5.6.2.3 Expert Support Contradiction

This is a secondary contradiction as it occurs between the subject (course mates) and the community (lecturers). According to participant when they are unable to answer questions they rely on lectures for guidance, However, the delay in receiving instant responses disrupts the group's momentum and may force them to reschedule or pause their work. Alina, a Renewable and Sustainable Energy Technologies student, explains this situation:

> …, we have to construct an email and send it to the lecturer. Unfortunately, the response isn’t instant, and this might lead us to reschedule, as we might not be able to move forward to the next session…

Similarly, Nonso, a Chemical Engineering student suggests that

> Aren’t always that easy, and lectures are always busy, and lecturers sometimes don't really have the time to give to you so the next best thing is to work with your peers…, everyone has their own need. … own skill set, everyone knows what they're best at.

While they team recognised that delays in feedback could disrupt their workflow, they also developed strategies to keep moving forward. For example, they adjusted their schedules to accommodate the timing of the feedback. The fact lecturers responded to their request reassured them and allowed them to maintain momentum.

5.7 Knowledge Validation and Confidence Building Activity System

This section addresses the SOL AS in which the object is knowledge validation and confidence building. In this AS, friends actively participate in validating knowledge through peer interactions, discussions and shared experiences, using available tools and resources. This collaboration not only enhances individual and collective understanding but also fosters confidence as learners co-construct knowledge, solve problems and negotiate meaning. The system thrives on mutual support, where the group's collective efforts shape learning outcomes and reinforce the subject's ability to learn autonomously.

Figure 5.5 represents the Knowledge Validation and Confidence Building AS and its inherent contradictions. The following section elaborates on the elements of this AS and its contradictions.

5.7.1 Elements of the Activity System

5.7.1.1 Objects

In this AS, the primary object is knowledge validation and confidence building. The object drives the actions of the subject (group of friends) and serves as the central motivation behind their SOL process. For the group, the object becomes central as they work together, ensuring that their focus is not just on acquiring knowledge, but also on confirming what they know and building the confidence needed for both exams and real-life applications. Dante, a Computer Science student, emphasises this dual purpose:

> it’s just generally… like a confidence thing… each time you do it, in the back of your mind, it’s like, OK, yeah, I’m getting it. You know, at a similar pace to

the other people around me… and maybe that does result in… unconscious confidence when you go into the exam.

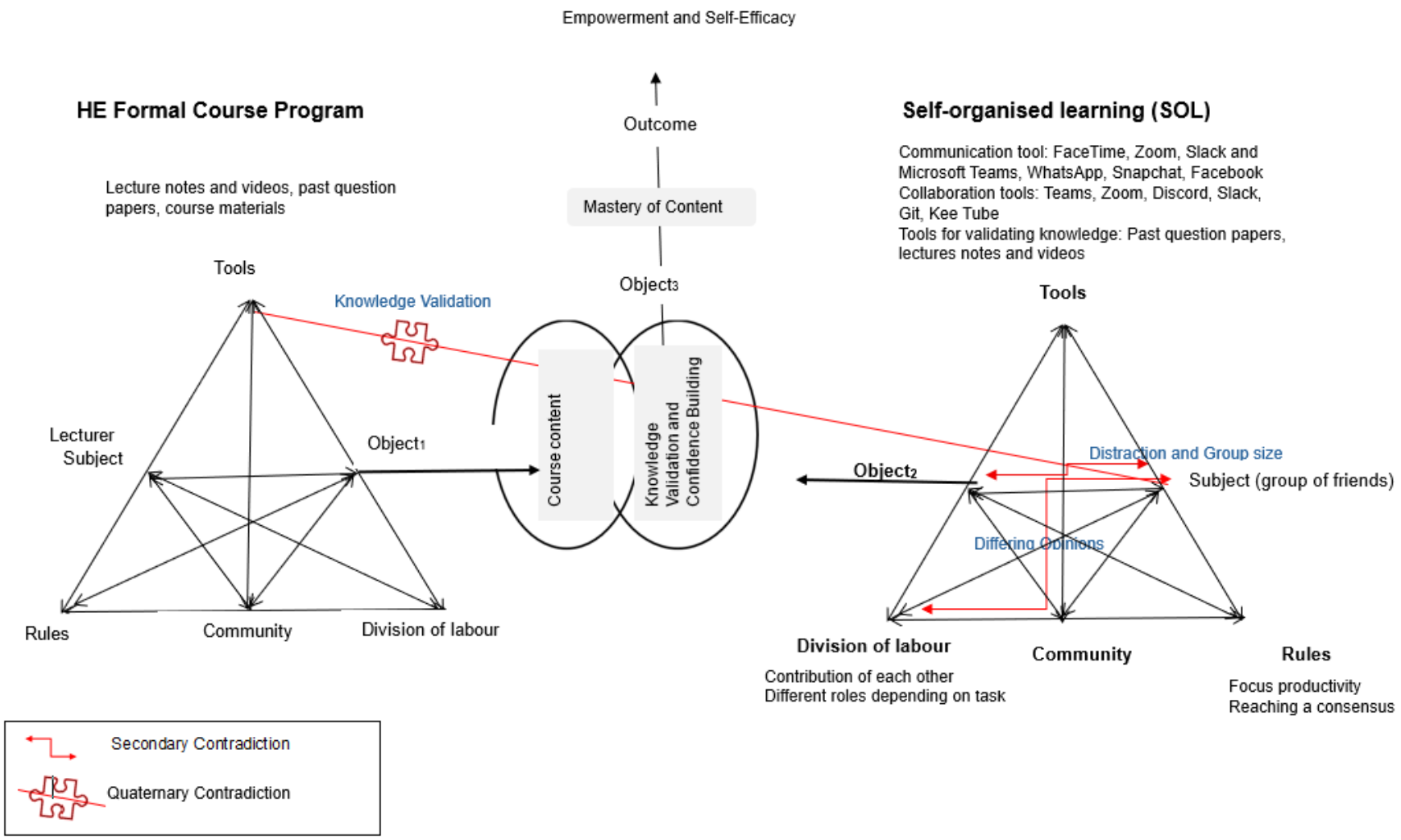
This insight highlights how the process of validating knowledge among group of friends indirectly contributes to building confidence. Initially, the group's activities are focused on collaborative learning. This includes discussions and revision sessions aimed at identifying and filling gaps in knowledge. Dante reflects on this early stage, “The first time it was going in... I’m using it as purely like a learning thing. So I’m using it to learn off the other person. Maybe they’ve had a bit more practice”.

Through this shared learning process with group members benefiting from each other's strengths and insights, each person contributes to building a foundational understanding of the subject matter.

The object of confidence building is also an important aspect of the group’s collaborative efforts. Ebube, a Pharmacy student, explains how these group sessions not only helped with knowledge retention but also bolstered their confidence, “It was surprising how much of the information you actually absorbed when other people are saying it...once you’re discussing it, you find out that you actually know more than you thought”. Ebube further adds, “And obviously your consultation skills get stronger as you do more of those professional practice sessions… You gain more confidence” This interaction highlights the dual nature of the object, to validate knowledge while simultaneously fostering confidence.

Figure 5.5

Knowledge Validation and Confidence Building Activity System



5.7.1.2 Subjects

The group of friends are the subject of this system, and they are primarily concerned with reinforcing their understanding and building their confidence. They engage in collaborative activities like peer discussions, mock assessments and teaching one another, using these methods to verify their learning and close any gaps. As Dante, a Computer Science student, describes:

> It starts off more of like a learning thing. And then by the end, it's more of like a verifying thing where...we're both confident... we just confer at the end... OK. Yeah, we both put the same answer on to the next question.

This shift reflects how the object changes in response to the learners' growing confidence, the verification process transforms from a learning process to a mechanism for confidence building. Initially, group revision sessions are used to assess individual levels of understanding and identify areas for improvement. Dante highlights, “It was really just to see what my level was to everyone else...when we're doing this paper, I'm using it as purely like a learning thing...to learn off the other person”. This approach highlights how collaborative learning activities allow students to compare their progress, learn from each other’s strengths, and collectively boost their preparedness.

These interactions build both knowledge and confidence, culminating in greater self-efficacy as learners gain trust in their abilities. Through these processes, the group not only validates their knowledge but also develops the self-confidence needed to perform well. This reflects the outcome of the AS, empowerment and self-efficacy.

5.7.1.3 Community

Within this activity system, there is a noticeable absence of a broader community. The group of friends is compelled to work together to tackle

questions and validate their knowledge independently. The absence of institutional support, such as official answers or feedback for past exam papers, pushes the group to rely on one another as their primary resource. As Dante, a Computer Science student, explains,

> Because the university don't provide much, and so the only way really to get around that is to practise and then compare answers with other people that have done it and sort of, you know, complete these past papers together.

This highlights how, without institutional guidance, the group of friends create their own system for learning and validation. Sach, a Computer Science student, adds that, “It’s up to students to share answers...to try and decide if they’ve got it right or not”.

The institution's regulations limit access to important resources, leaving the group to function independently, essentially becoming their own ‘community’. They exchange information, validate their understanding, and provide support, compensating for the institutional gap in feedback and resources.

5.7.1.4 Tools

In the knowledge validation and confidence building AS, various tools are employed to mediate the group’s collaborative learning efforts. These tools facilitate communication, collaboration and knowledge sharing, playing a key role in enabling the group of friends to validate their understanding. The identified mediating artefacts was categorised into the following mediating form each serving distinct functions within the AS.

- Communication tool: FaceTime, Zoom, Slack, Microsoft Teams and WhatsApp
- Collaboration tools: Teams, Zoom, Discord, Git, Kee Tube
- Tools for validating knowledge: Past question papers, lectures notes and videos

5.7.1.4.1 Communication Tools

The mediating tools digital communication platforms such as FaceTime, Zoom, Discord and Microsoft Teams, are used to facilitate real-time interaction and discussions. As noted by Sach, "… you have to liaise with each other and find the time that we can all jump on a call, perhaps using stuff like discord …" These tools allow the group to engage in virtual meetings, when in-person collaboration might not be feasible. Zoom and Teams offer additional functionalities which Dante highlights as useful "I like Zoom or Teams, they have the benefit of screen sharing". This feature allows members to share resources and work through problems together, reinforcing collective learning and validation of knowledge.

Tools such as WhatsApp, Snapchat, and Facebook support asynchronous communication, allowing the group to stay connected outside of any scheduled meetings. As Dante explains, "We made like a WhatsApp group chat where, if we do the same paper, we can ask, "Is this what you got". This enables them to compare answers and validate their work. Similarly, Sach mentions that the group uses multiple social media platforms to organise and coordinate study sessions, "Using things such as Snapchat, WhatsApp, Facebook…various different social medias to communicate with each other at a specific time". These tools help manage group logistics and facilitate easy communication, enhancing their ability to stay organised and focused on their object of activity.

5.7.1.4.2 Collaboration Tools

The group of friends use tools like Git and Kee Tube for version control and code sharing. Sach describes Git as a vital tool for collaboration on more technical work, "We use something called Git, which is how we collaborate with each other. We also use Kee Tube… a version control and source control to share code". Git allows the group to share and review each other's code, promoting a collaborative environment where they can learn from one another's

work. Kee Tube, another version control tool, helps ensure that the group can manage different aspects of their work. These tools allow them to collaborate efficiently. Sach, a Computer Science student, also highlights the popularity of platforms like Discord and Slack for collaboration:

> So like everyone's trying to get into software engineering now. I guess so, like Discord and Slack are like the main two which everyone uses because they're really good for like copying and pasting code, for example, and sharing code and stuff.

5.7.1.4.3 Tools for Validating Knowledge

The group of friends uses course materials like lecture notes, videos, and past question papers provided by the institution as a foundation for their study sessions to validate their knowledge. These materials guide their focus and help structure their discussions. As highlighted by Dante, “A lot of the times, the sort of questions we were answering, the actual work resources were already provided to us by the university, by the lecturer”. By engaging with these course-related materials, the group enhances their ability to self-validate their answers, especially when official feedback from the institution is limited.

The use of these resources is crucial in driving the overall object of the AS, which is knowledge validation and confidence building.

5.7.1.5 Division of labour

The division of labour within this AS evolves over time, with roles shifting as the group of friends progresses through their learning process. Initially, there tends to be a more experienced individual who takes on a leading role within the group. As Dante explains, “At the start there’s typically someone that’s maybe a bit more experienced ...and so maybe they act as a bit more of like a teacher”. This person guides the others, helping to clarify difficult concepts or providing insights based on their greater familiarity with the material.

However, as the group becomes more confident and familiar with the content, this division of labour becomes more collaborative. Dante notes that, “Once it’s happened a few times and we’re pretty close to the exam, it’s more of just everyone has a similar role of just all doing it...together”. At this stage, the group's dynamic shifts toward equal participation, with everyone contributing to discussions and using the group environment as a way to verify and check their understanding.

Sach, a Computer Science student explains how the group of friends try to mirror industry standards when assigning roles, explaining:

> In software engineering, at least, you have a scrum leader… so we use the scrum method and assign different roles like developers, tech lead, scrum lead, project manager. But inevitably, we all end up coding because it’s university, and everyone still has to code.

This reflects how, despite adopting structured roles similar to those in professional settings, the academic context requires everyone to participate in all tasks, ensuring equal involvement. Sach also points out that individual strengths can influence role assignment, “So if I know my friend's good at programming and Python, for example, you would delegate him to do like the back end or…”

This approach allows the group to leverage each member's strengths while still maintaining a collaborative environment, as they each contribute their expertise to different aspects of the project.

5.7.1.6 Rules

In this knowledge validation and confidence building AS, there are no formal rules. Instead, the group of friends operates with informal guidelines that naturally emerge from their shared object. These revolve around maintaining focus and achieving consensus to maximise the effectiveness of their study sessions. As Dante, a Computer Science student, explains, the group strives to maintain a balance between social interactions and focused work:

> Let’s focus on this, maybe it’s like 30 minutes. We focus on that one question, we compare, maybe there’s a bit of a chat again and then again sort of like a bit of a focus session.

This reflects a mutual understanding among the group to create periods of concentrated effort, where they work collaboratively on specific problems before briefly relaxing and engaging in conversation. This cycle of focus and discussion ensures that they stay productive, maintaining a flexible but purposeful approach to their learning.

Reaching a Consensus: In the group’s decision-making process, reaching consensus is important to ensure that all voices are heard and that the group moves forward with a shared understanding, as explained by Chima, Quantum Physics student, “Everyone gets a chance to discuss their own opinion...but we do generally realise that we have to push forward and make a decision”. This approach helps to resolve disagreements and ensures that everyone is in agreement before proceeding. As part of this, the group often compares answers and discusses different perspectives to arrive at a collective solution.

5.7.2 Contradictions

5.7.2.1 Knowledge Validation Contradiction

A quaternary contradiction arises between two different interacting activity systems, in this case, the *HE formal course program AS (Tools)* and the *self-organised learning AS (subject)*. This contradiction is rooted in the limitations imposed by university regulations, which often do not provide official answers for past exam papers. As a result, students rely on informal peer exchanges to determine whether their solutions are correct. As explained by Sach, a Computer Science student,

> Exams coming up and we want to do past papers, for example, for a specific exam and you know answers aren't released online for exam papers by a lot of university regulations. So it's up to kind of students to

> share answers of each other for past papers to try and decide if they've got it right or not, because there's no kind of source of truth I guess.

This is further illustrated by Dante, “the lecture has been very generous in uploading a lot of question papers, but there aren't any mark scheme”’. This creates a breakdown in the learning process as students are unable to independently verify their understanding solely through the HE activity system, as it fails to meet students' learning needs. Students address this tension by creating an SOL activity system where they collaborate with peers, cross-checking answers, sharing solutions and validating each other learning as further suggested by Dante, a Computer Science student

> Because the university don't provide much, and so the only way really to get around that is to practise and then compare answers with other people that have done it and sort of, you know, complete these past papers together

Students therefore rely on the shared solutions and interpretations between themselves.

