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A Case Study

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Interactions in Higher Education Contexts of Before and During the COVID-19 Pandemic: A Case Study

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Abstract

When COVID-19 was declared a global pandemic, countries and universities went into a lockdown where people were not allowed to meet face-to-face to prevent transmission of the virus. This study captured and analysed certain timeframes and moments of interactions to understand participants' mediated interactions with people and artefacts for learning activities situated in the face-to-face and fully online contextual settings, within the before and during the COVID-19 lockdown contexts. At the time of this research, no similar study has been identified in the existing literature.

The literature review brings together a sociocultural perspective with concepts of mediation, agents-acting-with-mediational means, and appropriation of tools affordances. These concepts are employed to offer explanations on teacher-students, students-students, and students-tools interactions used to fulfill university tasks.

Instructors and third-year undergraduates in a pre-requisite English language course were the focus of the empirical setting. A two-phase qualitative case study design with interviews and observation methods allowed for the collection of data and accounts of these interaction experiences.

The key contribution of the research lies in the recognition of the profound significance of direct interactions, to foster a sense of togetherness and presence, particularly in face-to-face contexts. Face-to-face interactions are fundamental for learning activities as processes are fluid, engaging and are embedded within a complex interplay of language, nuanced meanings, cultural and historical background, and appropriation of tools to assist learning, all of which coincide naturally in a shared physical space. Online learning was useful in assisting the execution and the completion of tasks in some instances, but a lack of spontaneous interactions including replies, body cues, and emotional support was evident. Subsequently, recommendations emphasising integrating face-to-face and online learning to encourage interactions based on the advantages and constraints found in the two different modalities are provided to students, instructors, and higher education institutions.

This research moves the field forward by enriching the growing body of literature in understanding interactions in the distinct learning contexts of face-to-face and fully online. The study is novel through its rich and in-depth findings, effective and meaningful application of sociocultural theory, and the adaptability of its research design amidst the challenges presented by the COVID-19 pandemic.

Author's Declaration

I declare that the work in this dissertation was carried out in accordance with the requirements of the University's Regulations and Code of Practice for Research Degree Programmes and that it has not been submitted for any other academic award. Except where indicated by specific reference in the text, the work is the candidate's own work. Work done in collaboration with, or with the assistance of, others, is indicated as such. Any views expressed in the dissertation are those of the author.

SIGNED: ....Farha Alia Binti Mokhtar………   DATE: ....20/12/22............

Dedication

For my parents; Mokhtar Abdullah and Jumiah Suyut

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"My Lord, increase me in knowledge" [20:114].

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Chapter 1: Introduction

1.0 Introduction

Humans are social beings with interactions being the centre of their human developments and daily activities (Vygotsky, 1978). People interact between themselves, both individually and in group(s) such as to express opinions, relay information, come to an agreement, or collaborate to complete a task. Some examples of this include a team working on a marketing or political campaign, a university's management team deciding on their institution's policies, or a non-profit organisation discussing building a community school with the community involved, and many others. People also interact with or through physical tools such as computers and books to find and obtain information, and to communicate with other people (e.g writing a letter, calling someone on a telephone, and writing an online blogpost to share ideas). To execute these activities, the many interactions between people and with or through tools have to take place.

Due to the clear importance of interactions in humans' activities, it is safe to assume that interactions are key to education contexts as well. Arguably, there is already a plethora of research on interactions in learning contexts (see Chapters 2 and 3). However, this study adds to what has been done hitherto by offering fresh perspectives on interactions when teachers and students are in face-to-face and in fully online contexts because of the shocking COVID-19 lockdown that affected universities' mode of teaching and learning. Being presented with such a rare opportunity, this study offers insights into people's interactions when they were able to meet and speak directly with each other to suddenly being unable to convene in a face-to-face context and relying entirely on digital tools for their online learning and the communications between them.

In particular, this study contemplates the importance of physical presence for effective communication, the potential differences in impacts and learning experiences between being in close physical proximity and communicating in the online space, and the possibility of recreating a similar sense of presence and togetherness in the online realm as we do in face-to-face interactions. The answers to these inquiries are not only valuable for enhancing interactions in educational settings but also fundamental for understanding the core aspects of human interactions and our adaptability to diverse environmental contexts.

In this introduction chapter, I present an overview of the background of this study concerning interactions in education, technologies in higher education, higher education and technologies in the Malaysian context, and also outline the sudden arrival of COVID-19 and its interplay with education settings. The following sections are followed by the study's problem statement, research aim and questions, its purpose and significance, and finally an outline of the structure of the thesis.

1.1   Background of the Study

Interaction is the focus of research because of its significant role in human activities including education. The education settings which I focus upon in this study entail teaching and learning activities in both face-to-face and fully online contexts. In the first sub-section below, I present ways that interactions can occur in education contexts in assisting people to progress in their university activities including the completion of tasks. In the following sub-section, I briefly present people's use of digital tools in the classroom and for online learning which may also influence their teacher-students and students-students' interactions. The next two sub-sections concern the Malaysian government's policy on technologies and its interplay in higher education as the context where the study took place. Moreover, the arrival of COVID-19 that

becomes the monumental backdrop to this study is outlined. All four sub-sections are interlinked, and serve as rationales for why this current study is warranted.

1.1.1 Interactions in Education Settings

In educational settings, people interact in order to progress in their learning such as completing group tasks which require people to discuss and produce collective ideas about a subject. Previously and in some current educational settings, teachers interacted with students mainly to impart knowledge while students were expected to passively accept the information relayed (Emaliana, 2017). In other recent educational contexts, the interactions are oriented more towards students-students discussions and collaboration, and teacher-students exchanging input about a subject (Murphy, Eduljee & Croteau, 2021).

These types of interactions can be a contested term. Thus, what aspects of interactions that we need to be focusing on and how can we gain in-depth insights about them? Humans interact by largely employing physical tools such as a paper and pen, and psychological tools such as language, signs, and gestures to control and make modifications to their intended objectives, including to interact with each other (Vygotsky, 1987; 1978). Humans' interactions are in reflux and are constantly interconnected (Wertsch, 1991; Saljo, 1991). This means that both physical and psychological tools can be simultaneously interrelated and become required within an instant of a given interaction activity. In these humans' activities, progress and other long-term gains are gradual (Vygotsky, 1987). Hence, this study focuses on snapshots of certain timeframes within a moment to investigate what these interactions may look like. Having access and data to these moments of interactions are important because it allows us to break down the aspects embedded in that interaction with as many details as we can.

Studies have shown encouraging results when interactions are prioritized in learning contexts such as being able to show a deeper understanding about a topic, achieve a classroom consensus

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and to alleviate challenges in group tasks, all mainly through talking, gesturing, and by using physical tools to convey their ideas (e.g Froytlog & Rasmussen, 2020; Mercer & Littleton, 2007; Aljaafreh & Lantolf, 1994). These findings add to the reasons for interactions to be studied. We would not have been able to evaluate and make informed decisions on aspects of interactions to emphasise if researchers did not delve into it, such as in teacher-centered and student-student centered interactions (Murphy et al, 2021).

Interactions in education settings cannot be abstracted from their context because what we can do for learning is determined by environments which afford a structure to the activity (Crook & Light, 2002). This means that interactions are potentially better supported face-to-face where individuals may share a physical space to communicate with each other. Interactions must also consider the contextual settings in which they materialize because of the fluid and complex connections between the environment and human actions (Vygotsky, 1978; Rogoff, 1995), which entail cultural (e.g Loh & Teo, 2017; Zubir, 1988; Hofstede, 1980) and their institutionalized aspects as well (Mercer, 2004).

However, the adoption of digital tools in education, including online learning, will comprise of other forms of 'activity-in-context', such as students sitting in their bedrooms while they are attending an online lecture. As a result of this, interactions may look different and could yield dissimilar outcomes as well as experiences (see Adalberon & Saljo, 2017; Crook, 2012). Subsequently, interactions in such education settings are crucially significant for exploring in greater detail because they may influence the way people teach and learn, as well as complete tasks. An example of this is when students are assigned to carry out an online group presentation. In order to attain the objective (i.e present their topic) students may need to engage in online appointments to discuss and negotiate what the contents of their work will be, to delegate tasks through text messages, and also to use tools such as video or voice calls to

collaborate with their colleagues. All of these actions are embedded within an interaction that will assist them to attain their task objectives but will also offer different experiences compared with face-to-face group interactions.

In conclusion, interactions are important to be studied in-depth because humans require interactions to attain their learning objectives. However, with interactions currently occurring through a range of different mediums including face-to-face or fully online, we must study the embedded aspects and influences of such interactions in education. The findings may yield a greater understanding of what constitutes as significant aspects of interactions that we need in order to execute and complete tasks in learning contexts.

Further discussions on interactions can be found in Chapters 2 and 3 where the theoretical perspective on interactions, its components, and applications in education settings as well as in this study are duly set out.

1.1.2 Technologies in Higher Education

In this section the importance of how people use technologies in education that may also influence their interactions is explored. This is because, in the contemporary age, digital technologies are ubiquitous in higher education settings and throughout society more generally (Lantolf & Thorne, 2006). The use of computers in and outside of classroom as well as online learning has been adopted as part of teaching and learning in universities across the globe. For instance, technologies such as interactive whiteboards, smartphones, Ipads and others have been introduced into higher education with the hope of advancing innovative applications for more personalised and engaging teaching and learning (OECD, 2018).

Meanwhile, online learning has been said to allow students both the space and time to conduct their own learning activities and to have quick communications with colleagues about their

tasks (Pogue & AhYun 2006). Students may be able to work with each other and complete tasks by employing the digital tools available to them. However, the leniency and quick communication also mean that interactions between students and teacher-students may be on the surface and less engaging compared to face-to-face classes where interaction can be immediate and direct (Crook & Cluley, 2009).

Moreover, the research on online learning and digital technologies in education has produced inconclusive findings on learning experiences and on the outcomes for academic purposes (see Chapter 3). For example, there was no significant difference found on immediate or sustained gains of computer mediated corrective feedback on adult learners' second language knowledge (Sauro, 2009). More importantly, it was not the computers that provided feedback, but rather native speakers who corrected students' mistakes through the synchronous Virtual Classroom chat tool on Blackboard VLE. Hence, I question if there are advantages in the frequent applications of physical and digital tools (i.e computer and its software) for education if it is actually, in effect, masked by a human who corrects another human behind the technologies.

Therefore, digital tools, alone, are neither transformative nor are they impactful in education, they actually act as facilitators. Tools have design ideas in them, but the actual uptake and use of these digital technologies relies on their designs and what people see as being meaningful and decide what to do with them (Norman, 1988). Technologies and people have a bi-directional relationship between contestant adaptation, reinvention, and change, which happens because tools and people and time are immersed together (Lantolf & Thorne, 2006). Consequently, this study seeks to redirect conversations about the mere application of technology in education to how people use technologies to interact, including the purpose of employing digital tools in education. Further discussions about this topic can be found in Chapter 3.

1.1.3   Higher Education and Technologies in a Malaysian Context

The study took place in a public university in Malaysia. Subsequently, it is important to also consider the interplay between the Malaysian government policy and higher education institutions where the policies operate, and on their potential implications on the interactions embedded in such education settings (Campbell, 2018). Some Asian countries, including Malaysia, are characterised by certain configuration of power-distance whereby people generally accept hierarchal order in society (Loh & Teo, 2017; Hofstede, 1980). The power-distance is embedded in various aspects of life, ranging from political, to family institution, and to education. As stated by Lee (2003),

> "…the Malaysian state has played an authoritative policy role in setting the agenda, determining the values, and directing economy and society to follow its instructions, towards prescribed ends". (pg. 2)

However, like any previous policies on technologies, its implementation is gradual. Moreover, technologies are never static, they tend to change over time, such as from using a projector and a computer in the classroom to using an interactive whiteboard. The advancement of digital technologies in Malaysia education system can be traced back to the 1990s. At school level, Malaysia established Smart Schools that focused on technology skills that aimed to accommodate the rising demand of technology-literate workforce (Smart School Project, 1997, in Majeed & Yusoff, 2015).

In higher education, Malaysia first saw the rise of e-learning in the year 2000 at the Universiti Teknologi Tun Abdul Razak (UNITAR) and at the Open University Malaysia (OUM) (Daruis & Zainal Shah, 2016). In 2010, the Ministry of Higher Education decided to supplement universities with e-learning implementation policy (Ministry of Higher Education, 2011). This is because the government sought to have a standardised policy for e-learning, integration,

training and governance, and e-content developments, as well as a rewards system for innovative lecturers (Ministry of Higher Education, 2010).

In 2015, the government followed up with a mandatory online learning policy accompanied by a framework for all public Higher Education to encourage the national use of an online modality (Malaysian Ministry of Education, 2015). Though the government's prepared frameworks may be mechanistic, public universities tended to adopt them without serious revision (Daruis & Zainal Shah, 2016). The incorporation of online learning has prompted a stricter use of online platforms which can be tracked easily by the educational institutions, particularly through universities' Virtual Learning Environments (VLE). The medium may vary from one university to another as they adopt a developers' software (e.g., Moodle, Blackboard, Edmodo), or design their own university's Virtual Learning Environment (VLE) (Roslina, Nur Shaminah & Sian-Hoon, 2013).

Nevertheless, Hamat, Embi and Sulaiman (2011) have pointed out that the university's e-learning platforms are nonetheless under-utilized. Some attributed the situation to a poor attitude to change on the part of instructors (Buche, Davis & Vician, 2012) or low motivation (Hussin, Aboswider, Ismail & Yoke, 2011). Although universities encourage online learning and the use of digital tools in classroom, most of the teaching and learning activities, still in reality, take place face-to-face accompanied by Power Point Presentations while the online component is mainly used to support the course' requirements such as learning materials, announcements, and submission.

Reviewing these education policies led me to question the relevance of imposing certain digital tools (e.g Whiteboard, VLE, Blackboard and others) instead of focusing on purposeful ways in which face-to-face and online learning can co-exist. Further, imposing mandatory online learning through university's platform begs the questions of whether instructors had not been

employing any external online applications to support their lessons all the while. A survey by Murugaiah and Hwa (2018) indicated that instructors used social networks such as WhatsApp and Facebook frequently to communicate with their students, together with video resources from YouTube in order to retain students' interest in classroom, and interactive websites to pool students' responses related to the lessons. Other instructors have also been adopting similar or different tools to support their lessons, including Facebook in language teaching (Kabilan, Ahmad & Abidin, 2010), and the use of mobile devices for vocabulary learning (Ali & Ghazali, 2016). These examples imply a personalized uptake of technology where instructors are adopting familiar and suitable applications based on their lessons and their interaction purposes with students.

As can be observed from this section, there is already a strong relationship between the cultural aspects of a context (e.g high power-distance) and the government's policies (e.g online learning framework), and to education more generally (e.g universities' compulsory use of VLE). Malaysian universities appear to have been adopting the top-down approach where instructors are expected to fulfill the requirements communicated to them and students are expected to follow these through with the technology infused learning experiences planned for them. The issue here concerns the futility of imposing certain digital tools as opposed to looking at how digital tools can support these interactions and complement face-to-face lessons when in and outside of classroom. Although I highlighted Malaysian higher education as the context of the study, similar conditions that emphasise the frequency of these technological tools and shift to online learning to replace or minimize face-to-face teaching and learning can be found elsewhere (OECD, 2018; Lantolf & Thorne, 2006).

1.1.4 Arrival of COVID-19 and Its Interplay in Education Contexts

This research initially explored Blended Learning, a teaching and learning delivery system that combines face-to-face and online modalities (Ministry of Higher Education, 2015), at a higher education institution. The analysis expected to compare policy implementation with agentic learning activities in a Blended Learning classroom. However, the unprecedented and unexpected arrival of COVID-19 disrupted the planned Blended Learning modality, leading to a complete shift to fully online learning. Moreover, government mandates to increase online activities were automatically fulfilled, making it challenging to discern participants' agentic stance towards using online tools for learning because other alternatives, primarily face-to-face was no longer available.

The outbreak of COVID-19 provoked a time of many uncertainties and fear. Students had to leave university accommodation and return to their family homes. Whilst facing this complex setting, teachers and students were expected to continue their university activities as 'normal' but completely online. The most intriguing part of COVID-19 in relation to this study concerns the unprecedented and immediate shift from face-to-face to fully online learning. This is because the study can now pose several intriguing questions regarding interactions in learning activities within the two distinct and separate settings. Specifically, it explores how individuals adapt, cope, and complete tasks in these contrasting environments, and examines the potential impacts on their learning experiences and outcomes. The unparalleled nature of the global pandemic provides a unique and irreplicable context. This presents a remarkable opportunity to investigate educational landscapes that are increasingly advocating for online modalities and to examine whether our sense of presence and togetherness oftentimes experienced through face-to-face interactions can be effectively replicated online. Furthermore, once we have examined both face-to-face and online settings, this study prompts contemplation about the viability of Blended Learning as the preferred approach moving forward.

Further discussions of emerging studies on interactions and learning activities during the pandemic are presented in Chapter 3, while the implications of COVID-19 to this study can be found in Chapter 4.

1.2   Statement of the Problem

Human interactions embedded in the mixture of face-to-face and online learning that have been practiced at universities are already, by their very nature, complex. The arrival of COVID-19 added to the interaction complexities because it caused face-to-face lessons to shift to completely online spaces. An issue that may arise from the impact of the COVID transition may be seen among students who are accustomed to the institutionalized practice of teacher-centered lessons (Loh & Teo, 2017; Wursten & Jacobs, 2013), and face-to-face interactions with colleagues and instructors to complete tasks (Sime, 2008). Therefore, it is timely and crucial for this study to understand challenges faced by students in their learning activities during this transition. By delving into this area, the research provides insights and possible ways to resolve the arising issues. Teachers too, may face impacts from the shift because they are familiar with the gradual and controlled teaching approach (Poehner, 2008), and rely on face-to-face interactions to gauge student understanding (Rojas-Drummond & Mercer, 2003). However, due to the unprecedented shift, especially in the context of the COVID-19 pandemic has required teachers to adapt quickly to the fully online landscape whilst potentially having minimal support and preparation. Thus, this study intends to explore the complexities in teacher-students' interactions, aiming to generate recommendations that can support purposeful integration of the two mediums for future classrooms.

Finally, education institutions are inevitably affected by the transition from a blend of face-to-face and online learning to fully online learning approach prompted by the COVID-19, leading to disruptions in universities' existing policies. Thus, this study problematizes the normal

practices at universities and challenges the notion that technologies including online learning can automatically enhance education. Findings related to institutionalized practices can inform universities on how to adapt their blueprints and policies to align with the current changes and teachers' and students' needs. All in all, it is imperative to understand interactions and ways it can be fostered in face-to-face and online contexts to further support education. In this study, I pose questions about how students and teachers interact for learning activities in before and during COVID-19 settings. This is because the shift from face-to-face to fully online alter the ways interactions occur and also the practices that teachers and students were familiar with. We must identify the ways that interactions are influenced by these mediums and the implications that can be seen from their education experiences and activities. As we cope and move into the post-pandemic world, we must obtain answers to the above questions as there are many inconclusive and limited findings about interactions which occurred during the pandemic, and which lasted for approximately two years (i.e 2020 to 2022) (see Chapter 3).

1.3 Research Aim

In light of the issues outlined in the preceding section, this study aims to understand participants' mediated interactions with people and artefacts for learning activities situated within the contextual settings of before and during the COVID-19 lockdown.

1.4 Research Questions

This study aims to address two research questions, which are as follows:

1. How do students and teachers interact for learning activities **before** COVID-19?
2. How do students and teachers interact for learning activities **during** COVID-19 lockdown?

The focal point of these research questions is on understanding how and why certain interactional features in teaching and learning activities create effects. It also focuses on

identifying how these features in mediated tool resources enable or hinder productive teaching and learning processes and outcomes, while considering students' agency and the conditions that influence these interactions.

1.5   Purpose of the Study

The purpose of the study, then, is to understand instructors and students' interactions in education settings before and during the COVID-19 pandemic. The point of studying interactions is to have an in-depth understanding about humans' activity that may have previously been taken for granted (Wertsch & Tulviste, 1992). This is because when we think of interactions, we assumed that it comes naturally and from then on humans somehow complete tasks, learn and progress. However, the current study intends to make the familiar, unfamiliar. Researching interactions may allow an understanding of the connections between humans and their surrounding world (Vygotsky, 1987; 1978).

1.6   Significance of the Study

Interactions are fundamental. In education contexts, it is through our interactions that we learn, exchange ideas, accomplish tasks, and ultimately attain our objectives in lessons (Vygotsky, 1978). This study does not aim to establish any evidence of cognitive learning development because this study is interested in visible interactions in face-to-face and online spaces. This study is filling a notable gap in the existing literature by delving into the dynamics of human interactions in face-to-face versus fully online educational settings. Additionally, the timeframe spanning from before to during the COVID-19 outbreak presented a unique and compelling opportunity to study this topic because it captured the unpreparedness of individuals and the profound impact on their interactions amidst the shifting learning context. To date, no similar study has been identified in the existing literature. This research makes noteworthy strides in advancing our understanding of interactions through its novel findings, unique contexts, and

meaningful application of sociocultural theory. In particular, sociocultural lens enables us to comprehend and acknowledge the critical role of interactions in a shared physical space, emphasizing the essential role they play in fostering a sense of presence and togetherness. The recognition of this important aspect provides valuable insights for educators, learners, and educational institutions in promoting effective and dynamic interactions within the learning process.

1.7   Structure of the Thesis

The thesis is divided up into nine chapters. **Chapter One** informs readers about the study's background, problem statement, research aim and questions, purpose, and the significance of the study. The chapter ends with the structure of the thesis.

Chapter Two maps the theoretical perspective and the conceptual approach that have been used in this study. A sociocultural lens draws on the concepts of mediation, agent-acting-with-mediational-means, and the appropriation of affordances to understand interactions between people and with or through tools for learning activities.

Chapter Three reviews relevant literature about interactions including teachers' feedback and support, cultural-classroom interactions, collaboration and collective thinking among students, physical cues, digital technologies in higher education, and institutionalized roles in learning activities. The chapter is followed by a section on the emerging literature before and during the COVID-19 settings. Chapter three ends with the research's aim, objectives, and questions.

Chapter Four explains the philosophical underpinning the study and methodological approach chosen, including two-phase case study design, research site, participants, methods and role of

the researcher. The chapter explains the data collection and data analyses conducted, as well as criteria for goodness, and ethical consideration in the study.

In **Chapter Five**, I explain the reasons for using themes as a way of presenting the findings, provide an overview of the themes that emerged from the analysis to introduce the findings, and present the constraints of the use of themes in this study.

Chapter Six and **Seven** present findings on participants' interactions for learning activities in before and during the COVID-19 pandemic contexts, respectively.

Chapter Eight synthesizes the similar aspects from the study's findings concerning interactions in both before and during the COVID-19 setting, with a few key transitions and tensions between the two changing landscapes.

I conclude the thesis in **Chapter Nine** where I include the study's strengths, limitations, contributions, recommendations, and some suggestions for further research. The chapter ends with a conclusion on the subject and some final remarks about the overall study.

1.8   Summary

In this study, I argue for the need to study interactions between students, teacher-students and students-tools, because interactions are fundamental to education. As humans are social beings, our actions and our progress in teaching and learning activities may primarily rest on the complex forms of interactions that we have. This includes interacting to discuss, convey ideas, negotiate, and make decisions, collaborate, and complete tasks, all while employing physical and psychological tools to assist these individual and collective endeavors. Interactions are further complicated because of technology's application in education and later, the sudden shift from face-to-face and a few online learning to fully online learning. This study on interactions becomes more interesting as it takes place in a unique context of before and during COVID-19

where face-to-face interactions were later prohibited and therefore people relied on online interactions to complete their university's academic term. To date, there is a significant gap in literature concerning understanding interactions in the face-to-face and fully online learning landscapes, particularly in the contexts of before and during COVID-19 pandemic. Moreover, having considered the complexities that I presented in background of this study (see Section 1.1), I insist that an investigation about interactions in the two education contexts is pertinent because it will deepen our understanding about many important aspects of human interactions.

Chapter 2: Theoretical Approach

2.0 Introduction

The chapter aims to establish an understanding about the theories which will guide the review on empirical work (see Chapter 3), the application of methodology including the lens adopted to interpret data (see Chapter 4) and the presentation of findings (see Chapters 5 to 7). The chapter begins with an introduction to Sociocultural theory and its concepts, primarily Mediation, Agents-Interacting-with-Mediational-Means and Appropriation of Affordances for Interactions. These concepts are then discussed to provide an understanding of how they will be employed in the study. Throughout this chapter, I emphasise that all of the concepts are interrelated to one another and that I do not intend to make clear distinctions between them which isolate them, but only aim to ensure clarity by discussing how each concept is understood and applied in this study.

2.1 Sociocultural Perspective

Sociocultural theory derived from the work of a Russian psychologist, Lev Semenovich Vygotsky (1962; 1978) who was born in Byelorussia in 1896 is employed here. Before he could complete the whole theory system, he passed away in 1934 due to tuberculosis (Wertsch, 2010). His work was extended upon by colleagues and followers of his work, such as Luria and Leontiev (Cole & Wertsch, 2011). Vygotsky's work helped him make the analysis about the human mind. It focused largely upon children, however it would be erroneous to assume that he was primarily a student of child development. In a larger view of his work, he highlighted the study of development through children as the centre of his observations because he saw it as a significant theoretical and methodological means that allowed him to unravel complex human processes. Vygotsky seemed to realize that an abstract theory would be insufficient to

capture critical moments of change in human development (John-Steiner & Souberman, 1978, p. 132).

The term 'sociocultural' remains a contested one in terms of its origin, meaning, and who first coined it (Thorne, 2000). The term today has become a generic label encompassing a group of theoretical positions, including the works of cultural psychology (Cole, 1996), distributed cognition (Hutchins, 1995), and activity theory (Engestrom, Miettinen & Punamaki, 1999). Other than these, there are a lot of different aspects and areas of research about sociocultural theory, which I will not be addressing in detail here. However, most relevant to this study is that there is a body of literature dealing with the general characteristics of sociocultural theory on explaining interactions for learning developments in fields including: language (Lantolf, 2012; 2000), psychology (Werstch, 2010; 1995; 1985), classroom talks (Mercer, 2007; 1995), digital technology (Furberg 2016; Rasmussen & Damsa, 2017; Rasmussen & Ludvigsen, 2010; Furberg & Arnseth, 2009) and others. In the following two sub-sections, I discuss some general but fundamental arguments in sociocultural theory about human interactions that shape the direction of this study.

2.1.1 Vygotsky's Historical-Cultural Approach

Sociocultural theory maps Vygotsky's thinking about human species and their development. He advanced the argument that humans are actively aware and are able to transform themselves in varied contexts of culture and history. This historical and cultural approach suggests that humans development does not happen overnight, but rather is a process of gradual social change and transformation which must consider contextual influences in the process. This also implies that humans have adaptive capabilities because of our social-interacting nature that is absent in animals.

Humans' social nature helps us to make sense of the world around us internally in our minds, and later to have the ability to express and share knowledge, views and understanding with other people (John-Steiner and Souberman, 1978, p. 132). The ability to perform this activity becomes one of the primary advantages that contributes to human development. Seeing humans' interaction with others and environments prompted Vygotsky to criticize other theoretical view that state that "only nature affects man and only natural conditions determine man's historic development" (John-Steiner & Souberman, 1978, p. 132), as he believes that in the course of history, man too "affects nature, changes it, creates for himself new natural conditions of existence" (John-Steiner & Souberman, 1978, p. 132).

Vygotsky's perspective argues that humans and their environments cannot be seen as being separable because their relationships are actively involved in a dynamic flux throughout the years of cultural and historical iterations. As a result of this, the all-encompassing view claims knowledge as something which cannot be dissociated from the cultural and historical influences of individuals nor from the context in which it is embedded (Lund, 2003). Hence, knowledge itself is never neutral and free from presumptions because within what we perceive as knowledge, lies our cultural, historical, and contextual backgrounds.

Culture, then, is a medium within which humans interact with their environment with the help of tools which have historically accumulated the achievements of man, and which also have the potential for iterations and improved processes that contribute to their achievements (Cole & Wertsch, 1996). For example, language is a tool. Historically and culturally, humans have been communicating with each other using language, some cultures whistle, some speak, and some may gesture. The way humans in a certain group communicate may depend largely on the context and the community that they belong to. Their language has helped them progressed collectively as a group such as building homes and conducting businesses among them.

Throughout the years, maybe even centuries, these groups of people may have been continuously developing their language to be more sophisticated in order to match the demands and needs of their ever-changing context. However, the language being used to conduct their daily affairs is not necessarily a new invention simply as it carries their cultural and historical beliefs from the past. Therefore, culture is a process both inside and outside of the minds of people, it is not fixed, and it exists in the process where our everyday cultural processes take place (Lund, 2003).

Such sociocultural understanding for this study implies that our interactions are ever-changing based on what can be found in our environments including cultural and historical influences. For instance, texting in full sentences on mobile phones using formal language before COVID to writing in abbreviations in the informal manner because more conversations take place online during the pandemic, and so people want to text faster and save time while carrying out this ever more frequent activity. The interactions may also change the dynamic of relationship, maybe from strangers in classroom to colleagues collaboratively working online together. Therefore, it is not only the COVID situation that changes our interactions, but we also intentionally change the way we want to interact when we are in the COVID situation.

2.1.2   Human Interactions in a Social World

Vygotsky is concerned with the consequences of human activity because this may transform nature and society (John-Steiner and Souberman, in Vygotsky, 1978). I will offer an example of what this means to me. In a Malaysian school context, students are examined individually. They are grouped into classrooms based upon their exam results. Therefore, grouping students based on their examination results implies that their interactions may be limited within the same group of students merely because it is assumed that they are potentially at a similar stage of learning development. Although students may collaborate and interact with their peers

outside of the classroom, they normally focus on the execution of tasks and on how to better understand what has been taught in classroom. This grouping scenario means that we may also be limiting students' actual learning developmental opportunities. Even though this example concerns the schooling system, it may also take place in universities where students in a classroom are grouped for group work and exercise according to their test results for the subject.

In contrast to the above education system, Vygotsky's (1978) approach liberates our perspective about how and what learning is, by emphasizing that it is a profoundly social process. This approach emphasises that students must engage with others before they can progress and make sense of knowledge internally. Hence, learning precedes development, and cognitive development is the appropriation and internalization process of the interactions (Vygotsky, 1978), as opposed to developments which must precede learning (see Piaget 1970; Cole & Werstch, 2011). Learning is about dialogues and the varied roles that language plays in instructions as well as to cognitive growth (Werstch, 1991). Mere exposure to new materials and lectures is not enough for students without adult guidance or collaboration with peers that can further assist their development.

It is postulated that we are able to learn at any developmental point to the best of our ability at that given time. One of the ways of encouraging learning development is by having students engaged with a more knowledgeable other. For instance, students who may be proficient in the English language can help those who have a lower level of proficiency such as acquiring new vocabulary and constructing sentences with the correct grammar. In return, the students who were helped may be able to guide and offer assistance in other subjects that they are better at. This learning assumption also tells us that people have different abilities, skills, and input that they can offer to help each other. In terms of teaching, it should also focus on socially

elaborated contents and the necessary cognitive strategies according to students' "actual developmental levels" (Vygotsky, 1978).

Sociocultural theory considers learning as neither exclusively cognitivist nor individualist. This is because learning activities are attached to the social, cultural, and historical contexts in which they take place such as the place, time, and other mediating artefacts that are relevant for communication (Chapelle, 2009). Sociocultural aspects that make up a learning context may, in return, facilitate or discourage learning activities and learners' developments (Lantolf, 2000; Lave & Wenger, 1991). As asserted by Bartlett and Miller (2011, p. 198). "different historical and cultural circumstances may encourage different developmental routes to any given developmental endpoint". Hence, a sociocultural perspective urges that individual learning activities need to and can be understood by investigating the sociocultural contexts in which they have materialized (Wertsch & Tulviste, 1992).

Due to learning being social in nature where individuals are not isolated entities, a sociocultural approach starts from the assumption that human action is mediated and thus cannot be isolated from the environment in which it is carried out (Wertsch, 1991). In this vein, Vygotsky (1987, 1978) argued that the relationships are mediated by physical tools and by psychological tools. These mediational tools empower humans to control and change the world that they live in as well as to intentionally control aspects of the neuropsychological functioning of their brains (Lantolf, 2012). For this reason, interaction as a term is used interchangeably with mediation in this study as I see human actions would normally employ some forms of interactional means to provoke changes in the world.

Sociocultural perspectives afford rich and promising theoretical insights into educational practices (Saljo, 2010), that can help us to understand teaching and learning better by looking at interactions and activities in their face-to-face and fully online contexts. Moreover,

Vygotsky's emphasis on interaction and active collaboration of both teachers and students is central (Wertsch & Sohmer, 1995). Understanding the focus as intended by Vygotsky is crucial because it affects the theoretical framework undertaken by researchers who would like to follow Vygotsky's tradition. For example, Wertsch and Sohmer (1995) argued the case when they pointed out a problematic issue concerning the English translation of Vygotsky's use of the term 'obuchenie', which was translated into English as being 'learning' or 'instruction' (see Vygotsky 1978; 1987).

'Learning' as it appeared in Vygotsky's 1978 translation implies a focus on what students are doing, whereas 'instruction' as the translation that appeared in Vygotsky's 1987 is somewhat one-sided due to its giving the impression of focusing on what teachers do and as leaving the active participation of students from the picture (Wertsch & Sohmer, 1995). The implication from such translation work is that researchers may focus their analytical lens on either the students or on the teacher. Following this definition, the focus of this research ought to be on interactions in education contexts involving both teachers and students in the before and during COVID-19 settings.

Sociocultural theory has been developed into many branches which study different fields. However, in relation to learning development, the sociocultural perspective draws attention to humans' interaction with their environment including with people and the use of physical and psychological tools, cultural historical, and contextual aspects, and how they make sense of these interactions, and share them with others. Hence, it is this form of humans' interactions and their interrelated aspects which are of fundamental interest for the current study.

2.2   Mediation

We interact with the surrounding world via a diverse and rich set of conceptual frameworks and man-made artefacts. These artefacts extend our human capacity to take charge and control

the surrounding world beyond what would be possible if we had to operate with only the mental and physical capacities available to us – as it were – by nature, such as relying on our natural body clock or on the sunrise to know it is time to wake up (Saljo, 1991). Mediation can be described as human actions that normally employ 'mediational means' (eg tools and language) which also shape the actions (Wertsch, 1991, p.12).

Mediation is a concept that has been applied differently or similarly across dissimilar areas of research. For example, Furberg (2016) uses mediation as a way to understand learning and assist students through teacher support computer-supported learning settings. Ohta applied mediation using the 'zone of proximal development' concept where the More Knowledgeable Other's role (i.e learner-learner) is interchangeable between the pair – offering and receiving assistance to and from each other using both language and feedback to improve the process of second language acquisition (Ohta, 1995). Mediation, as used by Knight and Mercer (2015), investigated how students engage in sharing and creating ideas through classroom discourse (i.e use of language) involving analysis that entailed an iterative movement from words, to utterances, to whole transcript as well as artefact analysis (i.e worksheet).

Participation in everyday organised interactions with mediating artefacts such as tools and people are ubiquitous (Lantolf & Thorne, 2006). Physical and psychological tools are artefacts which are created by human culture over time (Lantolf, 2000). Physical artefacts include but are not limited to computers, handphones, notebooks, pens, pencils, and other tools that humans employ to make changes in the world. Psychological tools include numbers, music, art, signs, gestures, and above all language, which are used by humans to establish an indirect or mediated relationship between ourselves and our world (Che Mustafa, Alias, Mohamed Isa, Mat & Yan Abdullah, 2019; Lantolf, 2000).

Language is not merely a tool for social interaction, but it is also a tool for collective sense-making (Mercer, Dawes, Wegerif, Sams & Fernandez, 2007). When people interact, they engage in a joint, dynamic engagement of ideas among partners. Language is also a tool for second language learning development, such as in Harun, Abdullah, Wahab & Zainuddin (2018) who studied the use of metalanguage in understanding grammatical concepts and found language to be a communicative tool and also a psychological tool supporting linguistic development in the English language.

To make sense of mediation in learning contexts, I appropriated Lantolf and Thorne's (2006, p.62) graphic representation of the mediated nature of the human/world relationship. Below is my illustration of the mediated interplay between humans and tools in situated learning contexts. There is an indirect mediated link (represented by bold arrows) between students and tools or people where they receive support such as feedback, hints, directions, demonstrations, and others including textbook, laptops, etcetera, which then assists students to directly perform and complete the task (represented by dotted arrows). This suggests that the relationship between individuals and the world is not considered as being direct but rather, as interdependent and actively performed by the individual in activity (Rasmussen & Ludvigsen, 2010). Looking at these mediated interactions below, it means that the sociocultural perspective affords it a lens into looking at the social situation where the action takes place because the psychological structure is formed from interaction with the social context.
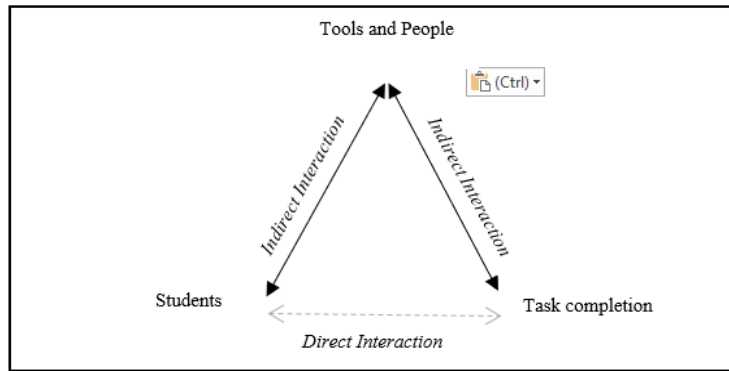
Figure 1: Mediated Interactions (illustration by author, adopted from Lantolf & Thorne, 2006, p.62)

Interactions described above may visibly take place in a plane called 'intermental'. Vygotsky (1981, p. 163) views learning as occurring on two levels; intermental and intramental.

> "Any function in the child's cultural development appears twice, or on two planes. First, it appears on the social plane, and then on the psychological plane. First, it appears between people as an intermental category, and then within the child as an intramental category".

The sociocultural perspective proposes that learning and development are bridged through a process of internalization (Vygotsky, 1978) or appropriation (Rogoff, 1995), from object and people mediation on the intermental level to self-mediated interactions on the intramental level. In other words, 'intermental' functioning (e.g interaction with other people and tools) refers to learners' way of thinking which goes to shaping 'intramental functioning' (Johnson & Mercer, 2019). For example, a student may initially depend on a dictionary book or Google Translate to know what a word means before understanding its definition and then would no longer require those tools to assist him/her. This implies that students go from dependency on external assistance through a series of actions in learning activities to being able to perform the activities independently. Subsequently, development can be seen as a process of gaining higher voluntary control on one's capacity to think and act by being more proficient in using mediational means or by reducing their reliance on external mediational means (Lantolf, Thorne & Poehner, 2015;

Thorne & Tasker, 2011). Put simply, 'human beings to a large extent act by means of communicating' with artefacts (Saljo, 1999, pg 151).

For that reason, if interdependency and interactions between human cognition and tools are to be proven or are to be seen as more than a claim, mediation is a required concept whereby it captures analytically the dynamic processes of various types of tools that supply an individual with ways to attain goals (Rasmussen & Ludvigsen, 2010). A mediated relationship to the world is fundamental to understanding the connection between humans and their surrounding world as mutually constitutive and dynamic. Meanwhile, tools and their affordances are not there by nature but have to be created, tweaked and consolidated as humans are required to assign meaning to the tools to create a mediating function in the activity.