5.7.2.2 Differing Opinions Contradiction

This is a secondary contradiction between the subject (group of friends) and division of labour (contribution of each other). This contradiction arises within the group dynamics when friends have conflicting opinions which can impede the learning process. Chima highlights this issue: “… if there are multiple people who feel confident on a particular problem...and they have contrasting opinions, then that could be problematic in terms of actually achieving the goal”. Differing interpretations of answers can slow down the group’s progress and affect individual confidence. However, the group of friends manages to navigate these challenges through communication, compromise and prioritising the collective goal. As Chima explains “Everyone gets a chance to discuss their own opinion...but we do generally realise that we have to push forward and make a decision”. This ability to reach a consensus is key to resolving the

contradiction. As Chima further adds, “I think it's just generally the fact that we're motivated to actually finish the goal … What we're working on helps us to actually navigate the situation without taking too much time…’”. By allowing open discussion, the group avoids being stalled by disagreements and ensures that the validation process continues.

5.7.2.3 Distraction and Group size Contradiction

This contradiction arises between subject and object, where the group size might lead to distraction and away from achieving the object as highlighted by Dante, a Computer Science student

> …. I think that what I mentioned though about the talking obviously as the group size gets bigger, there's more of those like potential distractions. So I'd say sort of I like anywhere from like one other person up to maybe like four or five other people's probably.

Again, larger group size leading to distraction is a major concern for participants.

5.8 Motivation and Peer Support

In this AS, the interplay between motivation and peer support forms a key part of how individuals engage in tasks and achieve their goals. In a study environment, motivation often fluctuates and support from peers can act as a vital resource to sustain engagement and productivity which is the intended outcome. This kind of collective approach to working, where individuals hold each other accountable and support one another, forms a powerful system that impacts motivation, progress and satisfaction with the task.

Figure 5.6 represents the motivation and peer support AS and its inherent contradictions. The following section elaborates on the elements of this AS and its contradiction.

5.8.1 Elements of the Activity System

5.8.1.1 Object

In the Motivation and Peer Support AS, the object is about maintaining and enhancing motivation through peer support and interaction. The object shapes the participants' engagement, where peer support serves as a key mechanism for sustaining focus, structuring time and overcoming academic challenges. The object is essentially the driving force behind the activity, as Zara, a Public Relations student explains: “if I feel stuck or less motivated, I often invite my friends to study together at the library …”

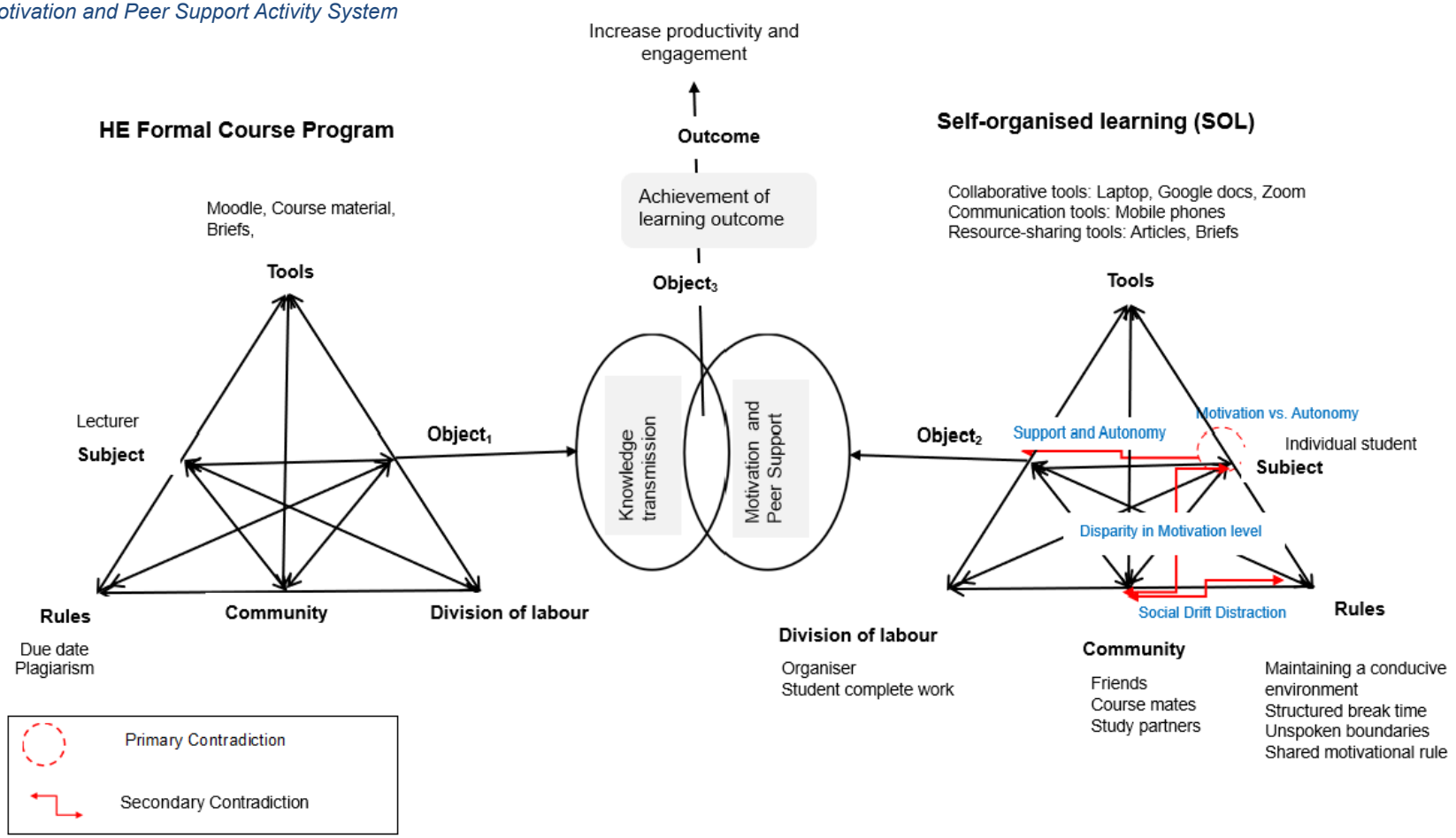
Here, the object is about leveraging peer support to sustain motivation and overcome challenges. In addition, this object shapes the actions within the system, guiding individuals to create structured environments where they can support each other. For instance, Elena, a Classics student highlights the importance of peer support:

> ... if we wanted to stay in the library for the whole day, it was quite nice to have friends to go to lunch with or just have a break with and walk around. It was also useful for sharing things if we needed to and asking for feedback in terms of the challenges we face’.

This indicates how the object fosters a supportive environment that encourages individuals to persevere through their studies while offering mutual encouragement and guidance. The peer support aspect of this object is further reinforced by Elena’s, “From my own perspective, working with other people is very motivating. Like, I found it extremely motivating”. The object of the activity goes beyond individual goals, encompassing the shared responsibility of maintaining motivation within a group. Hence, the object of this system is not just individual success but creating a collaborative environment that fosters collective motivation, where students can rely on one another for both academic and emotional support.

Figure 5.6

Motivation and Peer Support Activity System



5.8.1.2 Subject

The subject in this AS is the individual student, each with their own academic responsibilities and personal motivations. While these students may work on their tasks independently, they rely on peer interactions to stay focused and organised. As Victor, an Architecture student, describes, “… we motivate each other by helping each other in case there's anything we don't understand”. This is reinforced by Elena “…, I didn't have lots of group work, but I did often work with my peers in the library, we do our own individual work”. This highlights how peer support and collaboration are essential, even when individuals are pursuing their own specific academic goals. Each subject brings their personal objectives into a shared space where motivation is enhanced through the presence of others. This dynamic helps students’ better structure themselves while staying on track with their tasks, as Elena, a Classics student, explains:

> ...you weren't being held accountable necessarily by the university until you then had to write an essay. It was really important to structure your time well and I just found that much easier when I had other people that were also structuring their time in a similar way and then we can just go together and just sit and get on with our work. But just the fact that you've gone together actually motivates you.

This reflection emphasises how working in a shared environment with peers boosts individual motivation by providing mutual accountability.

5.8.1.3 Community

The community who contributes to this AS consists of friends, classmates or study partners, the community plays a crucial role by fostering a sense of mutual accountability and providing a supportive environment, helping to create a system where motivation is collectively reinforced. As Elena explains, “If I made plans with my friends, we'd make sure that we all went and we all studied,” illustrating how the community ensures accountability through organised, collective study sessions. She further elaborates on how she initiates group study by casually inviting her peers. “I’d

probably message a friend and be like, oh, are you free on whatever day? Do you want to go to the library and get some work done?". This highlights the community's role in maintaining a structure that supports motivation and peer collaboration. Zara reinforces this point, saying, "I'd be like to my friends, oh, would you like to come study at the library together? Because then it provides accountability". This underscores the importance of the community in creating an environment where individuals feel responsible not only for their own progress but for encouraging and supporting one another.

5.8.1.4 Tools

In this AS, tools play a role in facilitating, collaboration, communication and the overall support system. The identified mediating artefacts were grouped into three main categories based on their function; these tool mediation forms are as follows:

- Collaborative tools: Laptop, Google docs
- Communication tools: Mobile phones
- Resource-sharing tools: Articles, Assignment briefs and WhatsApp

5.8.1.4.1 Collaborative Tools:

These tools facilitate feedback among the friends, allowing peers to collaborate effectively on their individual tasks. Laptops were used by students to work on their assignments and projects while Google Docs aided in real time collaboration as Elena explains, "using things like Google Docs where you can share it really easily... I could just add someone to my document, and they could read it really easily and comment". This tool allows peers to provide instant feedback, improving the quality of work and fostering motivation through ongoing support.

5.8.1.4.2 Communication Tools:

These tools help students stay connected, coordinate activities and offer support when needed, they used mobile phones for quick and effective communication, especially when planning study sessions or checking in with one another. As Victor states, "We just text each other in the morning or the day... or we'll mention it the

night before". They use phone calls for more immediate discussions when needed, particularly for clarifying plans.

5.8.1.4.3 Resource-Sharing Tools

These tools are used for distributing study materials, articles, or other relevant content among the group. Digital articles or papers are often shared between students to aid in their independent study and discussions. As Elena points out, "A lot of the time it would involve sending through articles that we'd read". Sharing resources helps to deepen understanding and opens up further discussions among peers. Messaging Apps like WhatsApp was used to share resources, links, and files.

Each group of tools plays a complementary role, helping the subject (the individual student) engage effectively with the community (friends, course mates, or study partners) to meet their academic goals.

5.8.1.5 Division of labour

In this AS, the division of labour is often informal and flexible. While individual student typically works on their own assignments or projects, however, they sometimes provide assistance and feedback to each other in specific ways that help maintain motivation and progress. As explained by Elena, a Classics student:

> …I'd hand my piece of work over to them and they have a read through it. And so we also used to like, proofread and check each other's work before sending it off. That was a big thing.

Elena further reiterates how feedback is important within this AS

> I feel like the advice was quite different, so if they had good subject knowledge, it was more focused on the content of what you've written. But I found it quite helpful asking people that weren't familiar with the subject, because then they could give more feedback on structuring and argumentation.

Here, the division of labour involves leveraging each person's strengths, whether they are familiar with the subject or can provide an outsider’s perspective. This illustrates a form of division of labour where students individually produce their work but rely on peers for final checks and feedback, sharing the responsibility of ensuring quality.

The division of labour in this AS is therefore based on collaborative support through discussion and the exchange of feedback. Students work independently but coordinate through mutual assistance and accountability, however, there tends to be an organiser, as illustrated by Elena and Zara where they invite their friends to the library.

This informal but vital division of labour allows students to maintain independence in their academic tasks while benefiting from the support, accountability and diverse perspectives that their peers offer.

5.8.1.6 Rules

Rules aids in shaping the interactions and maintaining structure in this AS. These rules, help the subject (the individual student) engage effectively with the community (group of friends or study partners) to sustain motivation and provide mutual support while respecting boundaries and ensuring productivity.

One of the rules evolves around maintaining a conducive environment for study. As Elena, a Classics student notes,

> There are obviously the rules of how you interact in that space with other people in terms of don't be really noisy and annoying... keeping it quiet, keeping it short, which was useful for not getting distracted.

These behavioural norms ensure that the group can focus on their work while still allowing brief conversations or discussions, when necessary, without becoming a distraction.

Another implicit rule is the regular breaks during study sessions. The community follow a loose, shared schedule, which helps balance intense study periods to

prevent burnout. As Elena describes, “Have a little break after like 3 hours, then have lunch after another two hours. Have a little brief break in the afternoon and then go home”. This routine not only helps maintain motivation but also reinforces a shared understanding of when to rest and when to resume work, preventing excessive strain during long study sessions.

The community also follow certain unspoken boundaries in terms of seeking and offering help. While the system is built on peer support, there is a mutual understanding of limits. As Zara explains, “It's not like one of us is the teacher and the rest of us are learning... there's an unsaid boundary of how far you go in terms of helping people and asking for help”. This balance ensures that while support is available, students retain ownership of their individual tasks, promoting both autonomy and collective learning.

Lastly, a shared motivational rule guides the group’s behaviour, the desire to get work done. Victor points out, “The main incentive is to just get the work done and out of the way, so later on we aren't struggling as much with deadlines”. Elena also reiterates this “... to hold each other accountable basically of getting work done, that was the key thing I think …”

This rule serves as a driving force behind their collaborative efforts, motivating the group to stay on track and complete their work efficiently.

5.8.2 Contradictions

5.8.2.1 Motivation vs. Autonomy Contradiction

A primary contradiction occurs within the subject, particularly around the balance between motivation and autonomy. The individual student may rely on the group for motivation and support but also wish to retain control over their own work and learning. As Zara explains, “We just kind of want to keep our essays our own”. This reflects a tension within the student, as they navigate the need for both peer support and individual autonomy.

5.8.2.2 Support vs. Autonomy Contradiction

Another secondary contradiction arise between the object (motivation and peer support) and the subject (individual student) need for autonomy. While peer support is highly beneficial for maintaining motivation, there can be an underlying tension around how much help is appropriate to give or receive. As Zara points out, “There's an unsaid boundary of how far you go in terms of helping people and asking for help”. This boundary reflects a balance students must navigate between collaboration and independence, as Zara further explains: “It's more like discussion... because we want to keep our essays our own”.

This highlights the challenge students face in maintaining their individual academic responsibilities while benefiting from group support. Balancing collaboration with the need to retain ownership of their work is a way subject try to navigate this contradiction.

5.8.2.3 Disparity in Motivation Level Contradiction

A secondary contradiction arises between the subject and the community. It emerges when there is a disparity in motivation levels between friends within the community. This can lead to an imbalance in effort, where one highly motivated individual ends up doing most of the work while others in the group may rely too heavily on their efforts. Zara expresses this frustration: “It’s very easy for the balance to shift, and it goes from being collaborative to you just doing all the work and someone being like, oh, yeah, yeah, yeah”. The intention of mutual support can be counterproductive if some participants disengage, placing a heavier burden on others. This imbalance can undermine the collaborative nature of the system, potentially leading to frustration and disengagement for those carrying the extra weight.

5.8.2.4 Social Drift Distraction

This secondary contradiction arises between the subject (individual) and the community (group of friends or study partner) where social conversations can unexpectedly consume significant time, creating tension between the need for social connection and focused work. Elena notes “Someone will say something, and then

you end up having a conversation, and then all of a sudden you've wasted… half an hour or an hour". This highlights the tension between the need for social connection and the goal of productive work. This misalignment can disrupt motivation and reduce overall productivity.

5.9 Conclusion

In this chapter, I presented and discussed the findings of the study. Each activity system was examined in relation to the key elements of the activity theory framework, with accompanying diagrams used to illustrate these analyses. The identified contradictions within each system were then explored and categorised into primary, secondary and quaternary levels, supported by visual representations. Table 5.1 provides a summary of the main similarities and differences across the activity systems. The next chapter will further interpret these findings and highlight their contributions to the existing body of literature.

Table 5.2

The key similarity and differences across the Activity Systems

	Similarities	**Differences**
Subjects	Students often form peer groups voluntarily based on shared goals, friendship or academic alignment.	Composition varies: Most systems are formed through close friendships, while others emerge as due to task-specific needs (e.g. skill acquisition system).
Objects	All systems aim to enhance academic performance and emotional well-being.	Each AS prioritises different objects: • *Understanding and Mastering Course Content* (mastery of topics) • *Exam Preparation* (efficient strategies and practice) • *Reviewing Coursework* (clarification and improvement) • *Skill Acquisition* (e.g. developing competence in software usage) • *Knowledge Validation and Confidence Building* (knowledge development and self-efficacy) • *Motivation and Peer Support* (accountability and encouragement)
Tools	Common use of tools (e.g., WhatsApp, Discord, Google Docs, Zoom), adapted flexibly to fit task and group preferences.	Some tools are task-specific: • Specialised software in skill acquisition AS. • Google Docs in reviewing coursework system for effective collaboration
Rules	Mostly informal, grounded in mutual respect, accountability and shared norms	Rules tend to evolve depending on object of activity: • More structure e.g. Understanding and Mastering course 'content AS (everyone attempts questions before discussing answers) • More relaxed norms e.g. in the Motivation and Peer Support AS • Follow institutional rules e.g. in the Skill Acquisition AS

	Similarities	Differences
Division of Labour	Roles are fluid, students rotate between teaching, learning, and supporting based on strengths.	Certain systems started with more defined roles example • Skill Acquisition AS: those with prior experience guide others • Knowledge Validation and Confidence Building AS: more experienced students lead early, but role becomes more distributed over time.
Outcomes	Improved academic performance cuts across most of the activity system	Outcomes could be specific to the activity system e.g. • Skill Acquisition AS promotes technical competence. • Motivation and Peer Support AS increased productivity and engagement • Knowledge Validation and Confidence Building AS – Empowerment and Self-Efficacy
Contradictions	All systems encounter tensions, which students negotiate collaboratively.	Contradictions differ by context e.g. • *Content Delivery* in Understanding and Mastering course content AS • *Unequal Support* – Exam Preparation AS • *Knowledge sharing contradiction* in Reviewing Coursework AS • *Access to Tools* in Skill Acquisition AS • *Differing opinions* in Knowledge Validation and Confidence Building AS • *Support vs Autonomy* in Motivation and Peer Support AS

Chapter 6: Discussion

6.1 Introduction

This chapter presents a detailed discussion of the study's findings, addressing the research questions and exploring their broader contributions to the existing literature on self-organised learning (SOL) in Higher Education (HE). The chapter is structured into two main sections.

The first part, directly addresses the research questions, interpreting the key findings in relation to how students organise their learning, the objectives they pursue, the tools they use and the contradictions they encounter in their learning processes.

The second part of the chapter highlights the study's contributions to the literature, reflecting on how the findings advance our understanding of SOL and activity systems analysis in educational settings.

This chapter is organised as follows:

- Section 6.2 discusses the synthesis of the finding to create an overview of the key findings with subsections
    - Section 6.2.1 – 6.2.4 addresses the detailed subsections for each of the four research questions. Each subsection explores the findings related to why students' self-organised their learning, the tools/ technology that influences their learning, the social and group dynamics of SOL and the challenges they experience.
    - Section 6.2.5 will return to the main research question 'How do self-organised learning activity systems shape students' learning experiences in Higher Education?' to provide a comprehensive interpretation of how the findings address this broader question.
- Section 6.3 discusses my contributions to the literature, explains their significance in relation to the literature reviewed in Chapter Two, and maps these contributions to the themes identified in that chapter.

- Section 6.4 concludes the chapter by summarising the key points discussed, reflecting on the implications of the study's findings and suggesting directions for future research.

6.2 Synthesis of findings

In Chapter 5, the findings were analysed and presented based on the seven components of the activity theory. The overall aim of this study was to explore the students' SOL in higher education and to contribute to the existing literature. Activity theory was used to analyse the activity systems of SOL and their contradictions. The analysis revealed that SOL constitutes a set of practices with its own objects and rationale, which will be discussed in detail in subsequent subsections.

The overarching research question guiding this study is 'How do students self-organised learning *activity systems* shape their learning experiences in Higher Education?'

In addition to this main question, the study is guided by the following sub-questions:

- **RQ1:** What are the *objects of activity* in students' self-organised learning?
- **RQ2:** What roles do *tools* play in students' self-organised learning?
- **RQ3.** In what ways do social and group dynamics within students' self-organised learning activity systems influence learning experiences?
- **RQ4:** What challenges or *contradictions* emerge during self-organised learning among students?

Each research question is examined in detail, providing insights into the dynamics of SOL in HE contexts.

6.2.1 What are the objects of activity in students' self-organised learning? (RQ.1)

As discussed in section 5.2, multiple objects of SOL were identified as illustrated in Fig 6.1, this figure demonstrates the diversity of objects that drive students to engage in SOL and illustrates how these objects shape the use of tools, division of

labour, rules and community, providing a detailed view of students' intentions and experiences in self-organising their learning. Each object directs the purpose and structure of the activity system

- *Understanding and Mastering Course Content*: The object focuses on students deliberate efforts to deepen their understanding of their course material through collaborative learning with peers. In some activity systems, students primarily engage in SOL to enhance their understanding and mastery of course content with their intended outcome of consolidating their knowledge and improving academic performance. Doing so indicates that their interaction with their peers fosters deeper understanding through actively engaging with the material, collaborative problem-solving and exposure to diverse perspectives.

- *Exam preparation*. As exams approach, some students often seek to organise their learning more effectively. They engage in this object of activity intending to enhance their confidence in answering exam questions, deepen their understanding and improve their performance. Doing so suggests that SOL offers structured, goal-oriented study sessions with peers, providing opportunity to practice, assess their knowledge, identify improvement areas, and gain constructive feedback, boosting overall exam readiness.

- *Reviewing Coursework:* Some students object of activity is to discuss and clarify coursework requirements to produce high-quality coursework and attain good grades. Doing so indicates that this collaborative effort emphasises the refinement of academic work, as peers offer constructive feedback, exchange resources and clarify expectations.

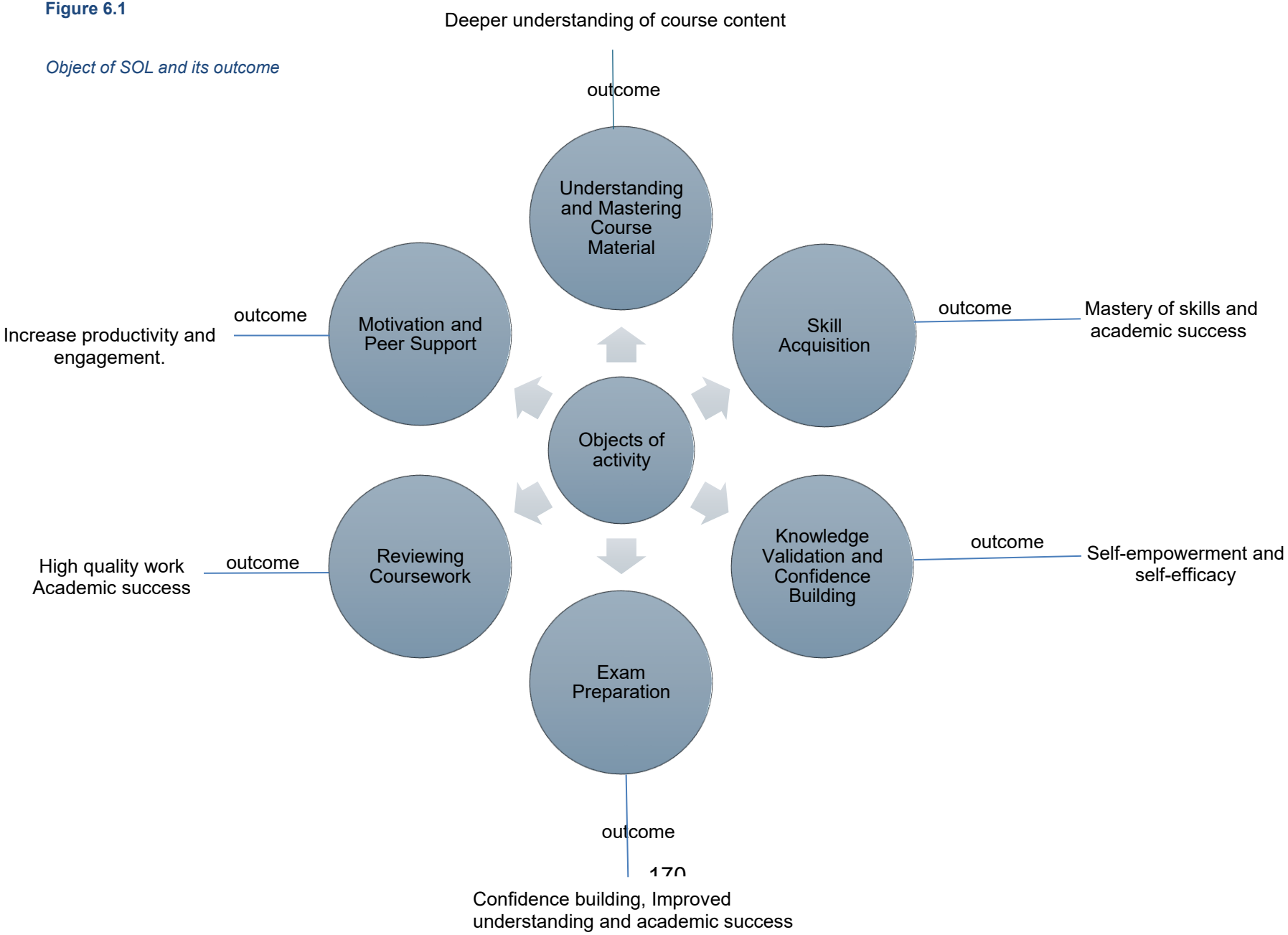
- *Skill Acquisition*: In some activity systems, students object of activity is to seek to gain practical skills with the intended outcome of increasing competence and improve academic performance. Doing so highlights the role of SOL in developing both academic and transferable skills, including technical skills, critical thinking, teamwork, active listening, collaboration, communication and problem-solving.

- *Knowledge Validation and Confidence Building*: This emerged as an object of activity, with intended outcome focused on empowerment and self-efficacy. In this activity system, students appeared to use SOL as a means to assess their understanding, gain affirmation from peers and boost their confidence in their abilities. Doing so suggests that SOL serves to validate students' understanding, helping them feel more competent and confidence in their knowledge and skills.

- *Motivation and Peer Support* were critical objects of activity, with the intended outcome being increased engagement, focus and productivity. Some students appear to use SOL as a means to provide emotional and social support to each other. Doing so suggests that SOL creates a supportive environment that encourages accountability and sustained effort.

Figure 6.1

Object of SOL and its outcome



This research indicates that the objects of SOL are varied and reflect a blend of academic and personal motivations. This suggests that SOL is not a mere academic exercise, it serves as a strategy for personal development, as students seek to improve their self-efficacy and resilience in navigating academic challenges.

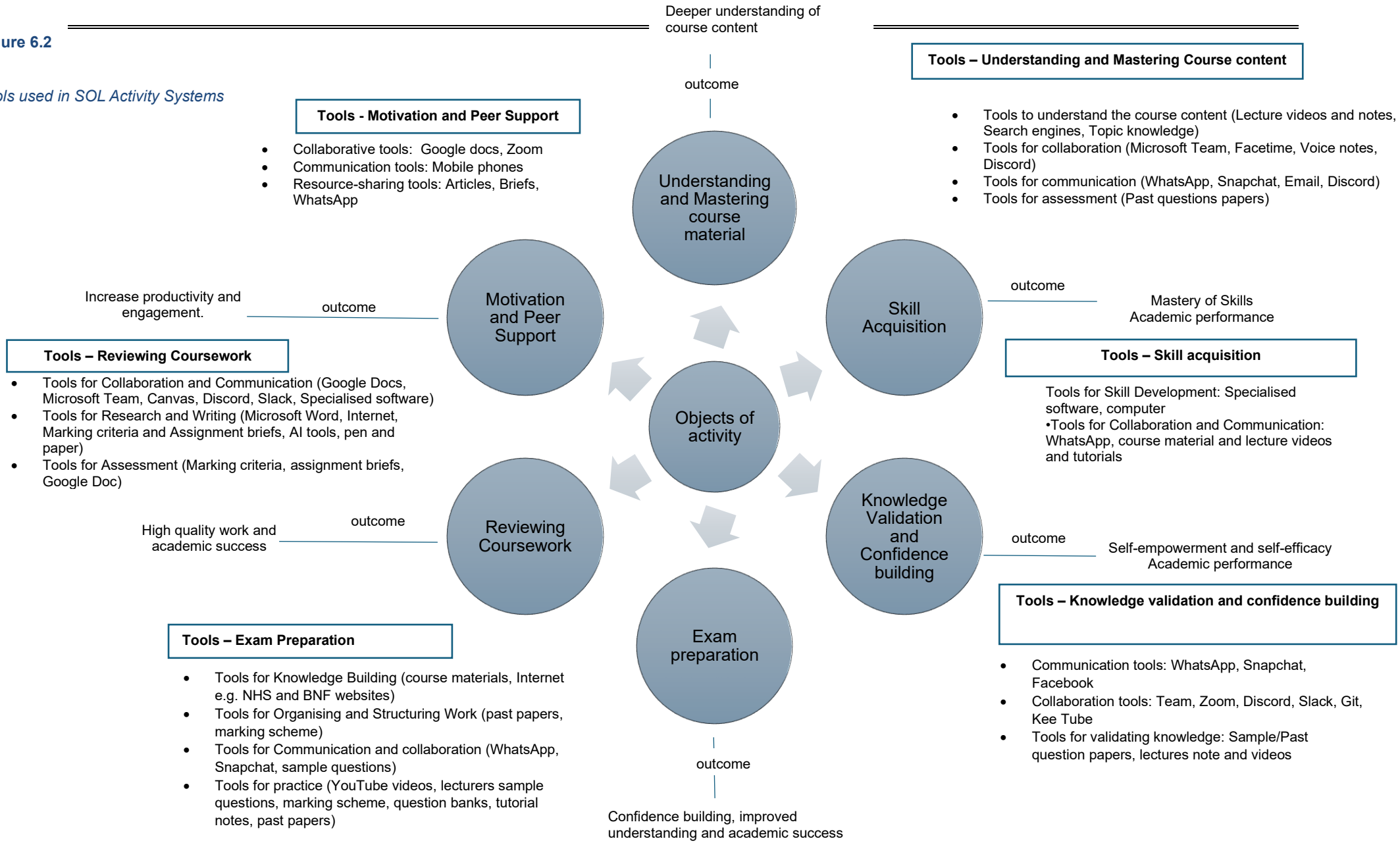
6.2.2 What roles do tools play in students self-organised learning? (RQ2)

This research shows that students use a diverse range of tools to support the SOL object of activity, ranging from digital platforms to specialised resources. It should be noted that some categories of tools were used in several activity system while others were used in only one kind of activity system. These tools are often selected based on the specific object of activity, such as lecture videos for content mastery or past exam papers for exam preparation. In line with Activity Theory, these tools function as mediators that facilitate access to information and collaborative efforts (Engeström, 2001). However, the findings also indicate that these tools can unintentionally hinder learning if their design or format does not align effectively with the students' object of activity, this will be explained further in section 6.2.4.

As discussed in Chapter 5, the various tools employed within each activity system were categorised based on their role in mediating between the subject and the object. Figure 6.2 depicts these clusters of SOL tool mediation across the six identified activity systems.