The idea of learning developments with an emphasis on social interactions from the intermental level has profound implications for this research in particular. Firstly, learning developments by means of tasks completion develop from the social plane down to the individual plane. This study is concerned with manifestation of mediation from interactions with artefacts including with people as opposed to gathering evidence of cognitive development. Subsequently, interactions in the social plane need to be separated from their holistic form to recognise the components which enable and constrain learning activities in, before and during the pandemic contexts. Secondly, learning activities in the two shifting landscapes of before and during COVID-19 both incorporate individual and social dimensions, whereby dependence and independence are crucial in terms of the intermental concept. To put it simply, students may need to be dependent on tools before they can be independent in their learning activities. This argument has significant applications for understanding learning activities development for this study; there is a degree of autonomy in tools and agent-acting-with-tools, interplay of

interactions and its impacts in tasks completion, as well as dependence included in any scale of autonomy demonstration.

To reiterate my earlier assertion, there is no clear distinction between concepts within mediated interactions because mediational means and individuals applying the means are interlinked and are reliant on each other to attain an activity's objective. For example, students communicate with colleagues using *language* and *gestures* while simultaneously interacting with other tools such as *textbooks*, *digital devices* and *applications*, and others. These mediational artefacts are actively involved in reflux and are interdependent of the activity, causing an impossibility to discern them separately. Nevertheless, the section below is meant to illustrate and describe how people and cultural tools can be involved in the mediation process by taking on different lenses to look into these mediational means, with no intention of emphasizing, at any point, one aspect above the other.

2.2.1   Mediation in Education Contexts

Within an education context, interactions for learning activities will most likely include people. Here, I am using a sociocultural lens to zoom into the mediational means in people-interactions and later with the tools to make sense of their learning activities. People refer to instructors and students as being main stakeholders within the institutional context of teaching and learning at the university. People-interaction involves situations which include both implicit and explicit interactions comprising of varying assistance and feedback by peers and instructors. An example in question is when Anton (1999) found in her research that a dialogical teacher who scaffolded learners through mediated 'communicative moves as directives, assisting questions, repetition, and nonverbal devices such as pauses and gesturing' (p. 315) had successfully involved students in negotiating both meaning and form, as well as complied with classroom behavioural rules.

Similarly, Ohta (2000) asserted that teachers are important for confirming students' performance or for helping resolve learning difficulties which students could not resolve collaboratively. However, she noted that students are more willing to experiment during the task when engaged in collaborative activities as opposed to when they are in teacher-fronted situations. Both Anton and Ohta's studies also imply that students were not communicating freely and became more aware of their behaviour when they were in the presence of their instructors.

Mediation is also not possible without the potential use of artifacts which convey, transform and shape human interactions (Lund, 2003). Wertsch (1995) asserts that human action regularly involves an inherent, irreducible tension between agents and cultural tools. For example, interrelated in people's interactions are language, and visual and body cues (e.g gestures, eye gazes, facial expressions, signs, etcetera) as some of the physiological tools that have been culturally and historically developed over time and carry nuanced meanings between people in the activity (Saljo, 2010).

For instance, gestures in the classroom have been described as being beneficial for students' learning as was reported by Sueyoshi and Hardison (2005). They found that students observing a lecture in gestures plus facial cues or gestures only conditions recorded higher marks on a comprehension test compared with students who listened to only the audio type of the lecture. Their study commented that while teachers' gestures improve comprehension, the positive impact also hinges on students' level of proficiency. This is because, though low proficiency students in gesture and facial cue situation did better in the test, high proficiency students also accomplished better in the same test while experiencing gestures only condition.

Body cues and signals involve mutual knowledge of psychological states, such as I know things; you know I know things; I know you know this; (Crook, 2002), or a thumbs-up to imply

understanding and thumbs-down to imply a lack of understanding (Hudson, 2011), and so forth. The mutual knowledge on these signals derives from the perception and interpretations of highly subtle features in social actions by humans which arise from our bodily interplays within both shared space and histories (Mercer, 2007; Crook, 2002). Shared histories of interaction developed from mutual understandings constructed over a duration of time and are enriched by joint participation from previous encounters (Crook, 2002; Lantolf, 2000).

Cultural tools, are of both a physiological and physical type, do not determine how we act, but this is to say that their influence is powerful and thus needs to be duly recognised and examined. While doing so, we cannot disregard the cultural side of knowledge in a theory of learning as if humans have not been operating with tools to solve problems or cause changes in the world at all (Saljo, 1999). While it could be difficult to take account of the reflexive nature of communications as manifested from physical cues in face-to-face environments such as gestures and postures, it would surely be challenging to interpret and take account of the same or more subtle reflexive forms that arise within virtual spaces despite shared histories. For instance, as we zoom into human interactions with the physical settings and physical devices, communicative dynamics constituted by other contextual elements such as non-verbal actions, may also be discerned. However, in text-based mediums, non-verbal triggers for continued interaction are not made available (Adalberon & Saljo, 2017). Retrospectively, this highlights the potential issues which may arise as students negotiate meanings between shifting spaces of face-to-face and online in, before pandemic and during the pandemic, respectively.

We ought to acknowledge the development and uptake of artefacts as we progress across centuries and decades, for example from the use of physical pen and paper to write a personal letter that were delivered physically, to now using digital devices via the internet to send a text message. As a result, interactions with cultural artefacts such as 'computer tools' can be

described just as being social as human-human interaction because the technology is actually designed by humans with the purpose of interacting with other fellow humans (Saljo, 1999). Hence, to debate otherwise implies the consequence of falling into a typical misguided trap of new materialism whereby the humanized world of artefacts is permeated by agency (Xi & Lantolf, 2020).

A central sociocultural assumption is that teaching and learning implicate the use of cultural tools (Saljo, 1999) where digital technologies, in particular, carry consequences in teaching and learning but not in a linear fashion. Rather, digital tools' influence has something to do with the way they transform how we work, communicate with each other, maintain relationships, and perform a variety of social activities (Saljo, 2004). Consequently, it changes the manner in which we learn and experience teaching and learning activities. For example, we no longer need to memorize certain information because it is distributed and accessible across different technologies, which also contributes to learning activities being less about memorizing and more about 'meaning making' and interpretation (Kress, 2003). Such perspective implies that the unit of analysis in this research is studying people in action using tools of some kind (Saljo, 1999; Wertsch, 1991). This also means that the learning does not reside inside the person, but rather in their capacity to appropriate a specific set of tools in a productive way and for particular purposes.

Moreover, understanding technology as an embedded social subject in classroom necessitates focusing on the social interactions which challenge or confirm conventions in an institutionalised educational setting (de Lange & Lund, 2008). In other words, the answer to the question about who is carrying out an action is "individual(s) in the concrete situation *and the mediational means employed*" (Wertsch, in press, p.12). Looking at the mediated action of the interactions taking place between people and tools is necessary because although mediated

interactions with artefacts are inevitable in daily life including teaching and learning, neither school nor teachers seem to transform their educational practices purposefully using computer technologies. This occurs, even though they are readily available, which means that institutionalised educational practices do not alter easily (Cuban, 2001 – in de Lange and Lund, 2008).

In summary, I view mediation as potentially the most integral concept in sociocultural theory because it positions all human activities as consisting of interactions with psychological and physical tools. The tools are artefacts that humans employ to make changes in the world where these artefacts go through cultural and historical reiterations over time. Hence, in this study, I use artefacts interchangeably with tools, where the latter consists of psychological and/or physical tools. For instance, human activities in learning contexts implicate the use of artefacts ranging from psychological tools such as language, gestures, and body cues, to physical tools of digital devices and software, textbooks, and other learning materials. Human interactions with people and tools in their environment shape their actions for learning tasks and are visible to a certain extent which can be analysed in depth by this study.

2.3   Agent(s)-Interacting-with-Mediational-Means

Agency is about having the autonomy to make decision to self-regulate a person's interactions with resources (e.g peers, lecturers, and artefacts) that they deem as helpful and beneficial (Van Lier, 2010; 2008). Agentic actions may implicate situations where students experience a problem situation, display an initiative to break away and make use of available resources that could alleviate or resolve the problem (see Lund, Furberg & Gudmundsdottir, 2019; Kajamaa & Kumpulainen, 2019; Wertsch & Rupert, 1993). In this vein, Merriam (2001) advocated young adult learners being seen holistically because they already formed their own thinking, emotions, ideas, memories, and conscious and subconscious understandings of surroundings.

Hence, as a person matures, they become more self-directing and independent in their own learning.

However, it is incomplete to emphasise either individual attributes or their surroundings (e.g social and cultural stimuli) that prompt actions. Rather, agency involves a complex, dynamic, relational, and cultural process that is mediated by artefacts such as conceptual and practical signs and tools (Wertsch & Rupert, 1993). Consequently, separating individual and social perspectives by emphasizing one of them while treating another as a supplement will not give us a better understanding of learners' agency, as they ought to be mutually defined and interdependent in ways that prevent their separation as units or elements (Cole and Wertsch, 1996; Rogoff, 1995). Therefore, it is pertinent to seek a way to "live in the middle" of the individual and social perspectives (Wertsch, 1998).

In order to find a middle ground between people and the environment aspects that may influence their agency, I believe that human activities should be seen as being mediated by physical and psychological tools where agents are humans-acting-with-mediational-means rather than just humans acting alone (Wertsch, 1995; Wertsch, Tulviste & Hagstrom, 1993; Vygotsky, 1978), or can also be known as mediated agency (Wertsch & Rupert, 1993; Wertsch, et al, 1993). The interplay between the two necessitates further research on learners' agency to not be in a dichotomy of researching either the individual or the environment (Rogoff, 1995).

An example that shows how human actions are shaped, interdependent, supported but also constrained by mediational means was discussed in Wertsch and Rupert (1993). A participant named Tanya whose earlier attempts to provide an answer in discourse with her father were ignored. The father claimed authority on the subject as the person knowing the answer to the question posed (i.e how many sides can be found on a pyramid?). This situation caused Tanya to feel exasperated, as was revealed in her interview. As Tanya found herself in such a situation,

she invoked a mediational means (i.e Euler formula) to gain an authoritative position in the discussion with her parents. In so doing, her parents reacted by listening and accepting her explanations in answering question at hand.

When asked for reasons behind employing Euler's formula, Tanya revealed that the action was aimed at attaining a sense of authority. As her parents are academicians, she knew that she needed to provide an academic input that they would welcome. This example shows an account of mediated agency where neither an individual nor a mediational tool can operate in isolation because the authority structure of the discourse changed only when the individual and the tool were interacting together (i.e Tanya-operating-with-Euler's-formula).

In the above example, it is pertinent to also note the interplay complexity of the cultural and environmental stimuli, such as the power-positions gap between daughter-father which later prompted Tanya to use a tool which caused the father to accept Tanya's answer and the tool (i.e Euler formula) in discussion. Other cultural tools including technology similarly provide tool-rich environments for human agency in human learning development as opposed to merely technology as an agent. In relation to this study, we may see instances of students acting with mediational means to advance their arguments in tasks, which will also allow us to see the complexity of the action situated in certain cultural and social contexts. An example relevant to this study may involve students using input and references from the textbook to gain a sense of authority or leadership to direct their group's task.

2.3.1 Agency and Learning Activities Interactions

In this section, I draw on a closer relationship between people and their mediational means through examples of the interplay situated in learning contexts. Historically, teachers' explanations and textbooks were deemed as authoritative information sources (Lund, et al, 2019). However, as education progresses in parallel with digital technologies, the authority of

teachers and textbooks may have been weakened by the bringing in of information from other sources. Digitalization is increasingly embedded in educational practices until it becomes ubiquitous but strangely invisible (Lund, et al, 2019). As a result, humans as social agents also become more embedded in practices and spaces saturated by digitalization. However, it does not mean that interactions taking place online entail identical aspects of face-to-face interactions, and vice versa.

People's use of artefacts such as digital technologies require an informed agency that allows putting them to beneficial use, such as what is perceived as being relevant, what can be offered, and how students can make use of its features. It is when students take an agentic stance towards tools by using them purposefully, that the tools carry value for the activity (Lund, et al, 2019), as also seen in the example of Tanya above (see Section 2.3). Hence, motives for learning activities and performance depend crucially on the multiple and diverse interactions between individuals, and with or through artefacts (Lantolf, 2000), and not on any inherent properties of the former or the latter. Otherwise, if learners have only a minimal idea and concern about their learning needs and purposes, it could influence their course of action for learning activities. For instance, some students could be taking an English course because it is a prerequisite university course, and therefore they perform learning activities in order to pass the requirements. Meanwhile, other students could be motivated by an interest in the target language as it is important for their personal objectives (e.g secure a job or communication with a wider audience). However, overall, these learners are unlikely to display the same level of agency in learning activities even when they embark on the same assigned task.

Agency in learning activities using the available resources for tasks may also involve collaboration with colleagues. Group tasks offer students an 'enabling process' which allows them to participate in communities rather than being 'controlled by others' which normally

results in the loss of their individuality, such as in teacher-centred activities (Foley, 1991). However, when students show a good level of progress in their learning activities by not merely copying an event or a task, in turn, they are becoming more active in constructing appropriately and transforming the activity into their own knowledge system. This transformative quality sees students as being active constructors of knowledge in the learning process while highlighting the important role of learner agency (see Lantolf & Thorne, 2007; Rogoff, 1995; Wertsch, et al, 1993; Vygotsky, 1978). This view simultaneously results in the change of teachers' and students' roles because, on one hand, teachers are no longer the only source of knowledge. Instead, they take on the role of being the creators of learning activities and of being facilitators in assisting and empowering students to becoming the owners of their learning. On the other hand, students are no longer passive receivers of knowledge as they can participate actively in the learning process and gain control by undertaking self-directed learning activities.

Despite the case, this is not to suggest that institutionalised practices in higher education have limited students from exercising their agentic stance towards learning activities and developments. Even when students are in restricted classroom settings, there is room for them to obtain some degree of agency (Gresalfi, Martin, Hand, & Greeno, 2009). More importantly, educational institutions are the primary site for transmission of theoretical knowledge where the settings liberate learners from their everyday life constraints including their personal and family cultural expectations, enabling them to make informed decisions about their priorities (Lantolf, 2010).

This section highlights how the autonomy to self-regulate interactions does not reside in humans alone, neither is it with the environments nor other cultural stimuli. Rather, I see agency in learning activities as an aspect that involves the interplay of both individuals and artefacts

for their learning purposes. The dynamic interactions thus create a situation that can be described as agent-interacting-with-mediational-means or mediated agency, as opposed to individuals acting alone. This perspective in the study affords a middle way between analysing actions to unfold the interactions that take place between people and artefacts. Hence, features and attributes within an action is viewed more holistically in terms of the individual, tools, social, cultural and environment aspects being embedded and interrelated with each other, as opposed to seeing each aspect in isolation.

2.4 Appropriation of Affordances for Interactions

The theory of Affordances has been defined and appropriated in several ways (Bower, 2008). Gibson (1979, p. 127) who coined the term 'affordance' defined it as:

> "The *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill. The verb to *afford* is found in the dictionary, but the noun *affordance* is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment."

Gibson's idea of "affordance" points to utility because it emphasises the key characteristics of an object in relation to the user. He emphasised that an "affordance" is present if and when the organism (e.g user, animal) is physically able to undertake the required action and if the possibility of executing the action is present (Bower, 2008). An affordance to Gibson is what an object offers and lays in wait for people to take up the utilities. For example, a smartphone is a "note-taking-with-able" object with relation to a physically able student, whether or not it is perceived as such. Nonetheless, according to Norman, affordances are the 'perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used' (Norman, 1988, p.9). Perceived affordance is more important than real affordance because the former determines the actions that may be performed by the user (Norman, 1988). Taking on Norman's perspective, cultural tools can be seen as mediational means that inevitably entail "affordances" as well as "constraints" (John &

Sutherland, 2005; Wertsch, 1998). Usability and constraints are the limitations (Wertsch, 1998) which determine how usable or easy the basic properties are, respectively (Norman, 1988, p.9, in Joinson & Littleton, 2002). Any apparent affordances of a tool become actual affordances or constraints if they are perceived as such by the people who employ the tool and if they could relate it to their needs (John & Sutherland, 2005).

With the affordances of cultural tools, they cannot be assumed as having none or less agency because the tools in itself carry cultural and historical reiterations, ideas and affordances that allow certain uses (Werstch, 1998). This means that tools are not merely waiting to be picked up and used by humans. Instead, this is an example where the combination of tools and humans creates agent(s)-acting-with-mediational-means, with both having an agency in their own right. This dynamic relationship may also afford appropriation. Appropriation can be described as a gradual process where it requires exposure to, and the usage of, a cultural tool or concept over a number of situations involving the tool's use in different contexts and for various purposes (Saljo, 2019). For a tool's affordances to be appropriated properly, the implicated activity necessitates conscious effort by the user, as opposed to a passive or abstract process of conceptual change. Appropriation is not a process to be mastered or has an end because there is space for re-specification and new modes of using the tools (Wertsch, 1998).

In the context of higher education in before and during COVID-19, involving young adults' appropriation of digital devices for education purposes, it is possible to postulate that the artefact's designs will not only affect to students' understanding but will also influence students' behaviour. For example, employing certain digital tools to afford interactions with colleagues may influence their understanding of a topic, various ways of carrying out a task, behaviour towards the collaborative work, and others. This is because people's interactions with communication tools such as the telephone and computers are different from their

interactions with other people through the usage of these devices. However, the two forms of mediated interactions are interlinked because the design and capabilities of a technological tool will influence human interpersonal behaviour conducted through the technology (Joinson & Littleton, 2002). After all, Norman (1988, p. 209) asserted that 'Tools affect more than the ease with which we do things; they can dramatically affect our view of ourselves, society, and the world'.

Therefore, I argue that the appropriation of artefacts presupposes constraints as well as empowerment, both accidental and anticipated. If we were to understand human learning in a meaningful manner, we must also take into account the capacity of people to appropriate and master the cultural tools available in their society (Saljo, 2017) – the hows and whys. In the end, we must be willing to reflect upon, critique and modify the tools we find to be inadequate as in any process of development (Wertsch, Rio & Alvarez, 1995).

In summary, I view affordances as the properties and features that tools offer, which also allow them to be used as perceived by the users. Interlinked with the affordances of tools is the possibility to be appropriated based on the perceptions and needs of those who use them. Tools affordances have a close connection to how humans act in combination with them to attain a certain activity's objectives. In this study, both the tools (e.g gestures, textbook, digital technologies, and others) and students are imbued with agency on their own but also rely on each other to perform a learning activity, hence creating agent(s)-interacting-with-mediational-means. The focus in the analysis is to identify and tease out the details of those interactions (e.g what, how, when, why, activities, outcomes, and others).

2.5 Interactions Approach to Learning Contexts

It is a futile effort to try to understand the act of walking by observing and analysing merely the structure of the leg (Vygotsky, 1987, in Lantolf & Thorne, 2006). This is because we cannot

understand how tools or people assist students by solely looking into what tools are useful and which are helpful, such as 'latest smartphone is durable, waterproof, and offers more internal storage' or 'the lecturer looks friendly and can speak fluently in the target language'. Instead, we need to probe further into what students are doing and how they are carrying out the activity such as if they 'use smartphone and university's Wi-Fi to find information on Wikipedia and Google Scholar for an oral presentation', 'voluntarily organise a group discussion because some members need help to understand what the assignment is about, 'a peer shows how to find and download a free online source for Resume template', or 'the lecturer goes from a group to another to check if students need further clarifications about what should be included in a work Resume'.

The examples above each demonstrate how students' sense-making is made possible through social interactions with multiple sources, such as peers, teachers, and digital technologies, and can be seen through their learning trajectories (see Rasmussen & Damsa, 2017). For instance, students had to identify relevant sources, unpack their meaning in collaboration which requires identifying the task's objectives, problems and collaboratively generating ideas, making use of feedback constructively and also adapting knowledge to suit the task accordingly.