Figure 6.2

Tools used in SOL Activity Systems



The following session summarises how these tools are used within the activity systems

6.2.2.1 Learning Resources Tools

These tools support students in understanding and organising their work. They influence how they engage with tasks and the broader objectives of their learning. Examples of tools used for these purposes include course materials, lectures notes and videos, tutorials, marking schemes and assignment briefs, discipline specific websites, scholarly articles and past examination papers. Together, these resources provide structure, encourage collaboration and help students align their efforts with the intended learning outcomes.

These tools are utilised differently across various activity systems:

- *Tools for Understanding and Mastering Course Content:* Lecture notes and videos serve as starting points. Students analyse and discuss these materials, then use past question papers to assess and consolidate their learning.
- *Tools for Knowledge Building:* Students use course material and discipline specific website in exam preparation activity system (AS) to enhance their knowledge. They then practice with past exam papers to familiarise themselves with exam-style questions, refine their answering techniques, evaluate their understanding and identify areas for improvement.
- *Tools for Knowledge Validating :* Past question papers are used in knowledge validation and confidence building AS as the starting point, working through them and then using course materials such as lecture notes, videos and each other's work to validate their understanding, reviewing and comparing their answers.
- *Tools for Review:* Marking criteria and assignment briefs are used by students in the reviewing course work AS as a guide in structuring their ideas and writing. These tools ensure that their work is within the scope of the given task and aligns with the course expectation.

6.2.2.2 Collaboration and Communication Tools

Collaboration and communication tools are used by students to help in organising and structuring their learning facilitating teamwork, sharing insights, and building on each other's ideas. Examples of tools used for these purposes are Microsoft Teams, FaceTime, Voice Notes, WhatsApp, Snapchat, Discord, Slack, Zoom, Git, KeeTube, mobile phones, laptops, and computers.

Although LMS platforms such as Moodle, Canvas, or Blackboard are often used by students to access past questions, videos and course materials, they are generally not employed as collaborative tools. This section explores how tools are utilised across different activity systems:

- *Understanding and Mastering Course Content:* Students use Microsoft Teams and Discord to share resources and ideas, often watching lecture videos together to deepen understanding. FaceTime and voice notes enable quick discussions for clarification, while WhatsApp and Snapchat help coordinate study sessions, including scheduling and topic planning.
- *Exam Preparation:* Past exam papers serve as key collaborative tools, allowing students to solve problems together, discuss concepts, simulate exam conditions, and exchange strategies. WhatsApp and Snapchat support communication and coordination of these sessions.
- *Reviewing Coursework:* Google Docs is one of the examples of the key collaboration tool used by students enabling real time collaboration and instant feedback while Discord facilitates easy sharing of relevant materials. WhatsApp supports communication and organisation of group activities.
- *Knowledge Validation and Confidence Building*: Tools such as Microsoft Teams, Discord, and Git support resource and code sharing while WhatsApp, Snapchat, and Facebook are commonly used to schedule study sessions and discussions.
- *Skill Acquisition:* Lecture videos, tutorials, and course materials serve as collaborative tools for practising and developing skills. WhatsApp is used for communication and scheduling practice sessions.
- *Motivation and Peer Support:* Google Docs is an example of the tool used for reviewing each other's work and providing feedback while mobile phone and

WhatsApp are used for scheduling meetups or checking on each other, WhatsApp is also used to share resources, links, and files for effective distribution.

6.2.2.3 Assessment tools

These tools are used by students to help them evaluate completed work or as practice resources to improve academic performance. Examples of these tools used for this purpose include YouTube videos, question banks like the OSCE platform, tutorial notes, past papers, marking criteria, briefs, and Google Docs. These tools are particularly utilised in following activity systems:

- *Exam Preparation:* YouTube videos, question banks, past papers and tutorial notes are examples of tools used in this activity by students for practicing, assessing and testing knowledge. These tools help students identify gaps in their understanding while focusing on areas that require improvement.
- *Review coursework*: Briefs and marking criteria are essential tools in this activity system, they are used by students as guidance in evaluating their work to ensure it meets the required standards, aligns with task expectations and is of high quality to achieve a good grade.
- *Understanding and mastering course content*: Course materials, past question papers are often used by student as assessment tools within this activity system to track progress and validate students' understanding of the course content.

6.2.2.4 Additional Tools

Additional tools were identified for use in specific activity systems:

- *Skill Acquisition:* Within this activity system, tools for skill development such as specialised software are used by students to help them practise and develop their skills, gaining competence in relevant areas.
- *Reviewing Coursework:* Examples of tools for research and writing purpose includes Microsoft Word, the internet, AI tools, marking criteria, pen, and paper. Pen and paper are often used by students as a starting point for brainstorming ideas, which is then developed further using Microsoft Word.

The internet and AI tools assist with research, while marking criteria and assignment briefs provide guidance to ensure the coursework aligns with academic expectations.

While these tools enhance learning through various mediating functions, some limitations were noted. For example, tools that do not align closely with the students' objectives may create confusion as seen in watching videos within the understanding and mastering course content (Section 5.3). Furthermore, reliance on digital platforms can lead to over-simplification, where students may focus more on accessing quick answers as felt by one of the participants with the use of AI rather than engaging deeply with the material (Section 5.5)

The range and flexibility of tools used across the different activity systems reflect the diverse ways students structure their learning processes in SOL. However, the effectiveness of these tools remains dependent on their alignment with the specific object of activity. By aligning the use of these tools with the demands of distinct activity systems, students optimise their learning outcomes while fostering collaboration and autonomy.

6.2.3 In what ways do social and group dynamics within student self-organised learning activity systems influence learning experiences? (RQ3)

The social structure of student SOL plays a crucial role in shaping the dynamics, productivity and outcomes of the activity systems (ASs). The study reveals that the organisation and interactions within SOL varied depending on the object of activity being addressed by the activity system. Three distinct patterns emerged: SOL conducted primarily among friends studying the same course or module, SOL among course mates and SOL where the group composition extended beyond academic boundaries to focus on mutual emotional and social support.

In most ASs, SOL took place primarily among friends studying the same course or module. The group of friends formed the subject of the activity system, creating a natural alignment of purpose as they shared similar academic objectives and timelines. The pre-existing friendships provided a foundation of trust and comfort enhancing discussion and collaboration. Such groups were particularly effective in ASs like *exam preparation, knowledge validation and confidence building, and*

understanding and mastering course content. These SOL group provided benefits such as stronger commitment to group object of activity due to pre-existing social bonds and greater comfort in seeking clarification or admitting knowledge gaps.

In the *skill acquisition AS*, SOL among course mates was observed which is an exception to the predominately friendship-based SOL structure. In this AS, the subjects were course mates rather than friends. These groups came together with a clear focus on mastering specific skill. Over time, as they collaborated closely, this relationship transitioned into friendships as seen in section 5.6.1.2, creating a hybrid dynamic of academic and social interaction. The initial focus on task-oriented collaboration to ensure productivity and development of friendships over time added a layer of emotional support.

In the *motivation and peer support AS*, the SOL groups extended beyond shared academic disciplines. Friends from different courses or modules came together to provide a supportive environment. These groups focused less on specific academic tasks and more on offering emotional and social support, which included proofreading each other's work, discussing challenges, and taking breaks together. This allowed for a diverse exchange of ideas due to heterogeneity in academic disciplines. Emotional support fostered resilience, particularly during periods of stress such as exam periods. Activities such as listening to challenges or providing feedback on written work strengthened bonds while indirectly enhancing academic performance.

A central component of these social dynamics and structure is the division of labour, which structures how group members interact, assume responsibilities and support one another throughout the learning process. Within SOL, students typically take on informal but meaningful roles, such as organiser, leader, or just team members. The organiser plays a key role in coordinating sessions, managing resources and keeping the group on track, while the leader often provides subject-matter expertise and facilitates discussion. Team members contribute to shared learning by offering insights, asking questions and helping clarify difficult topics. These roles are fluid and responsive, individuals may shift between them depending on the topic or task, creating a dynamic and adaptive learning environment. As discussed in Chapter 5, this fluid yet functional division of labour highlights how SOL groups adapt to the

needs of their members and the demands of specific learning tasks. The collaborative nature of these roles supports both the academic and emotional dimensions of learning, reinforcing the social structure that underpins successful SOL.

In addition to the interpersonal dynamics, rules both implicit and explicit play a critical role in shaping social interaction within SOL activity systems. These rules serve as informal frameworks that aid to maintain focus, reduce distractions and guide group behaviour. Although many participants initially perceived SOL as too informal to require strict rules, over time, the need for structure became apparent, especially when challenges such as lack of focus or unequal participation emerged. In some activity systems, rules were formally agreed upon to maintain order, while in others, they evolved naturally through mutual understanding and shared group norms. For example, in the *reviewing coursework activity system* (Section 5.5.1), students actively create and respect boundaries of help to avoid issues like plagiarism. This indicates a strong internalisation of academic integrity within peer learning groups. This ethical conduct contrasts with the usual assumption that informal collaboration might risk academic misconduct. It offers a valuable insight into how students negotiate help and independence through mutual respect and tacit rules.

Rules often reflected the culture and dynamics of the group, offering stability and helping students stay on track with their learning goals. These included behavioural expectations such as maintaining a quiet, focused environment, respecting agreed schedules and actively contributing to discussions. Some were modelled on formal academic norms, such as punctuality, while others were unspoken agreements centred around mutual respect and accountability. It could be suggested that these rules helped students balance productivity with social bonding, fostering a collaborative environment where both academic and emotional support could thrive. For detailed examples of rules across different activity systems, see Chapter 5.

6.2.4 What challenges or contradictions emerge during self-organised learning among students? (RQ4)

SOL in HE offers several benefits, such as improved academic performance, confidence building and valuable peer support. This study reveals that participants

found SOL to be an effective method for advancing their learning because it allowed them to set their own objectives and pace, leading to increased motivation. Participants appreciated the relaxed, judgment-free environment of SOL, where they felt comfortable making mistakes as part of the learning process. Many participants expressed that peer support was essential to their progress, suggesting that they might struggle to complete their studies without it.

Alongside these benefits, SOL also presents challenges and contradictions that students try to navigate within the activity systems. Twenty-four contradictions were identified and discussed within each activity system in Chapter 5. The discussion was based on the type of contradiction, how important it was, how it was felt by the participants and how they navigated through these contradictions. Figure 6.3 visually represents these contradictions across the activity systems.

This section focuses on the contradictions that occurred across multiple activity systems, using Engeström's (1987) contradiction framework to analyse their types, impacts and the strategies students used to address them. According to Engeström and Sannino (2011), 'contradictions cannot be observed directly; they can only be identified through their manifestations' (p.369). Primary contradictions occur within the elements of activity systems (e.g. within the subjects). The poles of contradiction are between different value systems operating within the same element of an activity system. Secondary contradictions arise between the elements of the same activity system (e.g. between the community and subject). The poles of contradiction are between different elements within the same activity system while Quaternary contradictions occur between the main activity system and its neighbours, the poles of contradiction are between different activity systems.

The key contradictions discussed include *Distraction contradiction* which presents itself as either primary or secondary contradiction depending on the activity system in which it occurs. *Group size contradiction* which presents itself as a secondary contradiction and the *external obligation contradiction* which presents itself as a quaternary contradiction. Each will be examined in the following subsections.

6.2.4.1 Distraction Contradiction

Distraction emerged as a recurring tension across multiple activity systems in this study, but its sources and nature varied. Distraction manifested through distinct types of contradictions some primary, occurring within an element of the system, and others secondary, emerging between different elements. This section distinguishes these forms of *distraction contradiction*

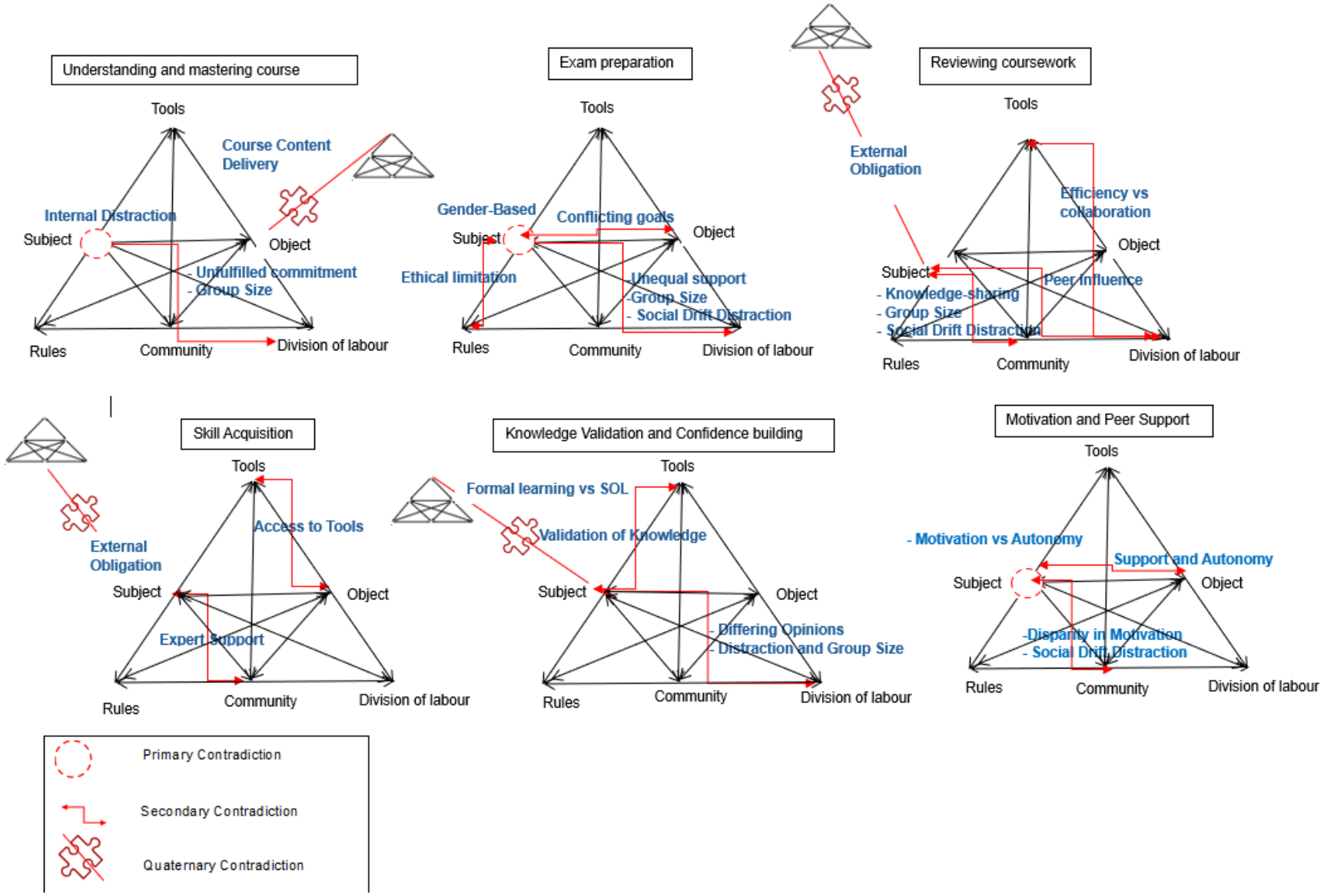
Internal Distraction (Primary Contradiction)**:** Within the *Understanding and Mastering course content* activity system, distraction appears as a *primary contradiction* situated within the *subject* element (the group of friends). This contradiction emerges when conflicting values coexist within the subject. The focused learner who wants to engage in the activity systems and the social friend, who prioritises casual conversation and social connections. For example, while some students rely on peers for collaborative learning, others within the same group may not share the same level of focus, leading to distraction.

Social Drift Distraction (Secondary Contradiction): In several activity systems, distraction manifests as a *secondary contradiction* between the subject (the student) and the community (friends). For example, in the Motivation *and Support* activity system, the student's desire for sustained focus clashes with the group's informal social norms, which unintentionally tolerate off-topic conversations. Similarly, in the *Reviewing Coursework* activity system, the contradiction arises when the student aims to review material productively while peers divert attention with unrelated discussions.

In both cases, the poles of contradiction are the learner's intention to remain focused versus the community's informal social norms that inadvertently undermine that focus, this conflict might disrupt motivation and productivity.

Figure 6.3

A graphical representation of systemic contradictions identified within SOL Activity Systems



Within the *exam preparation activity system*, a secondary contradiction emerges between the subject and the object. While students intend to collaborate on academic tasks, informal social interactions often redirect attention away from the shared academic purpose. This contradiction illustrates how the object of an activity system can be unintentionally redefined through the social context of the group, creating tension between academic purpose and the desire for social connection.

While social interaction can foster a supportive and enjoyable learning environment, these contradictions highlight how, in practice, it can also lead to misalignments between elements of activity systems leading to wasted time, reduced efficiency, productivity and diminished focus.

Notably, several participants did not view social distraction as entirely negative. For some, social interactions were seen as integral part of the relaxed environment that SOL fosters, helping them to study in a less pressured and more engaging context. Although discussions sometimes drifted from academic content, participants felt that the casual setting was a valuable aspect of SOL, enabling them to study effectively in the company of friends. While social distractions occasionally extended the time needed to complete tasks, some participants considered this an acceptable trade-off. However, some actively managed these tensions by setting structured times for breaks and social interaction, thereby restoring alignment within their object of activity.

Interestingly, within the *Skill Acquisition Activity System*, distraction was less prevalent, possibly because participants initially viewed themselves as course mates rather than friends, maintaining a stronger focus on learning objectives. Suggesting that the nature of community identity can mediate the extent of distraction.

6.2.4.2 External Obligation Contradiction

One common challenge faced by students in SOL is the difficulty of coordinating study sessions amid their various commitments. While students value the flexibility and autonomy that SOL offers, they often struggle to align

their group activities with the demands of formal education, part-time work, family responsibilities and personal wellbeing. This challenge is identified here as an *External Obligation Contradiction,* and it represents a quaternary contradiction.

External Obligation contradiction arises between the SOL activity system and the neighbouring activity system. *External Obligation Contradiction* emerges between the subject in the SOL activity system (Pole 1) and the same subject in neighbouring activity systems related to personal commitments (Pole 2), associated with employment, family responsibilities, or personal wellbeing. Within the SOL activity system, the student is expected to act as a consistent and engaged group member attending sessions, contributing to shared goals and supporting peers. However, in their personal activity systems, the same individual takes on different roles with competing priorities, such as a part time worker, caregiver or managing personal well-being. This contradiction arises when the expectations and time demands of one role directly conflict with the requirements of the other, resulting in missed sessions, inconsistent engagement or disrupted collaboration. While students often manage these tensions through flexible scheduling and communication, the underlying contradiction between these two roles continues to pose a significant challenge to maintaining full participation and continuity within the SOL activity system.

For example, the skills acquisition activity system faces *External Obligation quaternary contradictions,* though the underlying dynamics differ. These activity systems often begin with subject collaborating as course mates, over time, these relationships evolve into friendships, yet the initial lack of familiarity with each other's schedules or personal obligations can create conflicts in effective coordination and scheduling.

This contradiction often leads to disruption in the groups workflow which might create delays, reduced productivity or misunderstanding. However, the subject seems to navigate this tension through being flexible by rescheduling to adapt to their changing availability, increased communication, adaptability, understanding and empathy especially in the skill acquisition as groups evolved

from course mates to friends, they developed a better understanding of one another's commitments, reducing scheduling conflicts over time.

6.2.4.3 Group size contradiction

Another recurring challenge within SOL relates to how the structure and size of study groups shape students' experiences and outcomes. While peer collaboration is key to SOL, participants reported that number of participants in a group significantly influences the quality and effectiveness of their learning experience. According to participants, smaller groups (ideally between 2 and 4) tend to promote focused discussion, equal participation and deeper engagement with the material. In contrast, larger groups often struggle with coordination, uneven contribution, and distraction, making it harder to maintain academic focus. This tension, referred to as the group size contradiction, reflects the challenge of balancing inclusivity and efficiency within the social dynamics of SOL.

Group size contradiction is a secondary contradiction which emerges between the subject and the division of labour or community across several activity systems such as Understanding *and Mastering Course Content, Exam Preparation, Knowledge Validation and Reviewing Coursework.* The poles of this contradiction are defined by differing values associated with group structure. On one pole, the student (subject) benefits from smaller group settings that promote balanced participation, focused interaction and reflective discussion, which support the attainment of the object. On the opposing pole, the structure of larger groups leads to reduced participation, dominance by a single individual and increased distraction. This contradiction might affect the effectiveness of SOL, hindering both individual and collective progress toward the learning goals.

6.2.5 How do student self-organised learning activity systems shape their experiences in Higher Education? (RQ)

SOL activity systems significantly shape students' experiences in higher education by providing structured yet adaptable frameworks through which they

engage with academic content, navigate peer relationships and respond to institutional demands. This study investigates the multifaceted ways these systems shape student experiences, using four guiding research questions to explore object of activity, tools, social dynamics and challenges within these systems. The findings reveal a complex, interconnected landscape where academic goals, social support and individual empowerment converge to enhance students' learning experiences.

The SOL activity systems have been organised based on the object of activity. These activity systems are driven by multiple objects that reflect both academic goals and personal development aspirations. These objects of activity include understanding and mastering course content, preparing for exams, reviewing coursework, skills acquisition, knowledge validation and building confidence and motivation and peer support. The SOL activity systems share core similarities such as student-led support, structured around shared objects, and mediated by the use of flexible tools and informal group norms. They rely on collaborative practices and mutual support to navigate academic and emotional challenges, often emerging in response to gaps in institutional support. However, they differ in their primary focus and how activity system elements interact. For instance, the *Understanding and Mastery* system centres on grasping complex content through reciprocal teaching and resource-sharing, the *Motivation and Peer Support* system emphasises emotional well-being, accountability, and sustained engagement, while the *Knowledge Validation and Confidence Building* system blends academic rigour with self-efficacy. These differences highlight the varied yet complementary ways students shape their experiences. Varying contradictions also emerge within and across the systems for instance in *the Skills Acquisitions systems*, the expert support and access to tools contradictions (section 5.6.2) emerges which is unique to this system while contradiction such as distraction even though in different form appears in most of the activity systems. As summarised in Table 5.2 (Chapter 5), the activity systems share several similarities as well as notable differences.

Grounded in Activity Theory, these systems reveal how learners co-construct informal, yet intentional, learning environments that extend beyond the

classroom. This section explores how SOL shape students' experiences by enabling mastery and engagement with complex content, fostering motivation and emotional resilience and personal development including confidence, self-efficacy and interpersonal growth. Additionally, it examines the role of social dynamics and the contradictions that arise within and between these systems, demonstrating how they both enrich and challenge students' higher education journeys.

SOL enable students to master and engage with complex content by fostering student-led academic collaboration. For example, in the *Understanding and Mastering course content* system, the object shapes participants' efforts and drives the structure of the learning environment. The finding suggests that their shared academic purpose of helping each other grasp difficult concepts and ensuring collective progress leads to a positive experience. Participants reported more relatable and accessible learning through their peer discussions than through formal lectures. Friends within the group (subjects) assume dynamic roles, alternating between teaching and learning, depending on the topic (Section 5.3.1). Tools such as lecture videos, past papers, Microsoft Teams, Discord, and messaging apps mediate this collaboration. These platforms enhance learning but also introduce contradictions. For instance, participants found tools such as lecture videos, intended to support learning, can be overwhelming and time consuming due to their length and complexity. This *content delivery contradiction* created friction between the students' desired pace of understanding and the demands of institutional materials. In dealing with this contradiction, students summarise videos collaboratively, reshaping their approach to learning in ways that reflect SOL's adaptability (Section 5.3.2).

Informal rules develop within these systems to ensure productive collaboration. These include turning off phones during sessions, attempting tasks independently before group discussion, and scheduling regular breaks. Rooted in mutual respect rather than hierarchy, these rules reinforce a sense of collective responsibility and enhance the learning experience by promoting fairness and efficiency. Rules in this system help maintain focus and respect

boundaries, while the flexible division of labour allows members to support each other without compromising individual responsibility. Participants reported that studying with friends not only helps them manage time and workload but also enhances their sense of belonging. They value the emotional and academic support it provides, especially through shared routines, feedback and accountability. However, tensions occasionally arise such as balancing collaboration with personal autonomy. Despite these challenges, students generally find that these self-organised activity systems make their learning experience more engaging and manageable.

Students often experience fluctuations in motivation; the finding suggests that SOL foster emotional resilience and motivation. For instance, in the *Motivation and Peer support* AS (Section 5.3), students rely on peer accountability and encouragement to sustain their engagement. The elements of the activity system work together to support students in staying motivated and productive. The subject (the student) uses tools like shared documents, messaging apps, and laptops to pursue the object (maintaining motivation and completing academic tasks) within a supportive community of friends.

SOL further shape students' experiences by boosting confidence and fostering interpersonal development. For example, in the *Knowledge Validation and Confidence Building* AS, the elements interact dynamically, to shape students learning experiences. Students develop confidence and self-efficacy by actively validating each other's understanding (Section 5.7.1). The object of activity extends beyond knowledge acquisition to include personal empowerment and peer recognition. Friends (subject) come together not just to learn content, but to validate knowledge and grow in confidence (object).

The lack of institutional feedback, such as unavailable mark schemes, pushes students to rely on peer validation. This increases their sense of agency, they choose the tools, build the sessions, and drive the discussions. The tools make it possible to simulate academic rigour outside the formal classroom, giving them a sense of control. Through SOL students gain not only knowledge but also validation, peer trust and a strong sense of self-efficacy. The division of labour evolves as students become more confident, shifting towards greater

collaboration (Section 5.7.1). This not only supports knowledge building but also fosters leadership, teamwork and interpersonal skills. However, contradiction such as differing opinions arises between the subject (group of friends) and division of labour (contribution of each other) and they tend to navigate this tension (Section 5.7.2). Informal rules and mutual respect help the group maintain focus, resolve disagreements, and reach consensus creating a supportive learning culture.

The social structure of SOL groups is central to their effectiveness, offering both academic support and emotional cohesion. Students often form groups with friends, enhancing accountability and commitment. However, this dynamic can introduce contradictions, example, distraction is a recurring contradiction that appears across several activity systems. For example, a secondary contradiction arises between the subject and the division of labour, these tensions can frustrate students and disrupt focus (Section 5.4.2).

Findings indicated that, for an effective SOL experience, the ideal group size is no more than four participants. While smaller groups encourage reflective dialogue, larger group risk dominant voices and reduced participation. Example, the tension between inclusivity and efficiency (Section 5.4.3) prompts students to redefine group norms to realign with learning objectives. Finding indicates that SOL fosters group cohesion through shared goals, mutual accountability and collaborative decision-making. Peer-led planning, open communication and problem-solving build trust, interdependence, and a sense of belonging. This collaboration enhances motivation, collective responsibility and group identity, contributing to more cohesive and effective learning communities.

Beyond the internal dynamics of SOL activity systems, students also navigated tensions between SOL and neighbouring systems. These quaternary contradictions include institutional gaps and personal obligations. For example, universities often provide past papers without mark scheme. Although intended as study aids, these incomplete resources prompt students to form SOL to collectively solve and validate problems (Section 5.3.2). Personal responsibilities such as work or family obligations may also conflict with group

commitments. In these cases, students adopt flexible planning and empathetic scheduling to maintain group cohesion and personal balance.

SOL activity systems significantly enrich students' experiences in higher education by aligning academic goals with personal development. Organised around diverse yet complementary objects, these systems offer structured adaptable support that enhances both learning outcomes and emotional well-being. By engaging in SOL, students cultivate independence, collaboration and resilience. These systems not only address gaps in institutional provision but also empower students to take ownership of their educational journey. The transformative potential of SOL lies in its ability to integrate academic excellence with self-efficacy, preparing students to thrive in both academic and professional contexts.

6.3 Contributions to literature

This study contributes to the existing literature by offering a detailed examination of self-organised learning (SOL) within Higher Education (HE), specifically from the perspective of students. In doing so, it considers how these contributions align with, extend and challenge the existing literature reviewed in Chapter 2.

While SOL is increasingly acknowledged in educational research, this study adds several unique insights into how SOL functions as a dynamic and complex system shaped by students' interactions, motivations and contradictions. A summary of the key contributions based on my literature review is presented in Table 6.1. By analysing my findings and identifying relevant gaps in the literature, I have tried to contribute to the existing literature on SOL.

Table 6.1

Summary of Key Contributions

Area of Contribution	Contributions
Students' motivation for engaging in SOL	• To examine SOL as activity systems and to highlight how SOL is shaped by different objects of activity (section 2.3.2)
Use of technology in SOL	• To illustrate how the use of tools differs depending on the object of activity. (section 2.3.4) • To highlight the dual role of tools in SOL as both facilitators and disruptor. (section 2.3.4)
SOL as an informal setting	• To reveal inherent contradictions within SOL as an informal setting (Section 2.3.1) • To explain how students navigate these contradictions and tensions (Section 2.3.1)
Social and group dynamics	• To explore dynamic role and social dynamics of SOL (section 2.3.3) • To examine the social anchor of SOL (section 2.3.3)

6.3.1 Students' motivation for engaging in SOL

6.3.1.1 Emphasising the role of diverse student motivations in shaping SOL practices and SOL dynamic nature

This study contributes to understanding students' motivation for engaging in self-organised learning (SOL) by demonstrating that motivation is not singular, static, or purely instrumental, but multi-layered, evolving, and activity driven. Drawing on Activity Theory, I conceptualise these motivations as objects of activity, the driving forces that both initiate and continually reshape students' engagement in SOL.

My findings reveal that students engage in SOL for a combination of academic, social, and affective purposes, including academic reinforcement (e.g. exam preparation, understanding content, skill acquisition and knowledge validation),

alongside confidence building, accountability, motivation, and emotional support (Section 5.3 to 5.8). Crucially, these motivations are not discrete, rather, they are interwoven and dynamic, shifting in response to changing academic demands, peer relationships, and personal development over time.

Prior studies have consistently identified key motivations for SOL, including academic reinforcement and skill development (Havnes, 2008; Archana, 2022; Crookall et al., 2000; Li et al., 2010), as well as the role of peer interaction in supporting engagement and understanding (Krause, 2007; Wilson & Wilson, 2019). Similarly, the importance of emotional and social support in sustaining participation is highlighted in studies such as Keren et al. (2020) and Luchembe et al. (2021). My findings align with this literature as it identified academic reinforcement, skill acquisition and peer support as some of the motivations for engaging with SOL (Section 5.2).

However, while some of these studies identify what motivates students, they tend to treat these motivations as relatively stable and discrete drivers, often linked to specific outcomes such as exam success, satisfaction, or engagement. In doing so, the literature implicitly frames SOL as a strategic response to academic demands, rather than as an evolving process embedded within students' broader learning trajectories.

My research diverges from that framing by demonstrating that students' motivations are fluid and developmentally situated, shifting as SOL practices unfold. For example, while students often initiate SOL as a strategy for exam preparation, the findings show that these spaces frequently evolve into environments for knowledge validation, confidence building, and emotional support. (see Sections 5.4.1 and 5.7.1). This transition reflects a broader shift in the object of activity from performance-oriented goals to more holistic forms of engagement, indicating that SOL is not simply a means to an end, but a continuously reconfigured learning practice.

My research contributes to knowledge by reconceptualising student motivation in engaging with SOL as dynamic and relational, rather than fixed, highlighting how motivations evolve in response to changing academic and social

conditions. Additionally, it positions SOL as a process of ongoing self-regulation and identity development, where students negotiate not only how they learn, but why they engage in learning in the first place.