Creating meaning also relies on students' agentic efforts to seek assistance from peers or teachers whereby these knowledgeable others become critical tools to help unpack the source as a knowledge object before students can proceed further with the task. After interacting with people and artefacts over a period of time, only then may students be able to make sense of their learning experience. So, to understand a situated practice, how social order is created must be understood first and foremost and then through the sequential ordering of social interactions (Ludvigsen, Rasmussen, Krange, Moen & Middleton, 2010).

Although this study does not focus overly on the trajectory in learning activities per se, it does view trajectory as being the developments which are unfolding in a moment-to-moment interaction. This will deepen our understanding of what constitutes the content and processes of teaching and learning as a social activity as well as ways in which a current event can be potentially linked to past and future events (Middleton & Brown, 2005). Moreover, with the prolonged period of digital immersion necessitated during the pandemic, there are interaction aspects embedded in such situations that we need to uncover. Sociocultural theory's interactions approach in this study help develop and theorize what differences and similarities can be found in face-to-face and fully online interactions. Understanding these details will assist in thinking how technologies can be used together with face-to-face interactions.

2.6 Situating the Study

In this study, I appropriate some aspects of sociocultural theory because they can help us understand interactions for learning activities in, before and during COVID contexts. The selected aspects implore the necessity of social and cultural dimensions in learning activities while not omitting the significance of individuality in a given context, so it allows dialectic unity between seemingly disconnecting elements to help understand human psychological functions related to learning activities (Wertsch, 1998). Subsequently, the focal point of this study contains the essence of the events of interest in a learning activity, as opposed to separating an event into elements which no longer function in a holistic sense (Rogoff, 1995).

Interactions are the focal point of this longitudinal study because on the one hand, sociocultural theory's complexity lies in the way it views human interactions as a holistic and interconnected world. On the other hand, the complexity in sociocultural theory also allows me to deploy different lenses to look at interactions for learning activities. In this study, I use a sociocultural perspective on mediation as a concept to understand people interactions between them and with

or through tools. Embedded within the interactions are social, cultural, and historical aspects including agency with mediational means and the appropriation of tools' affordances that also shape humans' interactions in their learning contexts.

Mediation on the intermental plane is the central concept underpinning the study. This positioning would allow me to observe and understand the mediated activities of teaching and learning in, before and during the COVID-19 context and explore what potential impacts can be seen from the interactions that take place. Although some may argue that the sociocultural perspective is a view where the individual and the collective are inseparable (Lund, 2003). However, through analysis of mediated actions, for example, artefacts such as digital technologies and visual cues, are treated as entities even though they are part of a collective process. Hence, this study adheres to inclusive separation where individuals and sociocultural setting are separate but interdependent of each other (Lund, 2003). Besides that, interactions on the intermental place are deemed accessible to a certain extent, particularly because I believe that the intramental operates on an abstract plane that is difficult to be studied other than hypothesised (Ohta, 2001; Vygotsky, 1978).

I would say that the dialectical relationship between people and their environments are the ontological assumptions in a study undertaking sociocultural perspective (Lund, 2003). 'Learning' from a sociocultural lens means understanding that it is part of a larger process of human change and transformation (Lund, 2003). This also means that although learning is a broad and continuous process of human development, this study is able to take on lenses that view learning as activities that can be observed in a certain learning context and within a snapshot of a timeframe. From such a perspective, the study is expected to produce multiple interpretations about the interactions which take place in a learning context. As a continuation to this way of looking at a phenomenon, the study assumes that reality is socially constructed

because individuals' behaviours and recollections of past events are continuously being interpreted to provide a meaningful explanation, that is situated in a particular context (Vygotsky, 1978).

As for agents involved in the learning activities, they are the instructors and students in the study, while tools include a wide range of cultural artefacts – physical and psychological, with the master tool being language itself, where they regulate interactions with one's environment and oneself (Barnes & Sutherland, 2010). By focusing on mediated activity, it avoids a potentially problematic focus on individualistic reductionism (Wertsch, Rio & Alvarez, 1995), which would limit the exploration of teaching and learning in the study's changing landscapes. Through sociocultural perspective, I can explicate the relationships between human action on one hand, while on the other hand, the cultural, institutional, and historical situations where the action or activity takes place.

My take on the sociocultural perspective emphasises an analysis of process, because descriptions alone do not reveal the actual relationship between humans and their mediational means (Vygotsky, 1978). Based on my understanding on how to employ mediation, agents-interacting-with-mediational-means, and the appropriation of affordances as aspects underpinning this study, the analysis aims at revealing explanatory, real and dynamic relations about the phenomenon at hand.

2.7 Summary

Mediation, then, is a key concept in this study that resides in the core of any activity among people, and between people and tools, that simultaneously involve students' agency and appropriation of tools. Mediation provides the theoretical framework to capture, analytically, the dynamic interactions of various types of tools that supply an individual with ways to attain goals in the before and during COVID-19 contexts. To understand how teachers' and students'

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educational activities took place, we need to problematize the forms of mediated interactions during the two settings as well as the ways these mediated communications are taken up and perceived by participants. This micro-genetic layer is foundational to making the resources that have become activated – visible, for example, text messages, visualization from computer programs or textbooks, students' collaborative participation in conversations with colleagues and their instructors. The concepts discussed in this chapter serve as the key ideas to relate to the empirical sections of the present study, which can be found in more detail in Chapter 3.

Chapter 3: Literature Review

3.0 Introduction

In this chapter, I review the studies of social interactions and technology use in education to demonstrate the connections between sociocultural theoretical approach and human practice. Additionally, the chapter examines people-people and people-tools interactions within the context of teaching and learning. These interactions provide the tools that serve as instruments for understanding and capturing observable interactions within the learning activities being studied. During this review, it becomes apparent that there is a paucity of research concerning interactions during the transition from face-to-face to fully online learning, hence emphasizing the importance of addressing this particular gap. I also explore emerging studies on academic experiences and interactions prior to and during the COVID-19 pandemic to further shed light on literature gaps within the distinct context of this study. As a result, this chapter is instrumental in shaping and defining the aim of the study, which is to understand participants' mediated interactions with people and artefacts for learning activities situated within the contextual settings of before and during the COVID-19 lockdown.

3.1 Interaction Aspects in Teaching and Learning Activities

It is almost impossible to dissociate the aspects which encompass interactions. The aspects are entangled from individuals to the context, cultural and historical influences, as well as tools and the people involved in learning activities. I understand the superficiality of trying to do so, but the following sections provide an overview of sociocultural lenses that can be adopted as distinct ways of looking at interactions in empirical studies that this study may also refer in order to probe the topic and make meaning of the learning situations.

The study context concerns teaching and learning. Teaching and learning are umbrella terms which cover a whole range of circumstances – incidental and accidental, as well as intentional (Crook, 2002). While various kinds of activities may lead to learning, the term 'learning' in the context of this study does not refer to cognitive developments, but rather interactions taking place on the intermental plane (see Wertsch, 1991; Saljo, 1991) as part of students' journey to complete their education each semester. In the following section, I will discuss ways in which mediational means such as language, visual cues, and digital devices are involved in impacting both teaching and learning activities.

3.1.1   Teacher Feedback and Support

Teacher Feedback:

Classroom teacher-student interactions are normally dominated by short student responses, minimal attention on use of talk for teaching and learning (see Galton 2007; Smith, Hardman, Wall & Mroz, 2004). Teacher-student interactions also entail 'closed questions' to which only the teacher knows the allowed correct answer (Mercer, Dawes & Staarman, 2009; Wood, 1992), like the Initiation-Response-Follow Up/Feedback (IRF). This format is a teaching strategy where teachers ask students many questions to check students' understanding thus creating the IRF exchanges (Mercer et al, 2009). It is also a reflection of teachers' views with regard to what is considered 'good' classroom interaction where students' adherence to norms of politeness and 'good grammar' are more emphasised compared to interacting to explore ideas and help learning (Fisher & Larkin, 2008).

Mediation in such learning context can be seen as an interactional process between an expert (e.g a teacher) and someone who is not (e.g a student) with the objective of guiding the learner toward self-regulated learning activities (Poehner, 2008). Feedback is mediation situated in an interaction because the goal is not to correct learners per se but rather to also promote their

development through the provision of cues, hints, leading questions, and explicit information (Aljaafreh & Lantolf, 1994). For instance, the IRF format needs not to be tied to the use of merely 'closed questions' as teachers' question may serve other functions which can assist students to develop use of language as a tool for reasoning, encourage students to make their thoughts explicit (Wells, 1999), using question-and-answer sequences to test knowledge and guide development of students' understanding (Rojas-Drummond & Mercer, 2003), as well as 'model' use of appropriate language that students can apply in group discussions (Mercer & Littleton, 2007, pg. 36). Hence, the IRF model is problematic primarily when it limits exchanges between teacher-students and when it promotes closed interactions. Otherwise, the IRF can be seen as a model that structures encouraging teacher-students exchanges.

Other variety of feedback strategies deployed by teachers when interacting with students may range from explicit to implicit correction (Lyster & Ranta, 1997). Ellis, Loewen, Elder, Erlam, Philp and Reinders (2009) argue that explicit feedback should be encouraged because it is more effective compared to implicit feedback. However, learning development often happens in a non-linear manner. Therefore, feedback could be given from explicit to implicit as it may occur at any time of learning activities. Even in those situations where sufficient feedback was provided and learners were able to self-correct mistakes, they continue to seek a mediator (e.g instructor) for confirmation that their performance was indeed correct or appropriate (Furberg, 2016; Aljaafreh & Lantolf, 1994).

<u>Teacher Support:</u>

Teachers commonly intervene to support students' understanding of a subject (Stromme & Furberg, 2015; Furberg & Arnseth, 2009). The difference lies in how the support is given and also how it is received, though the form of support during the interactions may be similar. The support can be teachers' prompt questions to encourage responses, and compliments when

students performed in their tasks which had also helped students to engage in the classroom activity, complete tasks and offer help to his peers (Abdul Rahim, Hood & Coyle, 2009).

Teacher interventions assist in directing students' attention to a conceptual perspective, balancing between giving information versus directing students to utilize each other's knowledge, balancing between individual and group support, and enabling students to understand the relevance of the classroom tasks they are undertaking (Stromme & Furberg, 2015; Furberg & Arnseth, 2009). Most importantly, it demonstrates the role of a teacher's intervention in classroom that acts as a type of 'glue' by providing support in the intersection of digital resources, peer collaboration as well as instructional design, particularly when and if something goes awry in these diverse forms of support.

If there was an untimely fading of teachers' support during teacher-students interaction, it would be unproductive for students' learning because they were unable to take up the teachers' support when student-student interaction takes place (Van de Pol, Mercer & Volman, 2019). In a mixed methods study, Van de Pol et al (2019) attributed the results to the fact that teachers were not actually monitoring students' understanding at the end of the interaction or students did not show demonstration of (not) understanding. Hence, they concluded that an intervention of support alone is not enough for students' learning and moreover, they emphasised the need to maintain that support until students reached a suitable level of understanding to apply it later.

An instance of successful support can be seen in a study carried out by Ingulfsen et al (2018) on students' collaborative work. They found a total of 49 instances of teacher-student interactions as the teacher was making rounds in the secondary school classroom in an experimental computer-supported collaborative learning setting. These interactions occurred when students faced challenges in carrying out the task and processing their findings, which subsequently called for teacher support. The researchers found that there were two forms of

support being provided by the teacher, which were described as eliciting strategies and elaboration strategy. The former is characterised by using discursive devices, for example prompts and cued questions in combination with non-verbal devices such as gaze, gestures, and hand movements to engage students in shared reasoning.

When the teacher refrained from the eliciting strategy, they shifted to the elaboration strategy. This can be described as elaborating on students' inquiries or the teacher's own guiding questions by supplying the necessary important information. It can be summarised that although a teacher's support is needed during students' group task, the central concern is to balance efforts in assisting students to utilize and activate their own knowledge while taking a source position and providing crucial information in the form of confirmations, validations and making information that was overlooked by students explicit. The research also concludes that teacher support can be seen as being a demonstration of the role of a more knowledgeable other during group-work activities.

Teacher support for classroom activities can also be mediated by a physical tool. For example, Warwick, Mercer, Kershner and Staarman (2010) found that teachers' support can be mediated through questioning practices, and in structure and the content of interactive activities projected on an Interactive Whiteboard. In particular, questioning engages students to establish productive group talk rules which they then apply when in groups. Meanwhile, the affordances of the tool were employed to also support and guide students in learning activities, for example the interactive board has a systemic way of holding and accessing information during the period of collaboration and thus makes it difficult for students to casually manipulate task objects without the rest of the group's agreement.

Retrospectively, the tool can be considered to mediate teachers' support which included either their specific instructions, problems, questions, or suggestions, or all four criteria involved in

the learning task. This example shows how a tool, such as, Interactive Whiteboard, Power Point Presentation and other teaching tools can be used as auxiliary means for teacher support in a classroom. However, the study by Warwick et al (2010) was conducted experimentally whereby the teacher participants were exposed to sociocultural views and methods in order to later embed them in their pedagogy. Subsequently, there is a gap to explore the interplay within mediated interactions that take place between teacher, students, and technology tools through a naturalistic approach.

Through all the examples and empirical evidence that are presented in this section, instructors can be regarded as persons of authority who provide guidance, affirmation, and a sense of direction in tasks and lessons objectives (Rasmussen, Krange & Ludvigsen, 2003). To do so, instructors may adopt a variety of ways to support teaching and learning activities, from the Initiation-Response-Follow Up/Feedback model to numerous other forms of interaction strategies. After all, mediation in a learner's development is not linear and should be seen from a dialectical perspective (Lantolf, Kurtz & Kisselev, 2016). The main point of this section is to show how teacher-students' interactions are useful in aiding learning developments. The gap to be bridged in this study is primarily on the need to research teacher-student interactions unfolding from a sociocultural perspective within naturalistic settings and ways it impacts education in the contexts of before and during COVID-19 to help transform classroom practice into more impactful teaching and learning development (Mercer & Howe, 2012).

3.1.2 Cultural-classroom Interactions

Teacher-students' interactions tend to be influenced by their cultural aspects, which warrants a review on how they can manifest themselves in a learning context. Asian countries such as Malaysia, exhibited collectivism where people belong to 'in groups', and individuals take responsibility for fellow members (Loh & Teo, 2017; Hofstede, 1980). Collectivism differs

from Western societies that practice individualism and low power distance, such as in the United Kingdom, United States and Australia (Loh & Teo, 2017). In collectivist societies, offence may lead to loss of face and shame while also exhibiting a high respect for traditions (Hofstede Insights, 2021; Hofstede, 1986).

In the classroom context, Wursten and Jacobs (2013) provided insights into how the dimensions of culture suggested by Hofstede (1980) may be interpreted. According to Wursten and Jacobs, Asian classrooms including Malaysia, practice teacher-centered lessons with a level of respect related to hierarchy status and positions, expectations on teacher to outline learning progress, preference for structural learning, and communications are implicit and indirect. Meanwhile, classrooms in the United Kingdom, United States and Australia practice more students-centered learning where teachers provide brief lessons' outline, lessons may be more unstructured, and tasks tend to encourage problem-solving, and verbal communications are explicit (Wursten & Jacobs, 2013).

As humility is highly valued in Southeast Asian cultures, students tend to be less verbal in the classroom unless they are called on by their teacher (Park, 2000). I have had similar experiences teaching Malaysian university students who would answer mainly after their names were mentioned or the questions were asked several times. The situation may be due to students not wanting to lose face in case their answer is incorrect or conversely that they may not want to seem to be boasting their knowledge (Vang, 1999; Cortazzi & Jin, 1996). As a result, students depend on teachers for information and would reply more in classes than practice rote learning and memorization (Ballad & Clanchy, 1991). Similarly, Loh and Teo (2017) found that students said they would welcome a students-centered approach as they can be more autonomous and learn independently, but also reported dependency on teacher support more than friends or colleagues.

Students may ask questions depending on whether they think they know more or enough about a topic (Cortazzi & Jin, 1996), potentially to avoid losing face in classroom. In like manner, Cortazzi and Jin (1996) found in their study that students believed their teachers could anticipate students' questions during the classroom interaction which led to students not having to ask any questions. I believe that this may be due to the visual cues in classroom where teachers can gauge students' understanding through just their facial expressions and body language.

When students-teacher verbal communications did occur, students reportedly felt comfortable expressing their opinions and/or asking questions to teachers and did not see it as constituting a classroom disruption (Loh & Teo, 2017). However, students also indicated that they preferred to ask questions in-between classroom break times and after lessons (Loh & Teo, 2017; Cortazzi & Jin, 1996). These Asian ways of learning are potentially different from the Western way of teaching and learning sessions where students' questions may lead to more discussions (Cortazzi & Jin, 1996), which means that Asian classrooms also do not practice or emphasise verbal interactions in the classroom (Wertsch, 1985; 1991).

Nevertheless, students who seem passive and less verbal in classroom do not imply that they are not reflective or thinking during learning activities. Vygotsky (1981) proposed the notion of intramental activities where students engage with the information and psychological tools internally as they progress in their learning. Therefore, we cannot know for certain what students are thinking even when they are quiet in the classroom. Cortazzi (1998) argues that one learns through talk, and not only by talking. He advanced the argument that in the Asian cultures, students may seem passive and involved in rote-learning, but on the contrary, interactions with a teacher where the teacher asks questions, followed by a response and a

follow up response by the teacher may create a cycle where other students can learn from the classroom talk between the teacher and their colleague, if they are fully concentrating.

Errors made by students are at times publicly mentioned in the classroom but were done much more carefully, considering that the Asian students care deeply about losing face. The reason that the errors are made public is to ascertain that the students know what and why the error is made and to inform other students of the error so that they do not repeat the same mistake (Cortazzi, 1998). For this, Cortazzi drew on an example where a target student who made an error was put to one side in order to watch another student, correct the mistake, and another student to do the exercise and correct the mistake. Later the teacher called on the target student and saw him/her tried again successfully. The rest of the class applauded the success, which is an example of a collective nature of support for people in the same classroom as opposed to feeling mocked or jeered at.

In this vein, Park (2000) found that Asian students have a higher preference for group tasks compared to Western students. For this, they postulated cultural influences that value assistance and cooperation among their group members as the reason behind this result. Similarly, Ramburuth and McCormick (2001) in their study indicated that Asian students scored significantly higher than Australian students in group learning, which can be linked to the society's collectivist construct. This finding also translates to Asian students preferring and enjoying collaborative work in groups rather than individually.

In the Malaysian context, Zubir (1988) challenged the over generalization of Malaysian students being teacher dependent as she argued that progress in learning is more likely to be linked to the teaching and learning environments of the classroom rather than the inherent characteristics of particular individuals. A more recent study in the Malaysian context was carried out by Awang and Sinnadurai (2011) and duly supported Zubir's assertion. They found

improvements when students are in learner-supported environments where students received help, feedback, and remedial exercises. This argument can be seen as shifting our focus from seeing Malaysian students in a purely negative light to considering the aim of classroom activities which then shape the subsequent teacher-students' interactions.

With regard to similar, Abdul et al (2009) experimented with mediation through tools (i.e chart showing number and words) and teacher questioning to examine how classroom interactions may change in a Malaysian school context. Abdul Rahim et al. argued that the use of tools increased students' understanding through the chart as a referral material, encouraged students' participation beyond the teacher's intended lesson objective, as well as students' motivation in lessons. Their study is an example of how classroom interactions can either be encouraged or constrained based on the environments and also the learning activities for a given topic. Although the study involved school students, the findings can be relevant to university contexts because a university's course textbook may contain similar tools (e.g charts) related to the course topics. This also means that Malaysian students as being rote-learners is not a conclusive finding, but rather, depends largely on a range of other factors including culture, classroom practice and lesson plans.

As this current study involves Malaysian university students, it is pertinent to note that classroom interactions may entail several cultural aspects such as humility, teacher-initiated questioning, fear of losing face and preference for collaborative group work. Considering this study takes place in the period before and during COVID settings where the classroom environment would also look different, what kind of classroom interactions would we be able to see from the two learning contexts?

3.1.3 Collaboration and Collective Thinking

Collaboration is not simply about students working together in a tolerant and compatible manner. Rather, 'collaborating' in collaborative learning can be better defined as participants engaging in a coordinated, continuing attempt to work out a given problem or to construct common knowledge (Mercer & Littleton, 2007; Dillenbourg, 1999). The process entails a synchronized joint commitment to a common objective, reciprocity, mutuality, and the continual (re)-negotiation of meaning (Mercer & Littleton, 2007). Collaboration is both valuable and challenging but is also an important process because the learning outcomes are always linked to the quality of its interactions (Kuhn, 2015).

Among collaborative learning strategies is both group task or small group learning, which can be defined as "a task in which no single individual possesses all the resources, and no single individual is likely to solve the problem or accomplish the task objectives without at least some input from the others in the group" (O'Neil, Chuang, & Chung, 2003, p. 366). A group task may also be described as a learning activity among a certain number of participants to seek an understanding, solutions, or a product of their learning (Springer, Stanne, & Donovan, 1999). To co-create and constitute such a shared perspective, dialogue among students becomes the main mediated tool present in the process (Edwards & Mercer, 1987). In collaborative work, even though most students are known to each other and thus are potentially involved in each other's social lives outside of class, there are others who work with each other mainly due to the demands of practical work needed in and outside of classroom, but are not linked as social friends, which is a common relationship dynamic among students (Crook, 2002).

During collaborative efforts, students engage in collaborative thinking. It is done through talk and dialogues which serve as ways in which students acquire skills and specific learning strategies such as how to summarize, argue, narrate among others (Perfetti, Yang &

Schmalhofer, 2008). Collective thinking is a concept which proposes that students who think and reason together in talk will yield positive impacts on their subject learning and general reasoning skills (Mercer, 2007; Mercer & Littleton, 2007; Rojas-Drummond, Littleton, Hernández, & Zúñiga, 2010), and their social and language skills (Wegerif, Littleton, Dawes, Mercer, & Rowe, 2004). Implicated in collective thinking is the importance of language being used. For instance, Yaghobian, Samuel & Mahmoudi (2018) focused on students' use of their first language in the English classroom and proposed that interactions through students' first language assisted significantly in creating a context for group participation and collaboration for the English subject.

Research on collaborative work and collective thinking among students is evident in the works of some renowned sociocultural researchers (see Froytlog & Rasmussen, 2020; Mercer & Howe, 2011; Furberg & Arnseth, 2009). For instance, Knain, Fredlund and Furberg (2021) used interaction analysis to provide greater insight into students' level of engagement in a Science classroom. Their moment-to-moment analysis revealed that students talk with peers was supplemented by drawings on the subject which helped them to produce developments of a more complex nature together with abstract explanations of science representations. In particular, students' earlier drawings shifted from the everyday attributes of ordinary matter (e.g the beakers and the sun) to displaying aspects of a scientific explanation of the greenhouse effect in a more scientific manner (e.g wave-shaped arrows, terms such as radiation, energy, reflection and absorption). The micro analysis also revealed that students require plenty of time and support in order to yield different modes of drawings as they learn about complex scientific processes and gradually progress from everyday naturalism to scientific abstraction.

The interactions between students also take their historical and dynamic aspects into account (Mercer, 2007). Historical refers to the interaction that is located within a particular

institutional and cultural context, as well as speakers' relationships. The language mediated communications may invoke knowledge from the shared past experience of those interacting such as a recall of previous classroom activity, or from the 'common knowledge' that is available to those who possessed similar past experiences such as completing university's pre-requisite courses though with different instructors, but they could assume there is a shared understanding of the subject despite attaining it in distinct ways and separately. Meanwhile, the more dynamic aspect of collective thinking is about the basis of common knowledge where shared understanding is constantly being developed and in a constant state of flux as corresponding communicated content and immediate shared experiences supply the resources for constructing future conversational context.

Beyond group work outcomes and learning development, social interactions among students also help them to take an agentic stance. In this case, Carson, Hontvedt and Lund (2021) analysed how students' agency was gradually enacted from a group's podcast task. Initially in extract one, students jointly provided a briefing about an event related to the podcast topic which was neither scripted nor pre-arranged. As they progress further into the podcast, students indicated their positioning about the schools' grading system. Students then used their personal experiences to link learning and development where this can be seen as another demonstration of advancing their positioning about the subject being discussed. Thus, the podcast became a socially collective enterprise where students build on each other's ideas and produced a discursive outcome which emerged from a multi-voiced dialogical space. These acts of agency become transformative where students exercise a tenacious influence on the programme they attend and also where, with institutional endorsement, they potentially change some current and future educational practices.

In the above examples, we may observe a pattern whereby, as students gradually construct a sufficient understanding related to the task, their goals are shaped as part of the process of clarifying the task at hand (Rasmussen, Krange & Ludvigsen, 2003). This means that students' agencies are linked to the content and structure of the learning environment, whereby when this relation is properly understood, only then are they able to complete the task and to collaborate significantly with colleagues. Nonetheless, students maintain their dependency on instructors when they sought an authorization in the process of interpreting the task, which implies that when students are in a structured environment, they are also highly dependent on the teacher to approve their comprehension related to the knowledge domain at hand (Rasmussen et al, 2003).

There are several potential challenges to students' collaborative efforts such as the inherent difficulty in obtaining a joint understanding because students are constructing their own understandings first before they are able to collaborate with others and to progress with the task (Rasmussen et al, 2003). Other challenges may include unbalanced participation or not contributing at all in a discussion (Cheng, Wang and Mercer, 2014), with some being highly competitive and personally irritating, group members ignoring one another, and superficially agreeing and accepting others' ideas (Wegerif & Dawes, 1997).

It is worth clarifying here that I am not suggesting that students who seem to be uninterested in talk and discourse with peers are completely disengaged from tasks and lessons. Instead, research suggests that students may not be partaking in group discussions because they may not perceive their ideas as being valuable. For example, Clarke, Howley, Resnick & Rose (2016) found that in order for students to contribute in group interactions, it necessitates conceptualisation of oneself as a legitimate speaker whose ideas carry value to others, and their perceived of knowledge of the topic. The underlying meaning implies that knowledge is seen

as something that belongs to individuals that should be conveyed and offered to the table only if individuals deem this to be worthy of collective exploration. Beyond this, when students speak out, they do so because of themselves and because they feel accountable to and identify with the collaborative work which has been undertaken (Froytlog & Rasmussen, 2020).

In conclusion, sociocultural perspectives on group tasks can be considered as being a genuinely collective enterprise that take into account interplays between teacher, learners and cultural tools and that cannot be separated (except analytically) from learning activities (Lund, 2008). In such activities, student interaction becomes a fundamental aspect of learning whereby the process itself is thought of as being an educational end which is as significant to learning outcomes (see Mercer & Howe, 2011; Mercer, Warwick, Kershner, & Staarman, 2010; Rojas-Drummond & Mercer, 2003). Consequently, if we want to improve students' collaboration and learning outcomes, their interactions in and outside of classrooms need to be better understood and reappraised.

3.1.4   Body Cues

Displaying mutual attention, gestures, and other social indications of non-verbal communication through body movement and posture, and proximity between speakers are some of the important visual cues which occur in communication (Smotrova & Lantolf, 2013; Short, Williams & Christie, 1976). Verbal input is clearly enhanced via nonverbal behaviour and was found in the microanalysis of a teacher's nonverbal gestures which constituted an important component of a topic's explanations (Lazaraton, 2004). Students also reported an increased awareness of learning as a result of teacher gestures because they were able to detect and interpret gestures which aimed to provide positive and negative feedback, to concentrate on specific parts of explanation, and to validate their assumptions about some hypotheses related to the subject (Sime, 2008).

Related to this, Smotrova and Lantolf's (2013) study focused on the mediational function of gesture-speech interface with attention to the meaning of subject matter's concepts. They discovered that students who produce hypotheses using both verbal and gestural modes to be showing a higher extent of alignment in terms of meaning making. In the classroom, the recurrent gestural features coupled with the verbal elements have produced a coherence which was later reiterated by multiple speakers. This activity turned into a catchment where a consistently recurring image became a reference point which linked the verbal contributions to the underlying topic. For example, the term to 'take off' being gestured in an upward trajectory of a plane, with its verbal assumptions were made by students which led students to apply the term to an activity where planes leave its runway. The researchers (REF) asserted that the combination of this type of gesture and speech has allowed for the visualization of a spectrum of meanings which were not included in dictionary definitions. They also concluded that gesturing is a significant tool for enacting word meaning whereby meaning is construed in terms of what it 'does' and not what it 'has'.

Therefore, visual cues make up a prominent component in the process of meaning-making. Although some non-verbal cues may be transmitted via some digital devices, such as attention and feedback, the majority are not digital. Digitally mediated interface may influence students' quality of interactions (Curtis & Lawson, 2001), as it may depend on the tools' capacity to encourage a sense of collaborative and community online amongst students (Gillet-Swan, 2017). Recent technologies may afford more features which transmit visual cues, although it requires people to look into the camera instead of their screen or elsewhere. However, the main challenge is for the instructors to appropriate a platform and organise activities which develop this sense of student engagement (Gillet-Swan, 2017). A number of suggestions from research in telecommunications developments (see Short, et al, 1976) remain relevant today (see Curtis & Lawson, 2001). They suggest that the greater the social presence of a medium employed, the

higher the intimacy becomes between users, while mediums with low social presence are suitable for tasks like information transmission and simple problem-solving (Curtis & Lawson, 2001; Short et al, 1976).

Computer-based tasks may result in issues such as the unequal participation of students and free riding behaviour (Savicki, Kelley & Ammon, 2002), and discussions that lack high-quality reasoning and depth (Munneke, Andriessen, Kanselaar, & Kirschner, 2007). Although these issues are similar sometimes in the face-to-face context (see Section 3.1.3), the difference here lies in the following. Computer-based tasks' issues are postulated to be due to a lack of social presence or limited non-verbal cues such as facial expression and gestures (Janssen & Bodemer, 2013, p. 40; Kreijns, Kirschner, & Jochems, 2003). Unlike in a face-to-face classroom where challenges were mainly attributed to a lack of joint understanding, and unbalanced participation because of competitive and irritating group members (see Section 3.1.3).

In the changing landscape of before and during COVID-19 and the potential use of recent digital tools as well as limited options to interact other than using digital tools during the pandemic, how do students interact with colleagues and instructors in order to complete tasks for the academic semester? This gap strengthens the rationale to explore ways that students collaborate and interact when a technological tool such as a computer is used in teaching and learning activities.

3.1.5   Digital Technologies in Education

In the 21st century, digital artefacts are ubiquitous in teaching and learning activities (Lantolf & Thorne, 2006). Yet, premises that place total agency in digital technologies can be misleading. Even though the digital tools can support learning through a mediation of action, it may also hinder the process if it is applied aimlessly (Rasmussen & Ludvigsen, 2010).

Therefore, the common understanding ought to be that learning is better supported when digital tools are employed with some clear pedagogical rationale (Mercer, Hennessy & Warwick, 2017).

Major, Warwick, Rasmussen, Ludvigsen and Cook's (2018) scoping review of 179 studies on how digital technologies enhanced productive classroom dialogue resulted in three major themes – dialogical activity, technological affordances and the wider learning environment. Dialogic activity could be promoted through digital technology through the promotion of alternative perspectives as students are often given opportunities to recognise and take into account other views online. This affords knowledge construction by sustaining purposeful and critically in-depth dialogues such as interacting using Interactive Whiteboard and working in pairs at a computer, as well as scaffolding understanding between learner-learner such as by helping colleagues to work with technology, and teacher-learner by using technologies to scaffold students' understanding and support dialogues using it.

Technology use in education may support a shared dialogical space among leaners, mediate interaction among them through its accessibility and versatility of uses, and afford externalisation of ideas by providing a space for learners to do so individually. As for the learning environment, digital technologies are useful for dialogical activity as they afford learner autonomy, inclusion, and participation such as for more silent students to find a 'voice' in an online space, provides a sense of community, motivation and engagement (Major et al, 2018). Digital technologies' advantages and constraints are reviewed below because they provide an understanding into human-tools interactions for education purposes.

3.1.5.1 Advantages of Digital Technologies in Education

At this point, it will be fruitful to review some forms of digital technologies that have been adopted in higher education from a sociocultural perspective, starting with the Virtual Learning

Environment (VLE). Instructors have been incorporating VLE into their lessons as part of educational institutions' requirements, but research has also found that the VLE is used mostly as a convenient repository for course documents and resources (Timmis, Joubert, Manuel & Barnes, 2010; Crook & Cluley, 2009), including in the Malaysian universities (Ajis, Jali, Mazlan, Nordin & Kamal, 2017). Other uses include different links to documents with no accompanying commentary, links with commentary instructions on use of other files, extended links with navigational comments beyond the local VLE system, any other variety of text features with limited textual commentary and/or with extended textual commentary (Ajis et al, 2017; Crook & Cluley, 2009).

The functions of VLE in higher education imply that the interactions rarely strive for contact with readers and also entail a limited informality of expressions, an infrequent personalising of communications and also a scarcity of empathetic commentary or learner reassurance. In this vein, Crook and Cluley (2009) summarised that the teacher voice is at best, a distant and anonymous; and at worse, it becomes abrupt and didactic. They found that VLE mediums do offer a sense of immediacy and a sense of some kind of personal relationship, but that this rarely occurs. The shortcomings of exercising both warmth and immediacy or empathy in VLE may represent a lack of experience in doing so in a textual format. Meanwhile, the immediacy in a classroom has been found in the literature to be a contributor to the overall classroom climate and also to an interpersonal richness which goes to promoting effective learning (Mottet, Parker-Raley, Cunningham, Beebe, Raffeld, 2006; Pogue & AhYun 2006). As can be observed, VLE, then, is not a one-size-fits-all for all needs and learning purposes. However, it is not the only tool which poses both advantages and limitations either (Lund & Rasmussen, 2008), because all of these cultural tools carry their own benefits and constraints (Wertsch, 1998). For that reason, any subsequent use of digital technologies must be personalised and complementary to support teaching and learning activities (Timmis et al, 2010).

Other technologies that were combined to complementing learning activities include Moodle and WeChat which were also deployed as two online platforms which support peer collaboration in a blended academic context (Sun, Liu, Luo, Wu & Shi, 2017). Moodle functions in a similar way to universities' VLE while WeChat is a messaging and social media platform. Moodle was found to be sustainable and conducive compared to WeChat. Moodle reportedly supports more in-depth peer discussions related to tasks assigned due to better information flow and higher level of collaborative knowledge building and groups' exchange, whereas WeChat was found to be better for instant group interactions such as greetings, emotional expressions, and announcements.

Contemporary social media platforms such as YouTube and WhatsApp, and microblogging technologies such as Facebook, Talkwall, Twitter and Wikipedia have also been appropriated for a variety of learning purposes (see Rodnes, Rasmussen, Omland & Cook, 2021). For example, a microblogging tool, such as Talkwall, could be used as a mediated tool for 1) students' collaborative efforts to make 'thinking visible' to others, and bridging group reasoning and whole-class reasoning, 2) teachers' prompt to include more silent students in whole-class interaction, and 3) produce coherence that integrated teacher-led and peer-group interaction to form a common understanding of the subject matter (see Smordal, Rasmussen & Major, 2021; Rodnes, et al, 2021; Froytlog & Rasmussen, 2020; Rasmussen, 2016). The significance of noting these advantages is to acknowledge that the dynamic interactions from any tool including the microblogging technology are the result of careful dialogic orchestration, which is organised and conducted by the teacher, including his/her appropriation of a digitally mediated tool (Froytlog & Rasmussen, 2020; Rasmussen, 2016).

In relation to the group's structural dynamics, Lund and Rasmussen (2008) experimented with Wiki as a possible mediating tool for students' collaborative work. Wiki is a website which has

been developed collaboratively by a community of users where they can add and edit its content. Lund and Rasmussen showed an analysis of how a collaborative task was approached by students, negotiated, and solved locally by a small-group level as opposed to being used in a whole-classroom context. The activity cycle in group organization demonstrated the distribution of resources through division of work, selection of resources and tools, and construction of drafts where information copied from the Internet served as raw materials towards producing final outcome. This also means that after students reconstruct and specify the task, they can then split it into smaller constituent parts to be developed autonomously. The researchers also identified agentic transformation where students used tools (e.g Miscrosoft Service Network, PowerPoint slides) other than the designated Wiki tools for classroom purposes to complete the collaborative endeavour.

However, many of the examples above (see Smordal et al, 2021; Rodness et al, 2021; Sun et al, 2017; Rasmussen, 2016; Lund & Rasmussen, 2008) were curated and experimented by the researchers in order to evaluate the impacts of these digitally mediated tools in education. Therefore, it is interesting for the purposes of this study to investigate digital tools being adopted for education within a naturalistic setting of the before and during the pandemic contexts.

3.1.5.2 Constraints of Digital Technologies in Education

Students normally seek information online but a study by Bartlett and Miller (2011) revealed that students aged between 9 to 19 years old claimed to have never been taught how to judge the reliability of the information that they find. Even though students may have significant previous experience with technology, they may not be adept at using it properly although they may share and showcase their expertise in some collaborative contexts (Knight & Mercer, 2015), as well as feel uncertain about the information they have retrieved from the internet on

account of its diverse voices and absence or hidden authority (Major et al, 2018; Crook, 2012). Such situations made students feel frustrated over the unstructured information encountered through web searches due to the relatively flat landscape of internet information, unavailability of learning scaffold and overload of undifferentiated information (Knight & Mercer, 2015; Crook, 2012).

In consequence, students who relied on online materials and submitted their work tended to produce poor quality work (Rasmussen, Lund & Smordal, 2012). This is owing to simple reproduction without any deeper reflection or copy-paste practice of content they had found from the Internet, which can be identified in students' products. In contrast to books, they are viewed as being less volatile as they are tailored to learners and designed to be a teaching reference (Rasmussen et al, 2012). As for teachers, there are technological challenges related to the overall quality of classroom interaction that focuses variously on the quality of teacher questioning, developing required resources and skills to promote collaboration among students, behaviour management such as students becoming disengaged, technical skills and pedagogy such as difficulty to establish a new learning culture (Major, et al, 2018).

Another highlighted issue with internet tools is the challenges of students working together in a physical space-gap context despite being active users of the relevant synchronous and asynchronous communication tools involved (Crook, 2012). For example, the collaborative quality of their own-notes revisions was found to be better than their computer-mediated revisions as students' talk in the latter case appeared to be more disjointed in terms of its movement between topics while their own-notes mediation had an altogether stronger coherence and sense of narrative (Crook, 2012). This means discontinuities exist within students' computer-based talk compared to offline own-notes revision. Besides that, the proportion of academic talk through tools such as social media was found to be low because

students predominantly used it mainly to share practical information (Adalberon & Saljo, 2017).

The above findings by Adalberon and Saljo (2017), and Crook (2012) all imply that discussions that are held over social media or the computer are not sustained over longer periods of time because of their discontinuity. Therefore, internet-mediated collaborative work online was also seen to be possible for independent work rather than as supporting a shared construction because the mediums were not conducive to a negotiation for knowledge (Crook, 2012). Nonetheless, the seeming lack of participation could also be because text has permanence that speech does not have, which affects learners to not be too quick in making an utterance and think carefully what they are going to type (Crook, 2012).

Digital use has been linked to digital distraction in classrooms. About 70-90% of self-reported college students admitted to regularly texting one another during class hours (Parry & le Roux, 2018) with an average of 15 to 20 text messages in one class period (McCoy 2016). The size of a classroom may also be an aspect to consider where Week (2016), through observations, found that medium (i.e 36 to 149 students) and large (i.e 150+ students) courses face more digital distractions compared to smaller courses of 35 or fewer students. Flanigan and Babchuk (2022) found that instructors reported regular encounters with students' digital distractions, recognised digital use in classroom being a distraction that drastically hinders learning and student-instructor relationships.