By highlighting the evolving nature of students' motivation for engaging in SOL, this study challenges static and outcome-oriented accounts of SOL and offers a more nuanced understanding of it as a multidimensional, adaptive, and temporally unfolding practice. This has important implications for future research, suggesting the need to move beyond identifying motivational factors towards examining how motivations emerge, interact, and transform within specific learning contexts over time.

6.3.2 The use of technology in SOL

6.3.2.1 Tool selection as mediated activity

This study contributes to the literature on SOL by reconceptualising technology use as an intentional, activity-mediated process, rather than a peripheral or supportive function. Drawing on Activity Systems Theory (Engeström, 2001), digital tools are positioned as mediating artefacts within the subject–object relationship, shaping not only how learning is conducted but how it is conceptualised and enacted by students.

While my study aligns with earlier research in recognising the presence of technology within SOL (Glaister et al., 2023; Wilson & Wilson, 2019; Krause, 2007), it also aligns with the findings of Spielhofer and Haselberger (2021), who noted that student use tools such as Discord to organise meetings, Moodle as a knowledge base, Zoom for interactive sessions, digital whiteboards for team-building, and Google Docs for collaborative writing. However, this research extends the literature by empirically demonstrating that digital tools act as mediating artefacts that actively shape learning processes, rather than merely supporting interaction.

My research demonstrates that the use of tools in SOL is purposeful, contingent, and dynamically aligned with the object of activity. By empirically mapping digital tools across six activity systems (Chapter 5, Sections 5.3.1 to

5.8.1), it shows that students actively configure their technological environments in response to task-specific demands. For example, collaborative platforms such as Google Docs and Microsoft Teams were strategically employed in coursework review contexts to facilitate synchronous interaction and iterative feedback, thereby mediating collective knowledge construction (Section 5.5.1). Conversely, in exam preparation contexts, tools such as past papers and question banks functioned as instruments of self-assessment and performance benchmarking (Section 5.4.1). Communication platforms such as WhatsApp and Discord operated across systems, shifting function depending on context from coordination to conceptual clarification and peer validation (Section 5.7.1).

These findings extend the literature in two ways. First, it demonstrates that the function of a tool is not inherent but emerges relationally through its alignment with the object of activity, thereby extending Activity Theory into SOL domain in a more empirically grounded way. Second, it repositions students as active agents in the orchestration of their learning environments, rather than passive users of pre-existing technologies.

Accordingly, this study offers a conceptually robust account of SOL as a tool-mediated, activity-oriented process, in which learning is shaped through the dynamic interaction between learners, tools, and goals.

6.3.2.2 The dual role of digital tools: Technology as a mediating tool in SOL

This study contributes to the literature by identifying the inherently contradictory role of digital tools within SOL. While technology is often positioned in higher education as enhancing flexibility, access, and autonomy, the findings demonstrate that its effects are simultaneously enabling and constraining, depending on how it is mediated within specific activity systems.

My findings show that students valued easy access to lecture recordings and tutorials, yet some experienced these resources as overwhelming. This aligns with prior research highlighting the benefits of accessible learning materials

(Vines, 2010) but extends it by demonstrating that increased access does not necessarily lead to improved learning outcomes. Instead, misalignment between tool and object can result in disengagement and cognitive overload, shifting the focus from resource availability to their pedagogical integration and functional alignment within SOL.

Similarly, studies such as Glaister et al. (2023) and Wilson and Wilson (2019) document the use of digital platforms, which this study aligns with; however, they do not explore their impact on learning processes. As a result, technology is often implicitly framed as neutral support. This study challenges that assumption by illustrating the mediating and dual role of technology as both supporting and, in some cases, potentially hindering SOL practice.

Drawing on Activity Systems Theory, digital tools are conceptualised as mediating artefacts that generate both affordances and tensions. For example, the use of AI-based tools enhanced individual efficiency while reducing motivation for collaborative engagement, revealing a contradiction between productivity and participation (Section 5.5.1).

This contribution frames the role of technology in SOL as dynamic and situational. This study advances a more critical and theoretically informed understanding of technology in SOL. It demonstrates that digital tools are not neutral supports but constitutive elements of the learning process, shaping both opportunities for engagement and sources of tension within activity systems. This reconceptualisation highlights the need to move beyond identifying which tools are used, towards analysing how they are negotiated, aligned, and sometimes resisted within specific contexts. By applying Activity Systems Theory to these dynamics, this study provides a framework for examining the contradictions, adaptations and transformations that characterise technology-mediated learning. In doing so, it offers a theoretically grounded and empirically nuanced account of technology in SOL that recognises its complexity, contingency, and transformative potential.

6.3.3 SOL as an informal setting

6.3.3.1 Navigating contradictions

This study makes a theoretical contribution by conceptualising self-organised learning (SOL) in informal settings as an activity system characterised by inherent and productive contradictions, rather than just as a primarily enabling or supportive learning space. It demonstrates that these contradictions are not peripheral challenges but central organising forces that shape how students engage, collaborate and sustain academic activity.

This research aligns with previous studies highlighting the benefits of informal SOL practices, including autonomy, flexibility and enhanced peer interaction (e.g. Glaister et al., 2023; Jayathilake & Huxham, 2022; Krause, 2007). It also found that the informal nature of SOL fosters a collaborative, engaging, supportive, and relaxed peer-learning context, consistent with earlier research (Jayathilake & Huxham, 2022; Kagwesage, 2014; Keerthirathne, 2020; Li et al., 2010). However, these accounts tend to present informal learning practices in predominantly affirmative terms, often treating challenges such as unequal participation, distraction or lack of structure as secondary limitations rather than significant features of the learning process.

Where tensions are acknowledged (Archana 2022; Melzner et al., 2020), they are typically framed as issues to be managed, rather than as structurally embedded contradictions that drive learning and adaptation. As a result, the literature lacks a systemic account of how such tensions operate within SOL as an ongoing activity.

Addressing this limitation, this study applies Activity Theory to reconceptualise SOL as a dynamic and tension-filled system, in which contradictions emerge across multiple levels and play a constitutive role in shaping learning practices. By systematically mapping these contradictions across six activity systems (Chapter 5), this study moves beyond fragmented accounts of challenges and offers a coherent analytical framework for understanding how tensions are generated, experienced and negotiated.

The empirical findings reveal a range of contradictions, including tensions between autonomy and motivation (section 5.8.2), delays in accessing expert support (section 5.6.2), conflicts in knowledge-sharing practices (section 5.5.1) and difference in perspectives among group members (section 5.7.2). These contradictions are not experienced as isolated disruptions but as ongoing conditions of participation that require active negotiation. In response, students engage in strategies such as role allocation, consensus-building, and adaptive rescheduling, demonstrating a high degree of reflexivity and agency in maintaining the functionality of their learning systems.

This extends prior work, first, it shifts the analytical focus from outcomes of SOL e.g. satisfaction, as emphasised in studies such as Melzner et al. (2020) to the dynamics process through which learning is sustained under conditions of tension. Second, it reframes contradictions not as barriers to effective learning, but as drivers of adaptation, negotiation, and development, consistent with an Activity Theory perspective.

Rather than positioning informal SOL as simply more flexible or student-centred, this study demonstrates that it is characterised by complex social and structural negotiations, through which autonomy is continuously constructed and contested. In this sense, SOL is not merely a feature of informal learning environments but a distinct form of practice, governed by its own internal dynamics, tensions, and mechanisms of regulation.

This contribution provides an empirically grounded framework for understanding SOL as a contradiction-driven activity system. It offers a more nuanced account of informal learning by highlighting the role of tension, adaptation and student agency, and opens new avenues for research into how such systems evolve over time and across contexts

6.3.4 Social and group dynamics in SOL

6.3.4.1 Unpacking the dynamic role and social dynamics in SOL

This study makes a distinct contribution to the literature on SOL by demonstrating that group dynamics are not fixed or structurally predetermined,

but are continuously negotiated through dynamic role allocation, peer governance, and adaptive interaction. It shows that roles such as leader, organiser, or contributor are not assigned or stable, but fluid and context-dependent, shifting in response to task demands, individual expertise and group needs.

This finding both aligns with and extends existing literature. Prior research which my study aligns with has emphasised the importance of trust, cohesion, and shared understanding in informal study groups (Glaister et al., 2023; Wilson & Wilson 2019; Schenk & Strickroth, 2024), as well as the benefits of small, cohesive groups for effective collaboration (Hendry et al., 2005; Keren et al., 2020; Melzner et al., 2020). Consistent with my study, Keren et al. (2020) found that larger group size was less effective with increased distraction. In addition, this study also aligns with the notion that SOL are typically formed among friends and course mates (Crookall, et al., 2000; Hendry et al., 2005; Keren et al., 2020; Li et al., 2010; Schenk & Strickroth, 2024) with shared schedules, interests, and goals (Keren, 2017; Keren, 2020; Wilson & Wilson, 2019; Schenk & Strickroth, 2024).

However, my study extends this literature by examining the processes through which such conditions are actively produced and maintained rather than just describing conditions for successful collaboration as seen in previous literature. The study provides a behavioural lens on SOL group functioning. Drawing on empirical findings from the division of labour (e.g. Section 5.3.1.5), it demonstrates that leadership and responsibility are situationally enacted, with students moving between roles based on confidence, familiarity with content, and perceived responsibility to the group. This extends work such as Melzner et al. (2020), which highlights regulation strategies, by showing that regulation in SOL is not only cognitive but also socially negotiated through role fluidity and peer expectations.

The study contributes to knowledge by reconceptualising SOL groups as self-regulating social systems, in which cohesion, participation, and productivity are actively maintained through ongoing negotiation rather than predefined structure. It positions students not merely as participants in collaborative

learning, but as active agents in constructing and sustaining the social structures of their learning environments.

This contribution encourages future researcher to explore how role negotiation and peer governance vary across cultural, institutional or disciplinary contexts, providing deeper insight into the sustainability and inclusivity of SOL.

6.3.4.2 Social anchor of SOL

A further contribution of this study lies in identifying the social and emotional anchoring function of SOL, extending beyond its commonly recognised academic purposes. This study aligns with existing literature that highlights the importance of peer interaction in supporting learning (e.g. Keren et al., 2020; Vines, 2010), as well as with Melzer et al. (2020), who assumes that successful self-organised collaborative learning depends on group members developing homogeneous problem perceptions. In line with this, my findings show that students typically shared similar understandings of tasks and expectations. The study also aligns with Melzer et al.'s (2020) concept of resource-oriented motivational regulation strategies, demonstrating how learners actively sustain motivation through practices such as structuring study sessions and using reward-based approaches (e.g. taking breaks after completing tasks) to maintain engagement (see Section 5.4.2.6).

However, this study extends prior work by demonstrating that SOL operates as a holistic support system in which social presence, emotional reassurance, and shared accountability are central to sustaining engagement. For instance, findings from the Motivation and Peer Support activity system (Section 5.8.1) illustrates how participants described how being physically present with peers regardless of direct collaboration helped sustain focus, accountability and effort. This underscores the role of co-presence as a regulatory mechanism that supports attention, motivation, and persistence.

In doing so, the study challenges implicit assumptions in the literature that learning benefits are primarily derived from active knowledge exchange. Instead, it shows that SOL also functions through passive and ambient forms of

support, where shared space and collective effort help sustain motivation and focus.

SOL emerges not merely as an academic strategy, but as a holistic system in which emotional well-being, motivation and peer connection are central. This research contributes to knowledge by reframing SOL as a form of socially and emotionally self-regulated learning, rather than solely an academic or cognitive activity. It highlights that the sustainability of SOL depends not only on shared goals or effective coordination, but also on the quality of interpersonal relationships and the capacity of groups to provide ongoing emotional and motivational scaffolding. The study positions SOL as a socially organised, self-regulating, and adaptive practice, shaped by the interplay between agency, relationships, and context. This provides a foundation for future research to examine how such dynamics vary across disciplines, cultures, and institutional settings, and how they influence the inclusivity and sustainability of SOL in higher education.

This study both supports and questions established educational assumptions. It affirms the importance of learner autonomy and collaboration but also highlights the complexity of student-driven learning in practice. It draws attention to the informal norms through which students maintain focus, manage group roles, and set boundaries within student-led SOL contexts.

The application of Activity Theory was pivotal in enabling these contributions. This framework made it possible to examine SOL as a system of interconnected elements such as objects, subjects, tools, rules, division of labour, and communities and to understand how contradictions emerge and evolve within and across these systems. AT’s emphasis on contradictions provided the analytical leverage to identify tensions and to understand how students respond, adapt, or even reconfigure their SOL practices in the face of such tensions. Moreover, the ability to identify multiple co-existing activity systems, each with its own objects and mediating tools, gave insight into the fluid and emergent nature of SOL among students.

Together, these contributions advance a richer, more grounded understanding of student-led SOL in contemporary higher education and lay the foundation for further enquiry into the agency, structure, and complexity of non-formal SOL practices.

6.4 Conclusion

In this chapter, I discussed the findings of this study in two sections. In the first section, I provided a synthesis of the findings, offering an overview of the most significant findings analysed in Chapter 5 and demonstrating how they address my research questions.

In the second section, I examined the contribution of my findings to the existing literature, mapping them onto the key themes identified in Chapter 2. My core contributions centre on highlighting self-organised learning (SOL) as an activity system in its own right, exploring how SOL is shaped by different objects of activity, and examining the tensions and contradictions that arise within SOL in informal settings. I also discussed how students navigate these challenges.

In the next chapter, I conclude my thesis by reflecting on the objectives of my study, summarising the findings, acknowledging the limitations, and discussing the broader implications of my work for policy, practice, and future research.

Chapter 7: Conclusion

7.1 Introduction

This chapter draws together the key outcomes of the research, positioning them within the broader aims and scope of the thesis. Its purpose is to synthesise the findings presented in earlier chapters, demonstrate how they address the original research objectives and reflect on their contribution to the existing body of knowledge. In doing so, the chapter also considers the implications of the research for both research literature and practice, as well as its limitations and opportunities for further investigation.

The overall chapter is structured as follows:

- Section 7.2 revisits the research objectives and questions, clarifying how each has been addressed through the study's methodology and findings, and highlighting the extent to which the initial aims have been achieved.
- Section 7.3 outlines the contributions this study makes to new research knowledge, identifying both theoretical insights and empirical findings that advance understanding within the field.
- Section 7.4 and 7.5 discusses the implications of these contributions for policy and practice, exploring how the results can inform decision-making, professional approaches and the design of future interventions.
- Section 7.6 identifies the limitations of the study, considering methodological constraints, scope and any contextual factors that may influence the interpretation of the findings.
- Section 7.7 presents personal reflections on the research process and outcomes, including lessons learned, challenges encountered and the researcher's evolving perspective.
- Section 7.8 considers implications for future research, suggesting potential directions and unanswered questions that could build on the insights generated in this study.

7.2 Research Objective

The primary aim of this study was to explore the phenomenon of self-organised learning (SOL) among university students, with a focus on understanding how and why students engage in these peer-led learning practices, what motivates them to do so, and the challenges they encounter. A key objective of the study was to investigate SOL from the students' perspective, placing their voices, lived experiences, and reflections at the heart of the research. By doing so, the study sought to centre student agency, students' perspective and reveal how learners make sense of and respond to academic demands through peer-driven learning systems.

The following research questions were developed to guide the study, with key findings summarised below.

1. **What are the *objects of activity* in students' self-organised learning?**

As discussed in section 6.2.1, findings indicate that the objects of activity in students' self-organised learning encompass both cognitive and social dimensions. Students engage in SOL to address a range of objects, including understanding and mastering course content, prepare for exams, review coursework, acquire skills, validate knowledge and build confidence, provide motivation and support (section 5.2).

In students' self-organised learning (SOL), the objects of activity are diverse, reflecting the multiple ways in which learners utilise peer collaboration to meet academic and personal goals. For some students, the object is understanding and mastery of course content (section 5.3). The focus is on deepening comprehension through collective discussion, drawing on diverse perspectives and strengthening engagement with the material. The activity system arising to address this object is typically exploratory where the group's interaction facilitates both individual and collective understanding of complex material.