There had also been a range of other mixed reactions and inconclusive results concerning the advantages and drawbacks of online learning for students. For instance, Goh, Tan and Ahmad Buhari (2016) noticed some of their students in a Malaysian university were not motivated to be involved in online discourse. Subsequently, they identified and posted students' names online which later caused the students to be more participative. It may be that this situation left

students with fewer options and resulted in a form of forced online participation. The finding also paints a picture where these university students may not wish to engage with online discussions, though possible reasons behind this are not stated and warrant further investigation.

Slow internet connectivity in and outside of university has been identified as one of the primary hindrances to online learning (Osman & Hamzah, 2016). Even though most public universities are well equipped with digital technologies (e.g hardware and software), there are limitations of access to these facilities, such as the university libraries which often only operate at certain times and days. Restrictions to access became even more problematic because some students did not own a personal laptop (Ab Ghani, Lim, Mustaza, & Abu Hassan, 2016). Moreover, in urban areas accessibility to the internet was at 75.6 percent while in the rural areas this was at a staggeringly low 24.4 percent (Malaysian Communications and Multimedia Commission, 2020). Faced with these limited resources imposed by the rural-urban divide, how do participants in this study who come from different backgrounds interact and complete their tasks online, particularly during the pandemic?

In conclusion, the empirical studies presented in this section illustrate how human interactions with and through tools may entail both advantages and constraints to education. The point is that people have been using different technologies to fit different purposes in their teaching and learning activities, in both cases with greater or lesser success. However, the pedagogy on how to best appropriate technology in learning should be of a central importance, as opposed to employing technology per se because the same technology may be appropriated in a range of different ways depending on the purpose of its uptake (Mercer, et al, 2017; Shih, 2011). The uptake of tools is intrinsically related to task challenges and to responses whereby if available tools do not facilitate solving or elevating a problem at hand, it is simply not applicable to

employ them. Therefore, it is pertinent to examine how the use of digital tools may encourage or hinder teacher-students' and students-students' interactions in the face-to-face and fully online learning contexts.

3.1.6 Institutionalised Roles

Thus far, I have discussed in detail the complexity and dynamic interactions that exist in teaching and learning activities on the intermental level. In this section, I will explore the role of educational institutions in mediated interactions which influence learning outcomes, and the ways in which people communicate, and cultural expectations in such education settings. The research presented in this section comprises both schools and universities because the aim is to draw attention to how education institutionalised aspects may influence students' interactions.

Educational institutions including a university embed and mirror historically developed social practices and norms (Mercer, 2004). Instances of norms and social practices include 'valid' ways of studying, how to participate in group work, how to act and behave in front of a teacher and how to solve a task in a way which is deemed as successful. In a school context, Furberg, Kluge and Ludvigsen (2013) found that students sensemaking to complete a science representation was also a response to a set of institutional norms and social practices in educational settings, such as understanding and applying what was taught in classroom, and explaining scientific concepts and terms is what students are expected to do, and are being rewarded for. Even though students' activities are not necessarily determined by these institutional practices and norms per se, they can be invoked, addressed, and dealt with during students' interactions with tools. To put it simply, there is a relationship between students' actions and institutional aspects at both schools and universities when students interact with tools and people to complete tasks. This relationship is also what allows students' sensemaking to take place.

Learning situations are inherently complex because as students engage in meaning making process for a classroom task, they are simultaneously expected to adhere to institutional expectations and rules. The dynamic relationships between the two conditions could alter their learning orientations. For example, Furberg and Ludvigsen (2008) stated that during the phase when students collect relevant information, an authentic orientation related to the meaning making of concepts about the subject was possible. However, when they are reminded of the task's time limit, some practical choices were required which shows the importance of time as a significant structuring force in educational institutions. In other words, all the learning activities were situated in an institutional setting that comprise rules, norms and socio-material structures which duly impact meanings and functions of students' actions (Furberg & Arnseth, 2009).

Hence, tasks too represent an institutionalised practice where students are assessed in a certain manner that is acceptable by the institution and its governing body. Therefore, the nature of tasks that we assign to students impact their way of interactions with tools, meaning-making process and outcomes produced at the end of the process (Furberg & Arnseth, 2009). To illustrate this, a study by Rojas-Drummond et al (2010), found that school students' interactions in groups are different when tasked with two different writing activities. For example, an informal email writing exercise of a group revealed that students' critical engagement to constructively build on each other's ideas was found to be sporadic because there is not one correct solution nor are there definitive 'truths' involved in it. Meanwhile, the group of students who worked on a bulletin board were able to challenge and counter-challenge their proposals, provide reasons and alternatives, and ultimately reach an agreement and reasoning is visible in the talk, because the topic for the writing exercise needed factual information.

In Rojas-Drummond et al (2010) study above, it is implied that the contents and meaning making processes within a group interaction may rest on the nature of the tasks assigned. Though the two tasks yielded different on-going collaborative processes, both triads also displayed similarities in the iterative cycles of talking and writing as well as planning, writing and correcting, in parallel with the expressions of emotions, and various personal, social and cultural values and knowledge. The students' collaborative group work also revealed 'knowledge transformation' strategies whereby students moved backwards and forwards between a content and rhetorical spaces. On the one hand, the collaborative activities include links between students' interactions and writing processes at a micro-analytical level, and on the other hand they showcased students' wider world knowledge about personal, social, and cultural practice at a macro-analytical level.

A textbook diagram is another example of such institutionalised practice because it can be likened to a set of knowledge which is 'approved' or 'guided' (Furberg, et al, 2013). Hence, textbooks could also become tools where students illustrated, explicated, and highlighted specific elements in their verbal discussion with group mates. Using the same tools, students may combine gestures and verbal expressions to communicate what they initially found difficult to grasp, and to provide explanatory accounts to each other (Furberg, et al, 2013). The emphasis here is on how the textbook diagram serves as an individual tool which enabled students to monitor own understanding about the subject.

Similarly, students' engagement with prompts displayed on a digital tool that expected them to provide answers implies a response to what can be labelled as being an institutional practice of the school embedded in the design of prompts of the tool (Furberg, 2009). Students were also found to make use of 'copy and paste' strategies to make sure that they are giving 'correct' answers to the prompts. However, without these prompts from the tool, the students engaged

more in meaning-making and in thinking activities. These reactions indicated that while the tool employed assisted with task completion, students were also constrained by institutionalised expectations. Retrospectively, this study also views artefacts such as quizzes, textbooks, Padlet and other classroom tools chosen by instructors as part of an institutional tool that students are required to engage with as part of their learning activities (Furberg & Arnseth, 2009).

Furthermore, even the study of furniture in classroom is not merely a matter of design and practicality but more importantly, on how interaction gets orchestrated within space – space which itself continue to look quite familiar to many students (Crook & Bligh, 2016). Within the same classroom space, it affords the gazes of listeners that can be oriented and front-facing. At different times, the speaker may seek to use their body movements, such as gesturing towards elements within slides or become a disembodied narrator of those slides (Crook & Bligh, 2016).

Institutionalised roles are reviewed in this chapter because they help us understand that learning is an 'activity-in-context' whereby what we can do for learning is determined by environments that afford structure of the activity (Crook & Light, 2002). Some contextual environments are institutionalised within a university, while some are fluid and do not have such restrictive boundaries such as in virtual environments. Experience of learning in some domains could empower students to take on versatile approaches in managing environmental changes. Nonetheless, learners' agency may not easily arise because relevant experience must be possessed to craft the environment to support such learning activities. This perspective implores us to view human activities as embedded in engagements with cultural tools, such as artefacts, technologies, symbol systems, institutional structures and others within which activities are constituted.

3.2 Emerging Literature in Before and During COVID-19 Contexts

This section reviews literature on 'before COVID-19' and 'during COVID-19' in the titles of studies, and 'learning' was added in the keyword search. Search results produced 79 related articles. These articles were narrowed down to learning related activities in the before and during COVID settings. Other articles that contained the term 'learning' but concerned other topics such as crisis learning, global economy, health issues, and financial behaviour were excluded. The studies discussed here involved school and university contexts due to the relative relevance of their findings.

Almost all levels of education in most countries, including Malaysian universities, had to fully immersed into online learning during the pandemic (United Nations Educational Scientific and Cultural Organization: UNESCO, 2020). In this vein, Bahar, et al (2020) found that instructors at Malaysian public universities had to employ external application software such as Google Meet, Microsoft Teams and Zoom, to deliver online lectures and classes because their university's LMS was ineffective in supporting synchronous and real-time communications with students. However, many instructors also faced various difficulties in adapting to external application software in terms of security, ease of use, low internet bandwidth and compatibility with devices, as well as securing participation from students.

The connection between students and the platforms that were being used is extremely important because students are directly implicated in their online learning activities. Handel, Stephan, Glaser-Zikuda, Kopp, Bedenlier and Ziegler (2020) in a survey administered to university students during the pandemic disclosed that the better students were equipped with technology, the more technological experiences they had, and the higher digital learning self-reported skills were, the less tension, worries, and overload students reported. Moreover, as a notable side

effect, students who were able to communicate via digital devices also reported less social loneliness.

During the pandemic, the duration of daily Internet use on average in Malaysia was between one to twelve hours with one the highest number of users being young people in their 20s (Malaysian Communications and Multimedia Commission, 2021). The consistent use of the internet on a daily basis may be because of the pandemic that shifted many activities to online modality. However, most of the internet penetration data does not translate to learning and working hours because users could be online for casual surfing and entertainment.

For instance, students were found to be spending less time on their studies during the pandemic compared to the period before the pandemic where university students spent 30 minutes to 1 hour, or 2 to 3 hours to study every day (Petkova & Ignatov, 2021). With regard to this, Petkova & Ignatov's hypothesized reasons for students spending less time on studies during the pandemic were because the pandemic was at its peak and hence people may be more worried about their health than anything else, as well as may be due to the unfamiliarity with the online learning platforms.

In a similar vein, Polujanski, Schindler, and Rotthoff (2020) through their longitudinal survey about emotions before and during COVID-19 revealed that university students were happy and highly satisfied during the pandemic's online semester. They assumed that it could be due to the free allocation of time. However, in the same study, they also found disappointment as a major emotion experienced by students, presumably due to the absence of face-to-face lessons. Their study did not allow for causal explanations and therefore all assumptions should be treated with cautions and further research would be needed to fully corroborate. Moreover, the sampling of the longitudinal study of before and during COVID may not be from the same

participants (i.e 71 students before COVID and 75 students during COVID) and therefore the feelings of different individuals during the two context may vary.

On a similar note, Wong (2020) disclosed that online learning during the pandemic had pushed school students into developing autonomy in terms of their learning activities. These students were reportedly able to grow a sense of competence in online learning which helped them to complete tasks. However, due to the autonomous nature of online activities that had no social and physical interaction with peers and teacher, students were often having solitary learning experiences with less support. The situation made them feel less motivated and unable to retain attention in the online learning.

Other current literature to date has reported various motivational problems, the lack of direct social interactions, suboptimal teacher support, and also increased autonomy in self-directed learning in some instances (Wong, 2020; Handel, et al, 2020). For example, school students in an English classroom reported higher levels of autonomy where they were willing, confident, and motivated to learn before the pandemic compared to during the pandemic, which was presumably because they needed face-to-face interactions when learning a target language (Irgatoglu, Saricoban, Ozcan, & Dagbasi, 2022).

A study by researchers at Stanford University found that American high school students living in the Silicon Valley, California, understood the importance of digital access for academic engagement (Kim & Padilla, 2020). However, both parents and students faced significant barriers to facilitating adequate access to technology (i.e internet and digital devices) at home during the pandemic due to the socioeconomic factors involved, for example no access to private study space due to their minimal living space, and experiencing declines in academic performance while coping with higher levels of school stress at the same time. Although the study involved school students, its findings may be relevant to university students' population

including in Malaysia where accommodation and resources such as library, computers and internet are provided. Hence, when COVID hits, they may face similar issues found in Kim and Padilla's study.

In terms of academic performance, Schult, Mahler, Fauth, and Lindner (2022) used longitudinal data of mandatory reading and mathematics competencies tests for fifth graders school students in Germany from year 2015 to 2020, to draw competencies comparisons between the before and during COVID-19. They revealed that the competencies of incoming fifth graders ending up slightly lower after schools' two months closure in 2020 compared to the average scores of the three previous years. The differences between these cohorts were translated as students experiencing the pandemic in year 2020 were expected to receive approximately one month of learning backlog when the school reopens. In this vein, Schult et al's results of lower students' scores in year 2020 than the previous three years could be due to the timing of tests taken. The test was administered two months after the school's closure which was also at the time of uncertainties.

As for learning trajectory during the pandemic lockdown, Letnes, Veelo, Stanicke, Ni Bhroin and Rasmusssen (2021) in their survey of pupils' digital lives during COVID-19 times found that students had to adapt to a drastic and major social routine change where they went from being at school and talking to teachers and friends every day to not meeting them at all. Their research noted varying behaviour and activities in online learning during the pandemic. Some teachers had regular online meetings while others were flexible where they meet when students asked for help with their learning activities.

Considering task setting, Letnes et al (2021) found that some assignments were communicated daily or several times in a day while others scheduled the assignments without further follow-up. Both synchronous and asynchronous communications were used with frequency ranging

from once a week to a few times a day. These online activities were meant to compensate for social contacts and for education became normalised as part of the 'every day' where students experienced significant increases on online activities and in time spent with digital media. However, throughout the online learning period, students expressed a longing for more time with their friends. Parents of these children also believed that their children's social needs could not be fulfilled through digital interactions alone.

Overall, there is no conclusive findings about how interactions unfolded and ways learning activities in before and during COVID-19 contexts are impacted by the pandemic, potentially because the consequences from the two-year global pandemic would require much more time and analysis in order to be clearly manifested. However, the current literature revealed instructors having to employ external applications because their universities' online learning platforms were unable to support features needed for online learning (Bahar et al, 2020), students spending less time on their studies compared during the pandemic (Petkova & Ignatov, 2021), suboptimal teacher support and lack of direct social interactions during COVID (Wong, 2020), and declining academic performance in the pandemic context (Schult, et al, 2022). These findings may be confirmed, disputed, or extended to a certain extent in this study that attempts to understand university instructors and students' interactions for learning activities in prior and during the COVID-19 settings.

3.3 Research Aim

Thus far, I have argued for the importance of interactions for learning activities which must consider social, cultural, and historical aspects of the 'learning-in-context'. To understand how they manifest within a certain learning activity timeframe, I presented ways sociocultural perspective is utilised. This review enables extraction of analytical tools that allow us to treat aspects of an interaction as entities whilst acknowledging them as part of a collective process.

Other than the significance of studying interactions in education contexts, the disruptive change of landscape because of COVID-19 leaves a substantial void in the field of study. In particular, there is paucity in literature that addresses the transitions from face-to-face learning to fully online learning, or explores interactions in both before and during the pandemic period.

Therefore, this study aims to understand participants' mediated interactions with people and artefacts for learning activities situated within the contextual settings of before and during the COVID-19 lockdown.

3.4 Research Objectives

Following the aim, the research objectives for the study are:

- To explore interactions within the context of face-to-face and online modalities in the before and during COVID-19 lockdown to identify the specificity of activities and tools.

- To elicit the forms of mediated support from people and artefacts that aid in students' learning activities in face-to-face and online mediums in before and during COVID-19 lockdown.

- To identify students' self-initiated strategies for tasks completion in the before and during COVID-19 contexts.

3.5 Research Questions

The research questions concern teaching and learning within a context that is both technological and social, institutional, and personal –

1. How do students and teachers interact for learning activities **before** COVID-19?
2. How do students and teachers interact for learning activities **during** COVID-19 lockdown?

The questions above emphasise 'how' interactions take place because it implies that some human interactions with mediational means are visible while some are not. The focus is not entirely on people and what are they doing, but rather it is on how sociocultural lens may help us see mediated actions in a more holistic, dynamic, integrated, and meaningful way. Furthermore, the questions are aligned with a naturalistic approach that aims to understand mediated actions in teaching and learning that take place within social practices and how these social practices change or remain stable in the contexts of before and during COVID-19. Hence, they focus on understanding how and why certain features of interaction create effects and identify under which interactional conditions specific features in the mediated tool resource enable productive teaching and learning processes and outcomes while also accounting for students' agency.

3.6   Summary

Notably, the literature thus far has failed to capture or focus on interactions within learning contexts during the shift from face-to-face to fully online learning. Hence, this chapter emphasises these significant gaps in literature while concurrently provides examples of interactions that can be referenced in relation to the learning activities being investigated. Due to the unique circumstances presented by the pandemic, I deliberately delve into this specific topic that aims to understand participants' mediated interactions with people and artefacts for learning activities in before and during the COVID-19 lockdown. As we navigate the post-COVID era, where educational institutions are undergoing major changes, I believe the findings from this study can provide valuable and deeper insights to enhance our pedagogical approaches, facilitate the effective implementation of online technologies, and inform education policies.

Chapter 4: Methodology

4.0 Introduction

This chapter presents how a sociocultural perspective is aligned with social constructivism as a way of creating knowledge. The following sections elucidate the study's qualitative methodological considerations, which include a two-phase study design, university students and instructors as participants, together with observation and interview as methods of collecting data. The chapter continues with how fieldwork was conducted to capture interactions in both settings, and appropriation of aspects from thematic analysis and interaction analysis to interpret data. This chapter ends with the criteria to ensure ethical considerations such as obtaining informed consent and assigning pseudonyms on all participants and other names appeared in the study.

4.1 Philosophical Assumptions

The study's understanding of interactions in teaching and learning is seen as a mediated social activity, whether done openly or privately (see Chapter 3) (Lantolf & Thorne, 2006; Vygotsky, 1987). The sociocultural approach asserts that learning implicates social, historical, and cultural influences because this shape how one acquires knowledge (Wertsch, 1998). From such a perspective, the research assumes that reality is socially constructed, contextual and multiple because of human subjectivity (Kivunja & Kuyini, 2017; Porta & Keating, 2008; Crotty, 1998).

Subsequently, the guiding philosophical paradigm is social constructivism whereby knowledge is created through experience as it is lived, felt, and undergone (Schwandt, 1998). As the objective of the study is to understand mediated actions in learning activities from a sociocultural perspective, the study is expected to produce multiple interpretations. As a

continuation to this way of looking at a given phenomenon, the study presumes that reality is socially constructed because individuals' behaviours and recollections of past events are continuously interpreted to provide a meaningful explanation, that is situated in a particular context at a given time.

The Figure below illustrates how philosophical assumptions of the proposed study informs methodology and methods to conduct the research:

Philosophical Assumption **Social Constructivism**		Methodology **Qualitative Two-Phase Case Study**		Methods **Face-to-face and Online Observations and Interviews**		Data Analysis **Thematic Analysis and Interaction Analysis**
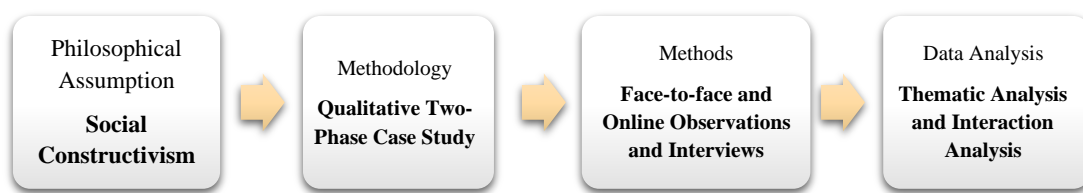
Figure 2: Illustration of steps taken in the research (author's conceptualisation)

To understand "the nature of the relationship between the researcher and what can be known?" (Guba & Lincoln, 1994, p. 108), I gained access to the participants in context, to understand and make sense of their as well as my constructed meanings about the mediated actions involved in learning activities. Moreover, participants may or may not have the same ideas about looking at certain phenomena, which provides me with an angle to probe, analyse and interpret the subject matter. The methodological explanations of how I conduct the research are presented in the following sections.

4.2 Methodology

This study focuses on how students and teachers interact for learning activities in the before and during COVID settings by looking at their mediated actions. Thus, I have to explore socially constructed meanings of the participants' lives in their life-world situations, representing their views and perspectives, covering their contextual conditions, contributing insights into existing or emerging concepts which help understand human social behaviour,

and using multiple sources of evidence (Eriksson & Kovalainen, 2016; Yin, 2011, p. 7; Smith, 2008; Porta & Keating, 2004). This approach, then, allows all the parts to work together through a holistic description and explanation of the phenomenon that is being studied (Merriam & Tisdell, 2016). As a result, an understanding can be reached, and meanings can be constructed as well as interpreted through the interactions that I had with the participants and data gathered in the study (Radnor, 2002).

A qualitative case study is regarded as the appropriate approach because it affords a multiple and subjective knowledge that can be a facet of a story in situ and thus does not need to depend on being able to defend its typicality (Stark & Torrance, 2005; Merriam, 1988, p. 19). This is because participants, when in social interactions, deploy a variety of resources to make meaning and create knowledge (Furberg & Arnseth, 2009). Essentially, a case study does not reach a definitive conclusion regarding this, but rather it helps us tease out "…the problems of the case, the conflictual outpourings, the complex backgrounds of human concern" (Stake, 1995, p. 17).

The case study's boundaries are its location, its duration, the course being studied and finally the participants involved. The case study consists of participants at a public university in Malaysia. The time boundaries were approximately six months, from February to June 2020. The course ran longer than the usual 12 to 14 weeks due to the nationwide pandemic lockdown. All participants in both classes duly consented to be observed and audio recorded in both face-to-face and online lessons; ten students among them agreed to be interviewed and observed when doing tasks. These groups of people in the context further defines the case because they are distinguished from those who are outside of it (the context of the case study) (Merriam & Tisdell, 2016; Yin, 2014).

The challenge regarding sociocultural theory is the interrelatedness between all of the concepts and actions, yet it simultaneously affords a lens to separate these different concepts in order to understand the phenomenon holistically. A sociocultural perspective takes away the physical and material factors as it emphasises the kind of actions through the use of tools by the person, such as what is the activity, how does the activity influences thinking and actions. Nonetheless, this also means that everything I peruse in detail is only a snapshot in a certain time and culture.

4.2.1 Two-Phase Case Study Design

This qualitative case study has a two-phase study design to answer the research questions which focus on interactions in two learning contexts; before and during COVID-19 lockdown. The first phase initially began to explore Blended Learning at a higher education institution, which would include the students' and instructor's learning activities in and outside of classroom, as well as online learning activities. The research set out for fieldwork in January 2020 and was halted in mid-March because of the national lockdown and the university's resultant closure (see Section 4.3).

The second phase continued to be about learning activities, but was adapted to studying the pandemic context. I adapted the study into studying interactions for learning activities in the before and during COVID contexts because it was timely, contextually relevant, and an opportunity to understand interactions in such a disruptive abnormal period. I shifted the ways I was looking at the phase one data from Blended Learning to focussing attention to interactions before the pandemic took place. The transition from before pandemic into COVID-19 lockdown had become the marker of a before-and-during that allows analysis of pivotal events affecting potential changes between the two contexts (Mills, Durepos & Wiebe, 2010).

The same participants in Phase One had agreed to continue as participants in Phase Two. Any cause-and-effect in before and during COVID-19 conditions cannot be inferred from this

nonexperimental two-phase study as it lacks manipulation of any variables and does not subject participants into control or treatment groups (Morgan & Renbarger, 2018). By exploring the context in a naturalistic manner, I aim to make meaning and organise concepts about how social phenomenon might occur from a series of observations and interviews in two different environments.

4.2.2 Site of the Study

The study involved the same participants from before and during the COVID-19 setting. The selected unit for this research involves a pre-requisite English language course for second or final-year university students because (1) access was granted by the volunteer lecturers, and (2) the course ran in a timely fashion to coincide with the fieldwork schedule. The course aims to encourage language application through a series of learning activities to prepare students for social and work purposes, such as Cover Letter, Email Writing, Proposal Writing, and Mock Job Interview (refer Appendix A). The total hours for the unit were 120, with 47 hours in a face-to-face format while the remaining is non-face-to-face inclusive of self-study hours. Students and instructors supposedly met face-to-face twice weekly, where they were allocated a one-hour lesson and a two-hour lesson. There was no final examination, except for a mid-term test turned assignments as it was supposed to take place days before the lockdown in March. Consequently, students were assessed through assignments, while formative ones did not bear assessments weighting.

4.2.3 Participants

Instructors. In September 2019, I gained access to the site and sent a formal letter containing an introduction to the research to invite volunteer participants. One instructor, pseudonym Awan from Class A agreed to be in this study. However, Awan supposedly had leave for a career enhancement program outside of the country, consequently I involved one more

classroom with a regular learning timeline. This was with Bayu, an instructor from Class B who also consented to participate in the study. Due to the pandemic, Awan was unable to leave the country and therefore resumed his pace of teaching the topics in the unit as per usual according to the semester schedule. Despite these changes, the involvement of the two instructors and classes remained relevant to the research's focus. General information about the instructors can be summarised as below:

Items	Awan	Bayu
Gender	Male	Female
Age	Late 20s	Late 30s
Marital status	Single	Married
Highest level of education	Masters	Masters
Years of teaching experience	Three	Fourteen
Using course textbook	No	Yes
Language of instruction	English and Malay	English

Table 1: Instructors Profile

The instructors' marital status is included in above table because it provides background knowledge about their commitments at home, which would potentially affect teaching activities, primarily during the COVID-19 lockdown context.

Students. I obtained access to the instructors' classes because of their participation, where I further secured consent from all students in both classrooms to observe and record their face-to-face and online lessons. Students' classroom compositions can be perused below:

Items	Class A	Class B
Bachelor's Program	Biology Science	Economy of Natural Resources
Year of studies	Third (final year)	Third (final year)
Age (approximate)	22 to 23 years old	22 to 23 years old
Total number of students	31	36
Gender:		
Male	1	9
Female	30	27

Table 2: Students Demographic

There were approximately 30 to 36 final year students in each classroom, and they are mainly course mates from the same bachelor's degree programme.

However, as I require volunteers for interviews and observations when doing tasks, a further selection of student participants was carried out through convenience sampling (Barbour & Schostak, 2005) based on their (a) availability, and (b) willingness to participate. A total of ten students, five from each classroom volunteered to be interviewed and observed. Securing ten student participants in this qualitative case study using observational and individual interviews was deemed appropriate for the research's inquiry which sought to understand learning activities within a certain period of time (Baker & Edwards, 2012).

Ten student participants felt sufficient because the study focused on the interactions and support for learning activities in the before and during COVID-19 lockdown contexts. This focus minimizes the need to observe and interview the same students over the entire course of fieldwork as I am not focusing on any specific cognitive or learning development throughout the course. Moreover, the plan was to observe and to interview one participant for one course's topic which may require two classroom lessons in a week. Therefore, the number of participants also considered my capacity as a researcher because I would have to attend all in and outside classroom observations involving every participant. Hence, one participant for approximately one week throughout the course's semester of 12 to 14 weeks including entry and exit days was deemed appropriate.

The significance of the contextual relevance and shared knowledge about a common topic and subject matter was also maintained (Dilshad & Latif, 2013; Ashleigh, Ojiako, Chipulu & Wang, 2011; Dicicco-Bloom & Crabtree, 2006), as all student participants had to go through learning activities in both before and during COVID-19 contexts. All ten student participants chose one topic from the course where they were willing to be observed and also one audio recording for in- and outside of the classroom activities, and to be interviewed after completing their learning activities.

All participants were assigned pseudonyms alphabetically according to which classrooms they belong to, as per below.

Classes	Class A	Class B
Instructors	Awan	Bayu
Students	*Alphabets D to N:* Didi, Fasha, Lana, Maya and Nurin	*Alphabets O to Z:* Orked, Putri, Ramli, Suri, and Zain

Table 3: Participants Pseudonyms

Other participants who were involved in the observations and whose group work was included with the interviewed participants' classroom audio recordings, were given random pseudonyms. All the pseudonyms given were known to be Malay gendered names to preserve their Malaysian identities and respective genders. This is also to maintain the significance of the uniquely distinct cultural and social aspects that are important to this research's context. It must be noted here that 'friends' in participants' interviews referred to 'colleagues' in this course whom they work with unless stated otherwise.

4.2.4 Methods

The line of reasoning in mediated action is grounded in an analysis of how multiple influences come into contact with one another and thus transform action (Wertsch, 1995). Action provides a context whereby the individual and society including mental functioning and sociocultural context are understood as interrelated moments (Wertsch, 1995). Two methods were adopted to capture these mediated actions: they are observations and interviews. Observations entail classroom interaction audio-recordings while interviews provide accounts of individuals-acting-with-these-mediational-means (Toma & Wertsch, 1991). These methods help produce depth and breadth needed in this study (Barlow, 2012; Kumar, 2011; Foster, 1996).

Observations:

Observations aimed to ensure the richness of data by capturing excerpts and moments of interactions at a particular leaning activity, whether they are done individually (e.g individual task) or in collaborative work (e.g pair/group task), in face-to-face and online modalities (Manwaring, Larsen, Graham, Henrie & Halverson, 2017, p. 22; Merriam & Tisdell, 2016; Kumar, 2011; Wilson, 1997; Foster, 1996; Stake, 1995). The method attempted to answer the questions about who, what, when and how interactions take place in learning activities (Cohen, Manion & Morrison, 2011; Alebaikan, 2010), such as what participants are doing, who is speaking, gesturing, and supporting, as well as what items are used for the activity.

A flexible observation protocol was used for both in- and outside classroom as well as online observations. The protocol had been adjusted during fieldwork to afford open field notes such as emerging aspects, and unanticipated activities and actions (refer to Appendix C). Additionally, the reliability of the study can be strengthened by focusing on capturing visible mediated actions as opposed to relying on my perception during the activity that can be selective and biased (Merriam & Tisdell, 2016).

Classroom Observations:

Classroom observations were deemed useful for this study in order to look at visible mediated actions within naturally occurring social situations (Cohen, et al, 2011; Foster, 1996) and also to move beyond perception-based data or anticipatory accounts of others which were collected during interviews (Cohen, et al, 2011, p. 396; Kumar, 2011, p. 59). The classroom observations were audio recorded as approval for video recording could not be obtained. However, audio recordings were appropriate and sufficient for the study at hand. The audio data allowed for a detailed analysis of students' interactions during a group work, and teacher-students interactions during classroom lessons. The audio data afforded ways for me to see how students

interacted to perform a group task, and how teachers progress in their teaching while interacting with students. The recordings also provided the researcher with verbatim data whereby I could consider the interplay of other aspects within the interactions such as what, how, and when tools were used, what were the contextual settings at the time, and who were involved in the interactions.

Online Observations:

Online observations offered me limited details about the learning activities because they took place covertly, such as students contacting each other in private to discuss tasks. Regardless, of this, available online threads (i.e on Google Classroom, Padlet and WhatsApp) provided some information about what happened in between an activity such as instructions that prompted actions to do task or students' submitted work. These available details from online observations were also used as interview probes.

A non-participatory approach was used during both face-to-face and online observations as the research took place in a naturalistic setting despite the changes in contexts. However, my role may have evolved over time because the fieldwork involved the same participants in the span of a few months (Merriam & Tisdell, 2016; Cohen, et al, 2011). For example, three of the student participants whom I have observed at home for an outside of classroom activity, asked a few grammar questions to me when I observed them in a classroom activity. I alluded to the correct answer but did not provide any more support beyond that. The action was taken after considering that rapport needed to be maintained because as a researcher, I should not be perceived as someone who is on the receiving end while students did not gain any benefits.

In conclusion, the observation techniques, as illustrated above, showed how the social construction of meaning was limited to accessibility and to other considerations. This made the

data collected for the activity to be seen as merely a snapshot of what can be gathered in a certain timeframe within a particular context.

Individual Interviews:

Interviews aimed to elicit perspectives and to acquire a picture of the learning activities in the before and during COVID-19 lockdown by probing into what, when, who, how and why certain ways of interactions to support each other or oneself within the two specified contexts are adopted and what do participants perceive as limitations and advantages of the different settings (Merriam & Tisdell, 2016). My focus was on how students interacted in order to execute and complete any given tasks and not how certain tasks and topics were in fact performed and evaluated.

I had semi-structured interview questions that allowed participants to make sense of their learning experiences through reflective thinking and construction of meaning. At the same time, the technique caters to young adult student participants to exercise agency by sharing reasonings behind the actions taken for their learning activities. Each student may respond differently or similarly to the questions as their actions are unique to their own agency as young adults. Interviews in this manner are aligned with the social constructivist paradigm of creating multiple and contextual knowledge about the topic.

Mediated actions in learning activities entail interrelated relationships between different tools including among people. This means that a learning activity captured in a short timeframe may comprise all of the following; the use of language for people to communicate, a textbook to guide the discussion, a colleague's input to spark an idea, a finger pointing on a textbook page to emphasise a point, an instructor's feedback that boost students' confidence about their work, and many others. Hence, several open-ended themes from literature about such interactions were prepared in advance, such as the 'support received and offered (from and to colleagues)'

(Carson, et. al, 2021; Froytlog & Rasmussen, 2020; Mercer & Littleton, 2007) and 'support expected and received or not received (from instructors) (Furberg, 2016; Stromme & Furberg, 2015; Aljaafreh & Lantolf, 1994) (refer Appendix B).

Observational notes, paper trails and interview dialogues with participants provided me with some more probing questions during the interview stage (Dicicco-Bloom & Crabtree, 2006; Kvale, 1983) (refer Appendix B). For example, there were 'noticeable shifts from before to during pandemic in relation to learning activities' or 'how/why specific tools were needed/used'. These questions were designed to elicit reflection on interactions that took place and actions enacted by students for learning activities within the before and during COVID-19 lockdown that helped them complete the course's tasks and objectives (Barnes, Timmis, Eagle, Rasmussen & Howard-Jones, 2009).

To further support the questioning process, individual interviews were conducted after the observations as they served as "conversations with purpose and direction" (Barlow, 2012, p. 496). Every student was interviewed once after the completion of a task from the unit's topic of their choice. However, four students interviewed prior to the pandemic were interviewed once again for reflections and learning activities during the pandemic. I prepared questions tailored to each student participant based on their learning activities that I observed and input from the before pandemic interviews involving the four students interviewed during the first phase of the study.

Interviews with the instructors were conducted three times; at the beginning, middle, and end of fieldwork. This interview process allowed information gathering about planned lessons, what happened in the middle of the course and reflections about the course at the end. Similarly, I prepared interview questions for each session that included semi-structured questions related to the study and some follow-up questions from their earlier interviews.

4.2.5 Role of the Researcher

Throughout the research, I maintained my role as the researcher as the primary task was to research the area of interest situated within natural contexts existing before and during the COVID-19 lockdown that are free from researcher's-imposed interventions (Dwyer & Buckle, 2009). From a constructivist perspective, the role of interpreter and collector of interpretations is central (Stake, 1995). This is because I was an observer of learning activities taking place in different contexts. Therefore, I became a key instrument in the qualitative data collection process. I was involved as the recruiter of participants and collector of data, which included the interview data, audio recordings, online threads, and course materials. In addition, I transcribed the interviews and classroom audio recordings, analysed the data, and interpreted the findings.

4.3 Data Collection

I collected data in both contextual settings of before and during COVID-19. However, the data was not comparable because they were captured in different forms, types, and environments, as well as presented unique limitations and advantages in each setting. Data was collected in Malay and/or English, whichever occurred in the contexts or preferred by the participants as long as it is accessible for the purpose of this research. Meanwhile, photos in this research were not analysed but were merely used for illustration purposes. The timeline below demonstrates the phases of data collection and is followed by sub-sections illustrating the processes of data collection in the two contexts.

Timeline/Phases	Activities	Focus of Methods
Week 1: **_February 2020_** Entry into the fieldwork	Gate keepers	o Meet the Dean and Director of English Language Centre Department to introduce the project
	Meet Instructor Class A	o Explain the project to volunteer instructor by giving research overview to Instructor Awan. o Discuss planned activities throughout the semester to identify tasks in both instructions, resolve doubts and describe what the study seeks from participants.

		o Seek permission for access to the VLE and classroom materials
	Meet students for introduction (Class A)	o Introduction by the lecturer to explain the project. o Seek consent to observe and invite participation o Mingle with students to portray my positionality as a non-authoritative figure toward their formal education
Week 2 to 4 Develop familiarity and trust with the instructors and students	Involvement of Class B	o Explain the project, discuss planned activities throughout the semester and seek permission for access to the VLE and classroom materials from Instructor Bayu. o Introduced to students in Class B, sought consent to observe and invite participation, and mingled to portray positionality as a non-authoritative figure.
	Informed consent	o Request access to VLE from students (overt observation) o Obtain 10 to 12 student volunteers (self-select which week) for observations (in and outside classroom) and interviews. o Acquired consent from all students for classroom and outside classroom (if involved) observations.
	Instructor Interview (beginning)	o Elicit personal views about teaching and learning plans and activities for the course, and expectations for the semester.
	Initial observations	o Observing lessons without taking audio data but did casual note taking o Collect any available classroom artefacts (e.g notes, exercise sheets, power point slides and etcetera)
	Post classroom	o Inquire about students' study habit outside classroom to identify spaces where they do tasks and who they do it with.
Week 5 to 7 a) Develop an understanding of the learning activities in and out of classroom, b) and delving into activities enacted by both instructors and students to support the process.	In and outside of classroom observations	o Depending on tasks, proximity observation technique will be done by sitting with an individual, pair or group. o To note: - Agency (initiatives, activities and self-regulation) - Resources/artefacts used (what, purpose, how) - People (cognitive and/or emotional support) - How the task is completed and what does the outcome look like
	Student Interviews	o Conversations about how interactions help their learning and what can they synthesise from the learning experience o What else can be done to enhance the process – e.g tools/artefacts, people, sources, spaces, language, culture, previous knowledge, and other relevant matters to gain more support in the course. o What is the following course of action/strategies to improve understanding to support the completion of ongoing main tasks
	Course artefacts	o Classroom artefacts for interview probes, and link to activities (e.g notes, exercise sheets, power point slides and etcetera) o Online activities and interactions (e.g comments, discussions and etc) o Extracts/evidence from tools (e.g hardware and software)
	Photos	o Classroom layout o Online interface
Week 5 to 8 (middle March to early April 2020) **Nationwide Lockdown halted education sector's ongoing semester**		

Middle of April 2020 onwards: Shift to fully online learning		
Week 9 to 16 Middle of April to June 2020 a) Adapted to the before and during COVID-19 changing landscapes b) Concluding fieldwork	Instructor Interview (middle)	o Discourse about activities that may or may not have changed, reflections, plans in moving forward and other support suitable for students in both modalities.
	Student Interviews	o Interviews with the remaining six participants, and catch-up interviews with the four students who were interviewed before the pandemic. o Conclude fieldwork with a proper exiting (e.g bidding farewell and informing channels to receive updates about the research) o Feedback from students about the research.

	Online observations	o To note:
		  - Agency (initiatives, activities and self-regulation)
		  - Resources/artefacts used (what, purpose, how)
		  - People (cognitive and/or emotional support)
		  - Activities (posts, announcements, etc on linked social media, university's VLE and chosen e-learning)
		o How the task is completed and what does the outcome look like

	Course artefacts	o Collect other related artefacts from participants o Request for interviewed participants' tasks completion as contextual evidence (if consented)
	Photos	o Online activities on Google Classroom. Padlet, university's VLE and WhatsApp
	Instructor Interview (final)	o Discussion and reflection about the shift in before and during the pandemic, what could be done differently, and overall remarks about the teaching activities in the two contexts.