By contrast, when the object is exam preparation (section 5.4), the activity system arising to address this object is typically oriented toward refining

techniques, practicing under exam conditions, developing strategies and aiming for high performance in assessments. While comprehension remains important, the emphasis shifts toward optimising performance. This system also carries a long-term dimension, as students consider how acquired knowledge may be applied in their future professions.

In the case of reviewing coursework (section 5.5), the activity system arising to address this object is typically oriented toward producing high-quality assignments through planning, feedback, revising drafts and meeting academic standards. This activity system differs from the one focused on exam preparation because the emphasis is on sustained improvement of written course work rather than on performance under timed conditions.

When the object is skills acquisition (section 5.6), the activity system arising to address this object is typically oriented toward mastering specific competencies, such as using specific software or other tools essential for completing academic tasks accurately and efficiently. Collaborative learning sessions focus on mastering software through demonstrations and peer instruction.

When the object is knowledge validation and confidence building (section 5.7), the activity system arising to address this object is typically oriented toward confirming existing knowledge, testing one another and reinforcing self-belief, self- empowerment and efficacy. This activity system prepares students for both academic assessments and real-life applications by consolidating confidence alongside knowledge.

Finally, when the object is motivation and social support (section 5.8), the activity system arising to address this object is typically oriented toward sustaining engagement through structured study routines, maintaining focus and providing encouragement to overcome challenges. Unlike the more academically focused objects, this system highlights the social-emotional dimension of learning, ensuring persistence and resilience across the academic journey.

While these objects share underlying similarities such as collaboration, mutual support and a drive to improve academic performance, they propel students towards rather different forms of activity. Each object therefore not only defines the immediate focus of learning but also shapes the social practices and strategies through which students engage with one another. Mastery of content, exam preparation and reviewing coursework are strongly oriented to academic performance; skills acquisition focuses on technical competence; knowledge validation emphasises reassurance and confidence building, while motivation and peer support more explicitly address the social-emotional dimension. The study illustrates that SOL is not a uniform practice but a constellation of disparate activities, each shaped by the specific object that students prioritise at a given moment and each influencing how students engage with their peers and their studies.

2. What roles do *tools* play in students' self-organised learning?

The study found that tools play a central mediating role in self-organised learning, enabling students to address their objects and navigate and structure their activities. The tools in the activity systems I studied serve a range of purposes, including providing frameworks for organising study, planning tasks and structuring work in alignment with expectations (see 6.2.2.). They also create spaces for feedback and self-assessment, enabling students to track progress, test themselves and identify gaps in understanding. In this way, tools are not only instrumental in achieving material outcomes but also in fostering metacognition.

Tools also serve as enablers of collaboration and knowledge construction. They open channels for communication, exchange and collective meaning-making, offering shared spaces where students can negotiate ideas, co-create understanding and provide each other with motivation and support. For example, collaborative platforms and instant messaging tools allow learners to organise study groups, validate their thinking and build confidence through peer dialogue. These interactions reinforce both social and cognitive dimensions of learning, underscoring the relational role of tools.

A further role of tools is in performance evaluation and validation of knowledge. Assessment tools such as past papers, marking criteria or question banks are employed to benchmark progress, simulate testing conditions and ensure work aligns with expected standards. These resources help students set targets, practice under constraints and consolidate skills, thereby bridging the gap between independent preparation and formal assessment.

While these role of tools is broadly shared, their manifestations differ across activity systems. For example, tools may be deployed for deepening understanding (e.g., lecture videos and tutorials as conceptual guides), for exam preparation (e.g., past papers for practice) or for coursework (e.g., marking criteria to structure outputs). The object of activity shapes the choice and use of tools, meaning that the same resource can play a guiding, evaluative or collaborative role depending on context (see section 6.2.2). In line with Activity Theory, these tools mediate the interaction between students and their object of activity, though their effectiveness can be hindered if their design or format does not align with students' needs (see section 6.2.4).

3. **In what ways do social and group dynamics within student self-organised learning activity systems influence learning experiences?**

As discussed in section 6.2.3. the study found that the social dynamics and structure of SOL significantly shape group dynamics, productivity and learning outcomes, with patterns varying according to the object of activity.

The study highlighted both implicit and explicit rules shaping students' engagement in SOL activity systems. Rules varied according to the object of activity (see Chapter 5, rules section), these included expectations of punctuality, preparation, equitable contribution and respect for diverse perspectives. In some cases, groups established explicit rules that encouraged collaboration and engagement, such as reviewing questions before checking answers, taking regular breaks and keeping the learning environment relaxed (section 5.4.1.6). In other instances, rules remained unspoken yet understood, particularly around maintaining academic integrity (section 5.5.1.6) and

avoiding behaviours that distracted from the collective object. These rules provided structure and accountability, but they also safeguarded the social bonds underpinning motivation, ensuring that the group dynamic remained supportive rather than competitive.

Patterns of division of labour further influenced how learning experiences unfolded. While roles such as organiser or leader were often taken up by individuals with particular strengths, these roles remained fluid and responsive to the task at hand. For example, in skills acquisition activity system, the most knowledgeable students often acted as the leader, taking the teaching role based on their knowledge of the software demonstrating techniques before others practiced collaboratively (section 5.6.1.5). This adaptability allowed groups to maximise their resources, distribute workload effectively and cultivate a sense of shared responsibility. While the organiser is responsible for the logistics such as text message on time, venue and topics to be covered.

While SOL relies on collaboration and mutual support, the rules and division of labour differed across activity systems depending on the object of activity. For instance, in understanding and mastering course content Activity System (AS), the group maintained more relaxed rules and shared responsibilities to foster open discussion, in reviewing coursework AS, groups balanced structure with individual autonomy, while skills acquisition AS, groups often depended on peer expertise, creating temporary hierarchies. Whereas motivation and support AS, groups leaned on more egalitarian structures where mutual encouragement takes precedence. These differences show that social structures within SOL are not fixed but are continuously negotiated, shaping both the form and quality of students' learning experiences.

4. **What challenges or *contradictions* emerge during self-organised learning among students?**

While SOL offered participants valuable benefits such as enhanced academic performance, increased motivation, and strengthened peer support, this study also identified several contradictions that shaped its dynamics. These included primary, secondary and quaternary contradictions, each reflecting tensions

within or between elements of the activity systems. For example, a primary contradiction was observed in the motivation vs. autonomy tension (section 5.8.2.1), where individual students depended on the group for encouragement but wished to maintain control over their own learning and outputs. A secondary contradiction emerged in cases of unfulfilled commitments (section 5.3.2.1), where expectations around the division of labour were not met or group members contributed unequally. A quaternary contradiction was seen in the form of external obligations, where SOL activities such as reviewing coursework clashed with neighbouring systems like work, family, or other personal commitments (see Chapter 5 for detailed discussions of these contradictions).

Across the study, students also reported contradictions that were particularly disruptive to group functioning. Distraction contradictions highlighted the dual role of friendship within SOL groups, while social conversation supported a relaxed and encouraging environment, it also risked diverting attention from the object of the activity. Similarly, external obligation contradictions (see section 5.6.2.1) arose as students attempted to balance study sessions with work, academic timetables and personal responsibilities, often resulting in delays or rescheduling. These examples demonstrate that contradictions were not uniform but emerged differently depending on the activity system in question.

These contradictions drove ongoing attempts by students to further develop their activity systems. For example, students actively developed strategies to navigate and reduce the impact of contradictions. These included setting structured breaks to manage distractions, negotiating new times to accommodate conflicting schedules, and adjusting the size or composition of groups to improve balance and efficiency (see Section 5.5.2.5). Such adaptations illustrate how contradictions not only created obstacles but also generated pressure towards ongoing change and reconfiguration within activity systems. In this way, contradictions became both challenges to be managed and opportunities for growth, driving the evolution of SOL practices in higher education.

These findings show that SOL is a multifaceted and dynamic practice shaped by students' personal goals, social motivations and the tools and structures that

mediate their learning. The interplay between these elements creates both opportunities and challenges, influencing how effectively students can achieve their objectives. By highlighting students' perspectives, this study demonstrates that SOL is not only a mechanism for academic achievement but also a socially embedded process that fosters resilience, collaboration and personal growth while requiring careful navigation of tensions that arise within and between activity systems.

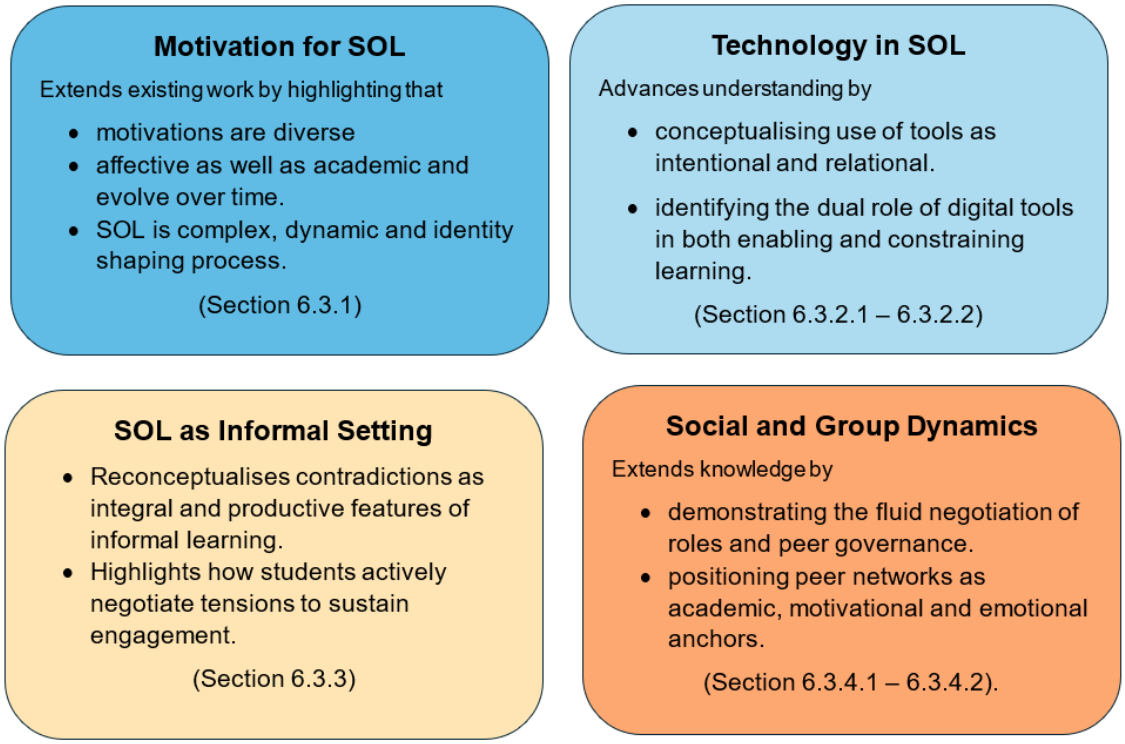
7.3 Contributions to Research Knowledge

This study makes a substantive contribution to the understanding of students' self-organised learning (SOL) in higher education by reconceptualising it as a dynamic, system-oriented, and socially embedded practice, rather than a peripheral or informal extension of formal learning. While existing literature has acknowledged the role and value of student-led learning beyond the classroom, it has largely examined SOL through fragmented perspectives focusing on academic outcomes (Crookall et al., 2000; Glaister et al. 2023; Keren et al. 2017; Wilson and Wilson 2019). This study extends this by positioning SOL as a distinct and dynamic activity system, shaped by the interaction of motivations, tools, social dynamics, and structural tensions.

Through the application of Activity Theory, this research offers a holistic and process-oriented account of how SOL is structured, enacted and adapted in informal learning contexts. This extends prior work, by introducing a systemic lens that captures the interdependence of multiple elements within SOL practices. The key contributions are summarised in Fig 7.1

Figure 7.1

Summary of Contributions to Research Knowledge



A key contribution lies in the reconceptualisation of why students engage in SOL. Aligning with existing studies which identify motivations such as academic reinforcement, collaboration and support (Archana, 2022; Crookall et al., 2000; Hendry et al., 2005; Kagwesage, 2014; Keren et al., 2020; Kommalage & Thabrew, 2011; Luchembe et al., 2021) however these studies tend to treat these as relative static drivers. This thesis advances the field by demonstrating that students' motivations are dynamic, interwoven, and evolving, functioning as objects of activity that shift over time. As illustrated in the findings (Chapter 5), students initially engage in SOL for immediate academic purposes, such as exam preparation but these motivations expand to include confidence-building, accountability, and emotional support. This introduces a temporal and developmental perspective, positioning SOL as an ongoing process of self-regulation and identity formation rather than a fixed learning strategy.

This study further contributes by reframing the role of technology in SOL. While prior research acknowledges the use of digital tools (e.g. Glaister et al., 2023;

Wilson & Wilson, 2019), it often treats them as neutral supports. However, my work aligns with the work of Spielhofer and Haselberger (2021) which recognises the more active role of technology and how it can enhance SOL. This study extends their work by demonstrating how technology operates as a mediating artefact that is intentionally selected, context-dependent, and at times constraining as well as enabling. This study introduces the concept of tool-object alignment, showing how the effectiveness of technology depends on its relationship to learners' goals and activity systems. This provides a more critical and nuanced understanding of digital mediation in SOL.

Another contribution of this research is the identification of contradictions as intrinsic features of SOL. This study aligns with previous studies which acknowledges challenges such as unequal participation, distraction, or lack of structure (e.g. Bertram, 2003; Glaister et al., 2023), however, they are typically framed as limitations. Drawing on Activity Theory, this research reconceptualises these tensions such as autonomy versus collaboration, motivation versus distraction, and differing expectations as drivers of adaptation and transformation. This extends work on regulation in collaborative learning (Melzer et al., 2020) by situating contradictions within a broader system, thereby offering a more analytical framework for understanding how SOL evolves.

This research also advances understanding of social and group dynamics by moving beyond structural descriptions of group formation and size (Hendry et al., 2005; Keren et al., 2020) to examine the processes through which groups function and sustain themselves. It demonstrates that roles within SOL are fluid and negotiated, with students actively engaging in peer governance, role distribution, and the co-construction of behavioural norms. Furthermore, the study extends existing literature by highlighting the social and emotional anchoring function of SOL, where peer networks provide motivation, accountability, and emotional support (Keren et al., 2020; Vines, 2010). This reframes SOL as a socially and emotionally embedded learning system, rather than purely cognitive collaboration.

These contributions provide an integrated framework for understanding SOL as a complex activity system in which motivations, tools, tensions, and social dynamics are deeply interconnected. This study demonstrates that SOL is not merely an informal or supplementary activity, but a structured, adaptive and self-regulating practice, shaped by the interplay of individual agency, social interaction and contextual conditions. In doing so, it moves beyond descriptive and outcome-focused approaches, offering a systemic and forward-looking perspective that provides a robust foundation for future research into the complexity and evolving nature of student-led learning in higher education.

7.4 Implications for Policy

This section considers the wider policy significance of the study's findings, revisiting the international, national and institutional frameworks outlined in Section 1.3.

As outlined in section 1.3, international policy discourses promoted by UNESCO and the OECD have highlighted learner autonomy and student agency as essential competencies for 21st-century education. UNESCO's work on Open Educational Resources (2019) positions students as proactive and self-directed learners, while the OECD's Future of Education and Skills 2030 initiative defines student agency as the capacity to navigate unfamiliar contexts independently and responsibly. These frameworks align with aspirations for higher education to foster autonomy, critical thinking and lifelong learning. However, the analysis in this thesis challenges the way such policies frame agency primarily as an individual endeavour. The findings demonstrate that SOL frequently emerges through collective, peer-based practices. Students form groups, co-construct informal learning environments and leverage digital tools to support shared academic goals. These collaborative spaces play a vital role in sustaining motivation, fostering confidence and enabling students to navigate complex academic tasks. They provide safe, non-judgemental environments where peers could share vulnerabilities, exchange knowledge and support one another.

By extending the concept of student agency beyond individual autonomy, this thesis contributes to ongoing policy discussions through its focus on the collaborative nature of SOL. While UNESCO and the OECD correctly underline the need for independent learning competencies, the evidence presented here demonstrates that students also require recognition and support for collective forms of agency. This perspective broadens the scope of policy, pointing towards the importance of valuing and legitimising peer-led, co-constructed learning practices within higher education.

As discussed in section 1.3, at the national level HE frameworks such as the UK Quality Code for Higher Education (QAA, 2024), UCAS guidance and the Australian Qualifications Framework (AQF Council, 2013) consistently identify the development of independence and self-management as core student outcomes. These documents provide valuable clarity in expectations and serve to prepare students for the demands of HE and professional life. By standardising expectations of independent learning across qualifications and national systems, they foster consistency and accountability in academic standards. Yet they also risk narrowing the definition of independence to solitary study. The findings from this study illustrate that independence often develops through collaboration. This thesis aims to broaden national policy conversations by highlighting the collective dimensions of independent learning. By acknowledging that students often demonstrate independence through collaboration and peer-led initiatives, national frameworks could therefore benefit from broadening its definition of independent learning to recognise how students' SOL complements formal structures. Such recognition would not diminish the value of autonomy but instead align national policy more closely with the lived experiences of students.

At the institutional level, universities translate national and international higher education discourses into explicit workload expectations. Universities, such as Lancaster (2024) and Cambridge (2024), commonly set benchmarks of 35–40 study hours per week, with the majority allocated to independent study. Similar policies exist internationally (e.g., U.S. Department of Education, 2010; Deakin University, 2024; VinUniversity, Hanoi, 2023). These guidelines offer valuable

structure and transparency, providing students a clear framework for managing their time between taught sessions and independent study.

However, this study reveals a significant disjuncture between policy assumptions and student realities. While these guidelines provide structure and transparency, they often presuppose that independent learning is a solitary activity. In practice, participants in this study consistently described SOL as collaborative such as coordinating schedules, division of labour or offering peer feedback. These practices not only facilitated content mastery but also nurtured interpersonal growth, emotional safety and shared responsibility. Institutional policy could therefore evolve by explicitly legitimising and supporting students' SOL as a valid mode of independent study, ensuring that benchmarks reflect both individual and collective learning practices. The findings of this thesis call for a shift in institutional policy perspective. Rather than framing independent study as an entirely individual task, institutions should revisit and broaden their definitions of independent learning to explicitly acknowledge and legitimise self-organised, peer-based practices. Recognising SOL as a social, sometimes collective practice and a valid effective form of independent study would allow policy to reflect more accurately the realities of student practice, while still upholding academic rigour. By appreciating that effective learning often emerges through social negotiation and collective effort, institutions could design policies that not only set expectations but also actively support the diverse and collaborative ways students achieve them.

While International, national and institutional policies rightly stress the importance of independent learning, they risk narrowing this concept to an individual endeavour. The evidence from this study demonstrates that independence is often enacted through collaborative, self-organised learning systems that complement formal structures and sustain students' academic and personal development. Recognising and legitimising these practices within policy frameworks would not only align expectations more closely with student experiences but also enrich higher education by embracing the full spectrum of how learners exercise agency.

7.5 Implications for Practice

This study offers significant implications for academic practice within UK higher education, particularly in how student learning beyond the formal curriculum is recognised and supported. As discussed in Chapter 1, institutions consistently promote independent learning, yet often frame it as an individual, solitary endeavour. The findings of this research challenge that framing, showing instead that students frequently rely on collaborative, self-organised learning (SOL) practices that remain largely invisible in institutional discourse. Building on this insight, three key implications for practice can be drawn.

The first implication is that institutions should move beyond equating independent learning with isolated, individual study. As discussed in Section 1.3, expectations of independence are often underpinned by assumptions about self-motivation and autonomy that do not reflect the lived experiences of students. This research shows that independence is frequently enacted collaboratively through SOL practices such as peer-led revision, resource sharing and informal mentoring. Recognising these practices as legitimate forms of learning would bring institutional discourse into closer alignment with student realities. Staff could acknowledge this in their teaching and actively encourage students to build and sustain peer networks.

A second implication is that curriculum designers should not assume that embedding group tasks automatically develops collaboration. SOL must be understood as distinct from institutionally designed group projects. Findings indicate that SOL fosters open dialogue, shared reflection and genuine collaboration. This implies that institutions might create spaces that support and value informal learning practices. For example, enabling peer networks, promoting student-led SOL communities and integrating co-created resources into the formal learning ecosystem.

A third implication is that staff development and curriculum design should take account of the parallel systems of learning that students create for themselves. Educators could, for instance, signpost students to SOL learning communities, integrate co-created resources into module design, or acknowledge in their

teaching the collaborative ways students are already learning together. As discussed in Chapter 1, overlooking these dynamics reinforces the burden of individual responsibility, whereas recognising them creates opportunities for collective resilience, emotional safety and the development of vital collaborative competencies.

This research highlights the richness and complexity of SOL as a student-driven response to the challenges of academic life. It calls for a shift in practice that moves beyond promoting independent study as an individualised, solitary endeavour and towards recognising students' SOL as a crucial part of student success. By valuing SOL as a legitimate and meaningful form of academic engagement, institutions can better align practice with the realities of how students learn and flourish. Importantly, supporting SOL need not mean formalising or standardising it, rather, it involves understanding and acknowledging the autonomy, creativity and resourcefulness students already bring to their learning journeys.

7.6 Limitations

In this section, I highlight the limitations encountered in this study, which should be acknowledged both to contextualise the findings and to guide future research.

Firstly, the scope and sampling of the study were focused on students already engaged in self-organised learning (SOL), with 16 participants drawn from 12 different UK universities. While this offered a rich and varied set of insights, the sample was inherently selective. Students were recruited because they were active participants in SOL, meaning the study does not represent the views of students who do not engage in such practices. This overlooks the experiences of those who may face barriers to accessing or initiating SOL opportunities, or who prefer to engage in learning alone or within more formal structures. As a result, the knowledge generated reflects the strategies, motivations and reflections of proactive learners and cannot be generalised to all student populations.

The participant pool was diverse in terms of disciplinary backgrounds spanning 14 different courses across STEM and non-STEM subjects and included students from undergraduate and postgraduate levels. However, only one participant was in their first year of study, consequently, the findings may reflect the perspectives of more experienced students who have had time to develop and reflect on their learning strategies, limiting insight into how novice learners might engage in SOL.

In terms of methodology, data collection was carried out through semi-structured interviews, which enabled participants to share detailed reflections on their experiences. While this approach was effective for exploring narratives, the findings rely on participants' self-reporting rather than direct observation of their practices over time. This reliance may affect the accuracy of the knowledge generated, as participants' descriptions may be influenced by memory, interpretation or social desirability, rather than capturing real-time learning behaviours.

Another limitation relates to the analysis of activity systems. The study focused on a sample of participants rather than specific activity systems themselves. I had to determine the activity systems within my analysis based on the objects and interactions participants described. This approach was necessary due to the difficulty of recruiting participants engaged in often-invisible SOL practices. However, this means that the knowledge generated is constructed from knowledge of a single activity system from a range of different perspectives, potentially limiting the completeness and depth of understanding of collective practices. Future research could recruit multiple participants within the same activity system to provide a more detailed and triangulated perspective.

Although the study aimed to examine SOL from multiple angles, certain areas remained outside its scope. Notably, institutionally mandated group projects while mentioned by participants were not the focus of this research. These projects differ from student-initiated SOL such as the structure, assessment-driven goals and enforced participation and thus required separate analytical

treatment. Additionally, while the study included students from a range of institutions, it did not explore cross-institutional collaborations or cultural influences in depth. Thus, the findings provide insights into SOL primarily within UK institutional contexts.

Despite these limitations, the study offers in-depth insights into how SOL operates in specific contexts and among particular groups of students. It provides a conceptual and practical foundation upon which further research can build, particularly in examining how institutional structures may better recognise, support, or even learn from these informal, peer-driven SOL practices.

7.7 Personal Reflections

This research has been both an academic and deeply personal journey. My interest in student self-organised learning (SOL) was sparked not only by my professional engagement in education but also through close personal observations most notably, supporting my son during the COVID-19 pandemic. Witnessing him and his peers form informal learning groups to cope with the sudden shift to online education highlighted the importance of peer-led, self-initiated strategies that are often invisible in institutional discourse. This experience planted the seed for my enquiry into what drives such practices, how students structure them, and how they navigate associated challenges.

As I progressed through the research, what initially appeared to be survival strategies adopted by overwhelmed students revealed themselves to be intentional and meaningful learning systems. These student-led SOL practices challenged my assumptions about independent learning as an isolated, solitary activity. Instead, I came to understand independent learning as something that could be collaboratively enacted both socially and intellectually. It shifted my view of what learner agency looks like in practice.

The process of conducting interviews and listening to students' experiences gave me a renewed appreciation for the complexity and adaptability of student learning. Their stories often reflected a quiet resilience and creativity that

institutional systems rarely acknowledge. Many participants spoke not just about academic outcomes, but also about confidence, belonging and emotional support elements often overlooked in measures of success. This reaffirmed my belief that education must be understood not only through curriculum and assessments but also through the lived realities of those navigating it.

Activity theory provided a powerful lens for making sense of these dynamics. It allowed me to see learning not just as the acquisition of knowledge, but as a dynamic activity system shaped by tools, rules, communities and tensions. It helped reveal the daily contradictions students navigate, such as balancing academic demands with social connection, autonomy with structure, and motivation with exhaustion.

Finally, this project has transformed the way I think about my role as an educator and supporter of students. I have come to see value in recognising the informal, peer-led SOL practices that students already engage in, often with great success. As a parent, educator, and researcher, this study has deepened my commitment to advocating for policies and practices that support not only formal learning but also the self-directed, collaborative efforts students undertake on their own terms.

7.8 Implications for future research

This study offers important insights into students self-organised learning (SOL). While it has contributed to a richer understanding of how and why students self-organise their learning, as well as the challenges they face, there remain several important questions and areas that future research could explore in greater depth. As higher education continues to shift in its delivery methods, expectations and digital environments, understanding how students adapt and self-organise remains a pressing area of research.

First, future research should investigate the experiences of students who do not engage in SOL. This builds on my contribution concerning student motivations (see Section 6.3.1), which revealed their diverse and evolving nature. Examining why some students choose not to participate whether due to

motivational, social, structural or technological barriers would provide a fuller account of learning agency across the student population.

Second, future research would benefit from methodological diversification. In particular, the use of diary studies alongside interviews could capture the dynamic and situated nature of SOL identified in this study. By tracking students' practices, technology use and social interactions over time, researchers could better observe how motivations, roles and tool use evolve in practice rather than retrospectively.

Third, future research should extend examination of the dual role of digital tools (see Sections 6.3.2.1 - 6.3.2.2). This study demonstrated that technology may both enable and disrupt SOL. Further research could explore how students negotiate, resist or repurpose digital platforms, and how such practices vary across disciplinary, institutional or cultural contexts.

Fourth, future research should examine SOL more closely through the lens of activity systems as collective units of analysis. While this study has highlighted how motivations, use of tools, contradictions and role negotiations shape student-led practices, further insight could be gained by recruiting multiple participants embedded within the same activity system. Such an approach would enable researchers to triangulate perspectives and capture the interplay of roles, tools, and shared objects in greater depth. This would extend the present study's contributions by offering a more comprehensive picture of SOL as a dynamic, context-sensitive process, and by refining the application of activity theory in informal higher education contexts.

Fifth, this study encourages researchers to continue reconceptualising SOL as a dynamic, context-sensitive process (see Section 6.3.1 and 6.3.3). Rather than treating SOL as a static strategy, future research should investigate how shifting motivations, role negotiation and group dynamics interact over time, especially in hybrid and post-digital learning environments.

Sixth, further attention should be given to the affective and emotional dimensions of SOL (see Section 6.3.4.2). This study showed that SOL groups act as social anchors, sustaining motivation and resilience. Future research

could explore how students construct emotionally safe and motivating environments, and how institutions might better support these informal affective practices.

Seventh, future research should critically examine the emerging role of artificial intelligence (AI) in shaping SOL practices. Building on this study's contribution regarding technology as a mediating artefact (Section 6.3.2), AI introduces new possibilities and tensions within student-led learning. Future studies could investigate how students incorporate AI tools into their SOL practices, whether as sources of knowledge, feedback, or reflective support, and how this influences autonomy, collaboration, and motivation. Research is needed to explore how AI mediates tool-object relationships, whether it enhances or diminishes peer interaction, and how students navigate potential contradictions such as efficiency versus deep learning, or independence versus reliance on automated support. Additionally, examining how AI may reshape group dynamics, participation, and access to learning resources would provide valuable insight into the evolving nature of SOL in increasingly digital and AI-augmented learning environments.

Finally, research should explore how institutions can formally recognise or support SOL without undermining the autonomy and flexibility valued by students. This builds on the contribution regarding navigating contradictions in SOL (see Section 6.3.3), where students themselves developed adaptive strategies to manage tensions. Institutional interventions must therefore be carefully designed to complement rather than replace student-led practices.

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Appendix One: Interview Protocol used

Interview Guide Structure

- **Opening Questions** – build rapport, introduce the topic.
- **Core Questions** – explore key themes aligned with research objectives.
    - Use probes and follow-ups e.g., 'Can you elaborate?'
- **Closing Questions** – summarise discussion, clarify responses, invite final comments.

Researcher Role

- Act as facilitator, encouraging participants to share freely.

Ethical Consideration and Data Management

- Obtain informed consent prior to interview
- Confirm receipt of written consent and explain confidentiality and right to withdraw
- Transcribe interviews verbatim and anonymise participants.
- Store recordings and transcripts securely (password-protected files).

Setting and Duration

- Quite environment (Online)
- 30 – 45 minutes, audio-record with permission.
- Take notes.

Pilot Testing

- Conduct pilot interview to check clarity, timing and flow.
- Adjust questions, if necessary.

Closing Procedure

- Thank participants and provide summary of discussion.
- Confirm willingness to be contacted for follow-up if needed.

Appendix Two: Interview questions

1. Could you please work me through your initial encounter with this kind of learning approach (self-organised learning) and what led you to it?
2. Kindly provide an overview of the SOL process you engage in and explain the factors or motivations that led you to adopt this approach?.
3. Can you narrate a specific encounter with SOL? Please describe the circumstances and your impressions during that instance?
4. What were your objectives when you embarked on this learning approach? What outcomes were you aiming to attain?
5. Your use of resources and technology to facilitate SOL is of interest. Could you detail the resources and technology you employ to support your SOL? How did these resources contribute to your learning journey?
6. How does your engagement in SOL relate to other forms of learning within your university?
7. I would like to gain insight into the individuals who participated in the SOL activity and the nature of their involvement.
8. Are there any established or unspoken ground rules governing your SOL activity system?
9.How are responsibilities and roles distributed among participants? What types of roles are present, and which individuals undertake these roles?
10. What kind of challenges or conflicts have you encountered while engaging in self-organised learning? Could you provide an example and elaborate on how you navigated through it?
11. What do you see as the benefits of this type of learning approach and is it something you would recommend to peers?
12.How does your engagement in SOL relate to other forms of learning within your university? Are there collaborative projects or groups that intersect with your SOL activities? How do you effectively manage these collaborative connections?
13. Is there any crucial aspect related to your SOL approach that we haven't covered in our discussion? Please feel free to share any additional insights that you believe are pertinent?
14. Have you got any questions for me?

List of abbreviations

AQF	Australian Qualifications Framework
AS	Activity System
AT	Activity Theory
HE	Higher Education
OECD	Organisation for Economic Co-operation and Development
OER	Open Educational Resources.
OQF	Ontario Qualifications Framework
QAA	Quality Assurance Agency
SOL	Self-Organised Learning
UCAS	Universities and Colleges Admissions Service
UNESCO	United Nations Educational, Scientific and Cultural Organization