Table 4: Fieldwork Timeline and Phases

As I have discussed in Section 4.2.3 of this chapter, Class A was involved earlier than Class B which was included in the sampling for Week 2. The process of entering fieldwork was similar in both classes, where self-introduction and rapport were established first and, followed by the process to secure participants and obtain consent in the following week. The second stage of fieldwork was to develop familiarity and trust with the participants by doing early observations through casual note-taking and informally asking students about their learning activities outside classroom. The third stage involved audio-taping observations, conducting interviews, and collecting course materials and photos. Subsequently, the above table notes the brief halt of data collection which occurred in between mid-March and April 2021. After learning that activities had resumed online, I continued to conduct interviews with the instructors and with

student participants, online observation and collected relevant course materials. The table below shows the activities, timeline and number of participants involved in the activities:

Activities	Class A *Num. of people*	Class B *Num. of people*
Before COVID-19: February to March 2020		
Observed in classroom (lectures)	Whole class	Whole class
Observed in classroom (students' tasks):		
Cover Letter 1	4	2
Cover Letter 2	4	n/a
Email Writing	5	4
Proposal Writing	5	n/a
Observed outside classroom (students' tasks):		
Cover letter	2	3
Face-to-face Interviews:		
Students	2	2
Instructors (beginning of fieldwork)	1	1
During COVID-19: April to June 2020		
Observed online (recorded lectures)		
Instructors' recordings	1	1
Observed online (students' tasks):		
Mock job practice	2*	n/a
Mock job assessment	5*	3*
Online Interviews:		
Students	5	5
Instructors (middle and end of fieldwork)	1*	1*

Table 5: Students Participants and Types of Activities

The whole classroom observations involved approximately 31 to 36 students, depending on their attendance during the pre-pandemic period. The students' in and outside classroom observations consisted of them carrying out group tasks. The initial plan before the pandemic was to observe and interview all ten student participants and both instructors face-to-face throughout the semester (e.g two students in a week). However, as seen in the table above, I was able to interview a total of four students and the two instructors face-to-face once by the time the national lockdown was imposed.

After learning activities resumed online, I had access to mainly recorded lectures prepared by the instructors, and to two students' group activities where I was invited to observe them online.

I then re-interviewed the four students who I had spoken to before the pandemic, and I continued interviewing the remaining six students through online mediums. The asterisks for instructors were because I interviewed them twice during the pandemic, both at the beginning of online learning and at the end of course. The asterisks for observed Mock Job practice involved a student participant and an outsider, while the Mock Job Interview assessments had included the instructors.

Following these activities with participants shown in the above table, I specify the amount of data collected throughout fieldwork including from online observations, photos, and screenshots in both contexts, which can be seen below.

Before COVID-19. Data below were collected face-to-face, online, and outside of classrooms settings where access to students' learning activities were permitted. Table 6 took place from February until it was abruptly met with the national lockdown in the middle of March 2020.

Methods	Class A	Class B
Face-to-face Observations and Audio Recordings		
Lecture	7	4
Group Task	4	2
Outside Classroom	1	1
Online Observations		
University's VLE	1	1
Google Classroom	5	-
Padlet	-	3
WhatsApp	1	1
Face-to-face Interviews		
Students	2	2
Instructors (beginning of fieldwork)	1	1
Photos		
Classroom	13	11
Computer Room	-	14
Google Classroom	6	-
Padlet	-	2
WhatsApp	9	6

Table 6: Data Collection Before COVID-19 Lockdown

The table above shows that there were a total of 19 audio recordings from face-to-face observations, 12 online observations, face-to-face interviews with 4 students and both instructors, 38 photos from physical classrooms and Computer Rooms, as well as 23 screenshots from the online platforms used in learning activities.

During COVID-19. Data below were collected through online platforms. The following table summarises the amount of data collected during the COVID-19 lockdown.

Methods	Class A	Class B
Online Observations		
University's VLE	1	1
Google Classroom	5	-
Padlet	-	7
WhatsApp	1	1
Students' Group Task	1	-
Assessments	1	1
Online Lesson Video Recordings		
Google Classroom	2	-
Padlet	-	1
Online Interviews		
Students	5	5
Instructors (middle and end of fieldwork)	2	2
Photos		
Google Classroom	9	-
Padlet	-	12
WhatsApp	51	65

Table 7: Data Collection During COVID-19 Lockdown

The table above shows data collected from during COVID-19 lockdown amounted to 20 online observations where visible activities were noted (eg posts, comments, likes, etcetera) on the platforms, 3 online lesson video recordings, online interviews with 10 students and 2 interviews with each instructor, and 137 screenshots from the online platforms to accompany the online observations data.

Overall, a stark difference was discernible in terms of amount and types of data which can be seen between before and during COVID-19 contexts. It also must be noted here that outside

classroom audio recordings and some observations data collected before the pandemic were not analysed in detail because they were related to the previous research's topic.

4.3.1 Observations

<u>Face-to-face Observations</u>

Prior to the pandemic, Class A had more classroom observations due to their early involvement compared to Class B: in which a total of seven lectures and four groups tasks in Class A; and four lectures and two group tasks in Class B. Classroom observations involving student-centred tasks which were duly decided by two factors; the first is whether there are classroom activities in a particular week to be observed, and the second is regarding which group would be observed as this depends on who is the volunteer participant of the week. Co-presence in the face-to-face context during observations has allowed me to capture visible interactions between individuals and with tools. Observing these actions as it occurs is pertinent to this research that seeks how components of sociocultural perspective may help us understand interactions for learning activities. In Appendix C, I included some observation notes from one of Bayu's classroom lessons. Data gathered from the same lesson was used to conduct the interaction and thematic analyses (see Section 4.4), and I also included some details from the lesson's observation notes within the findings chapter (see Section 6.3).

Two audio recordings were used during the classroom observations. One was used to record the instructors' instructions and any support extended during activities in lessons. As the instructors paced back and forth in classroom, I connected a mini microphone to the recorder, which was attached on the instructor's shirt (Awan) or headscarf (Bayu). The recorder was then placed in a pouch that came with a lanyard so that he/she could carry it during lessons. Another recorder was to record students' verbal exchanges with their colleagues during group tasks (Merriam & Tisdell, 2016), while my focus was fixated on taking notes of classroom activities

(Foster, 1996). It is noted that the study captured live observational data only in the face-to-face settings because the instructors conducted mainly asynchronous online activities during COVID-19 lockdown.

Online Observations

All online observations were carried out at various time intervals and on different online platforms (i.e university's VLE, Google Classroom, Padlet and WhatsApp). There were a total of 12 online observations prior to the pandemic, and 19 online observations during the COVID-19 lockdown including three synchronous observations; two assessment sessions, each hosted by Awan and Bayu, and one Mock Job Interview practice by a student interviewee. Only the recording involving Awan that was hosted on Google Meet was successfully recorded. Recording for the assessment hosted by Bayu via WhatsApp video group call had a technical glitch while no video recording was taken of a student participant and her friend, due to ethical concerns. However, in all three of these synchronous activities, I managed to record some field notes about their activities. In addition, I collected a total of three online lesson video recordings from both classes during the pandemic.

The remaining online observations of the pre and during COVID-19 lockdown periods were asynchronous activities where I took field notes according to the unit's topic in both classes' online platforms and the conversations taking place in WhatsApp group chats. Asynchronous observations were carried out by viewing the platforms every week to note new updates. As new posts were created by instructors according to topic almost weekly, field notes reflected this by arranging notes based upon the topics discussed. The aim of all online observations was to gather some knowledge of context regarding teaching and learning activities during the pandemic lockdown (Merriam & Tisdell, 2016). More specifically, the observations intended to collect information about how students underwent learning activities and obtained support

while taking into account what, when, where and how the activities occurred. All observation notes were written on paper before being digitalized. Overall, the observational data in this study consisted of audio recording of lessons in classrooms, digital recordings of lessons uploaded online and observational notes (Mercer, et al, 2010).

In summary, online observations during the pandemic were severely limited by access as I was invited to observe only a certain number of synchronous activities while the rest of the 'unseen' activities were hidden from my view. To make up for this invisibility, interviews became primary and crucial to exploring the teaching and learning activities during the COVID-19 lockdown context. Meanwhile, the face-to-face observations prior to the pandemic provided probing questions to complement the interviews, and details and descriptions that were later used to explain visible mediated actions for learning activities. The combination of face-to-face, outside classroom, and online activities, as well as consecutive observations, enabled a record of sufficient data on the subject matter as opposed to a single atypical lesson (Wilson, 1997; Foster, 1996).

4.3.2   Individual Interviews

<u>Face-to-face Interviews</u>

In the before COVID-19 lockdown context, I collected four individual interviews data via face-to-face meetings and one interview with each instructor. Every face-to-face interview took approximately 30 to 45 minutes as I was interested in ensuring participants' interest remained throughout because they may have felt reluctant to engage in longer interviews. In terms of data recording, it was collected through note-taking and an audio recorder, which was placed in the middle of the table. interviews with students were conducted mainly in an office provided to me while interviews with instructors were done in their respective offices (Yin, 2011; Ritchie & Lewis, 2003).

However, an interview with one student participant was conducted at a bench under a tree, outside of the office because my colleague was also present in the office. Therefore, to put the interviewee in a more comfortable setting, which was away from other possible distractions, we decided to conduct the interview outside. In all four student interviews, three students came unaccompanied while one student was accompanied by two other student participants. Initially, I was concerned about the potential impact of their presence in terms of how much information would be disclosed by the student for the topic and whether the other two students would form own judgment and expectations prior to their interviews. Regardless, I recognised the situation as a challenge in carrying out research in a naturalistic setting, and subsequently continued with the interview.

Online Interviews

The online interviews with participants during the pandemic were conducted via Google Meet or Zoom. The interviews were conducted synchronously to maintain as much organic interaction as possible and to modify interview questions based on the feedback received. This is also because of the shift during COVID-19 pandemic that required less structured questions and more toward exploration of what was happening in the context. The times, dates and platforms of our meetings were agreed beforehand in order to ensure both parties have access and could attend the interviews. All meetings were recorded and the use of these videoconferencing tools for online interviews did not incur additional charges.

Despite the availability of a web camera feature, the majority of the recorded video meetings did not contain any visuals. I neither requested nor discouraged participants from switching on their telephone or laptop webcam. The choice to turn on or off their cameras was entirely up to them due to privacy concerns as many participated in the online interviews were in their homes or private rooms. On average, one online interview consumed approximately one hour and 30

minutes or two hours. It took longer than the face-to-face interviews mainly because of connectivity issues and the absence of observational data which necessitated the participants to share recollections of learning activities in further detail. Despite the circumstances, the objective of the interview was attained successfully. Online interviews should not be seen as secondary to the 'gold standard' of physical co-presence interviews as they manage to obtain data concerning recollections of mediated actions for learning activities during the pandemic (Weller, 2017).

4.3.3 Course Materials

As an extension to supporting observations and interviews, I also collected classroom and learning materials from the participants, and the unit's records from their online platforms (i.e university's VLE, Google Classroom, Padlet and WhatsApp). Course materials were used to provide a paper trail of what was planned and what had happened in the lessons which revealed that some "things that cannot be observed", used as interview prompts and for contextual reasons that would accompany students' learning activities (Merriam & Tisdell, 2016, p. 164). Classroom materials comprised of coursebook, lesson plans, sheets and notes distributed, and tasks' output. Online platforms' records encompass snapshots of learning tasks and activities because they inform how online learning on the endorsed platforms is carried out (Merriam & Tisdell, 2016; Yin, 2011, p. 147). Photos of the face-to-face classroom layout and online platforms' interfaces were collected as a supplementary source to help illustrate the environment in the context (Yin, 2011, p. 147).

4.3.4 Researcher Reflective Journal

Throughout the fieldwork period, I kept a reflective journal which was used to note thoughts after each observation and interview (Merriam & Tisdell, 2016; Yin, 2011). The entries were written while the experience was still fresh and to recall events that took place. Besides being

helpful in noting my perceptions and opinions about what I have seen and heard, I noted matters to focus on for the next observation, to ask further questions to probe during interviews to get clarification from what I observed, what I may have accidentally missed and other relevant matters or concerns. The main purpose of the reflective journal, however, was to be mindful and aware of my biases. This is important to minimize personal inclination on the subject matter under study.

4.4 Data Analysis

The study's analytical approach draws inspiration from two complementary methodologies: Thematic Analysis and Interaction Analysis. Components within these approaches were selected to supply a broader and comprehensive qualitative framework for examining the participants' social interactions and learning situations within the pre and during COVID-19 contexts. The appropriation of aspects from these two techniques allowed me to leverage their distinct strengths and perspectives to acquire a more nuanced and multifaceted understanding of the data. Specifically, features in Thematic Analysis were employed to capture interactions and rationales as recollected by participants as well as exploration of overarching themes and patterns. But this method is not sufficient to capture interactions and its complexities. Hence, elements from Interaction Analysis were used to capture interactions within a specific timeframe in which the interactions occurred to gather their specific dynamics and nuances of social interactions. Further explanations of why and how I use both analytical approaches can be found in Sections 4.4.1 and 4.4.2, and how they are complemented in Section 4.4.3.

The unit of analysis is interactions which include the mediated actions that consist of individuals engaged in goal-directed activity under conventionalised constraints, and can also be designated as an 'activity' or 'a task' (Saljo, 1999; Wertsch, 1991). The analysis aims to understand how mediational means are employed within the particular contexts of the pre and

during COVID-19 pandemic settings without attempting to infer any type of causation. The analyses encompassed microanalysis of interactions by decomposing students' recollections and recorded events during learning activities, and also compares qualitative data in a more descriptive manner because I seek to highlight the differences between contexts and groups while not drawing reasons for the differences conclusively.

Analysis in the study is generally abductive (inductive and deductive cycle) because of the influence from data that cannot be ignored, and also a series of concepts derived from the literature that are brought to bear within the analysis (Braun, Clarke V., Hayfield N., Terry, 2019; Braun & Clarke, 2012; Yin, 2011; Kvale, 1983). All of the data were analysed and interpreted in the language used and spoken by participants and some examples were included in Appendix D. Meanwhile, some document extracts, and other course materials collected from observations and interviews were used to match activities in teaching and learning to tasks completed in the course unit. A reflective journal was used as a referral and input document in checking possible biases, themes and issues emerged during fieldwork, and whether views throughout the data collection may have affected my analyses (Merriam & Tisdell, 2016; Yin, 2011).

4.4.1 Thematic Analysis

I appropriated aspects from thematic analysis to capture the interactions which took place in learning activities as recollected by participants (i.e during COVID-19 lockdown), as well as to discover reasons for actions and uptakes of tools in before and during contexts by participants involved. To do so, I coded language by using 'words' that point to the mediated activities which happened in both contexts. This method is a constructive process to interpret information about a certain system in learning activities that was in place in both contexts.

There are six steps as described in Appendix E, but I see this non-linear analysis as being four iterative main steps which can be perused below.

1. Familiarization with the data

Prior to a detailed analysis, familiarization with data was conducted simultaneously with data collection (Kvale, 1983), as can be seen from the illustration below.
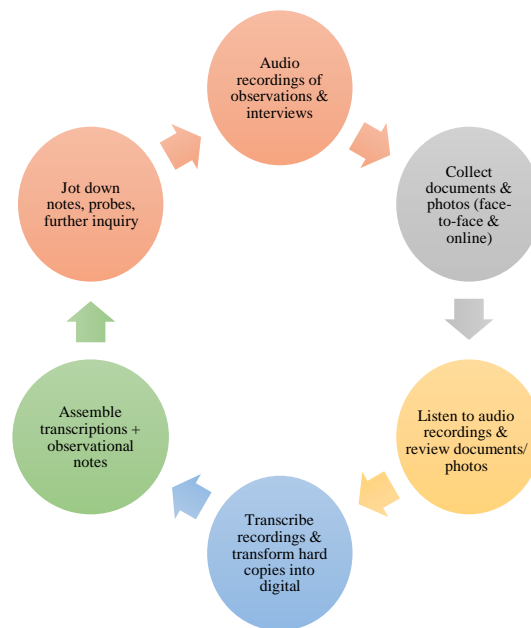
Figure 3: Preparations of data for analysis (author's conceptualisation)

As seen above, the process entailed listening to the recently recorded audio and also reviewing the collected documents and photos. This activity was done to understand, note, and inquire about emerging or overlooked aspects in the following observations and interviews. At this stage, I also reflexively thought about aspects which I may have missed in the previously recorded sessions. Following this, all of the audio data were transcribed within one or two weeks after each dataset was gathered, while physical copies of documents were transformed into digital format for easier perusal and data security. The transcriptions were done verbatim using Microsoft Word software. I experimented with speech-to-text features in the early stage

of my transcribing work, however decided to abandon the alternative as the software could not fully understand my accent and therefore was taking more time than doing it manually would.

After each manual transcription was completed, I rechecked its accuracy by relistening to the respective audio file. Any mistakes were corrected and any inaudible words that could not be noted during the early transcription were listened to a few times. However, not all utterances could be precisely captured, particularly from online interviews because of some low-quality audio files and the issue of unstable internet bandwidth alluded to earlier. In terms of recordings from online materials uploaded by the instructors, not all were transcribed because it is not relevant to the research's focus. Toward the end of this stage, I skimmed through all of the accumulated data in order to assist my understanding, and made notes as well as developed some preliminary codes. Nonetheless, these observational notes, transcriptions, and documents at this stage were data that was not analysed yet and often vague, repetitious, with many digressions and containing much 'noise' (Kvale, 1983).

2. Generating Codes

Codes such as volunteer, reiterate, prompt, checks and compare, emerged inductively from the data, while codes such as feedback (Aljaafreh & Lantolf, 1994), teacher intervention (Ingulfsen, et al, 2018), guidance (Warwick, et al, 2010), delegation (Cheng, et al, 2014), agent (Carson, et al, 2021) and negotiate (Mercer & Littleton, 2007) were deductively reduced from the literature. Initial analyses were conducted digitally via Microsoft Word where I created three columns; names, transcriptions, codes. However, it became difficult to keep track of all the new and existing codes as I shifted through different documents. As an alternative, I printed physical copies of the transcriptions and coded them manually using highlighters and coloured pens. The manual labour proved to be intensive and difficult in terms of seeing all of the emerging patterns and themes across the analysed documents.

As a result, Nvivo 11 was adopted as the main assisting tool for the research. The software supports all data formats in this study, functioned as an organizational and analysing tool to classify, sort, and arrange information, examine relationships, and combine analysis by linking, shaping and searching. On Nvivo 11 software, the analysis involves categorical coding where I retain the data in its original form and analyse it in ways that preserve their narrative. I proceeded to create each code manually to group the data. The sentences from the documents were highlighted, dragged, and dropped into their respective codes' groups.

3. Constructing themes

At this stage, I had more codes in the pre-pandemic context because many of them were repetitious before refinement and reduction compared with the analysis process for during COVID-19 settings. This is because the analysis for during the pandemic context had relevant continuation and some prior codes from the pre-pandemic analysis that could be used interchangeably. For many of the codes, they belonged under bigger umbrellas which would later help to form themes. The table below illustrates examples of coding and themes:

Extracts	Data	Codes	Themes
If we do the task with friends, we learn about their ideas too.	Interviews	Compare	Checks / Collective Thinking
If I did it alone, chances of errors…higher, ...better do group discussion.	Interviews	Clarify	
If in a group, say of 5 people, it's okay, we can discuss, less mistakes.	Interviews	Collective	
(nods) To convince the employer that he has the ability **and the** knowledge as well as ability **to** do the editing, ……. **remember**, when you write the application letter it is to show that you are the best candidate for the position	In-Classroom Audio	Confirm	Feedback and Affirmation / Visual Cues
– Any questions regarding number one? – Okay, understand so far? – Who doesn't know what is a cover letter, raise your hand	In-Classroom Audio	Probe	
– Madam, please check first – …we asked Dr…said yes can do it…	Interviews	Clarify	Feedback and Affirmation / Physical Co-Presence

When we speak, maybe the idea gets better delivered compared to when we write (type).	Interviews	Speak	Speech-Based Comms
….Through verbal explanations, the person will understand …. our own intonation.…. explain … with details…	Interviews	Clarify	
− Do a video call to settle it. Show how to do it one-by-one − …ask my friends…Then I will ask them to explain….	Interviews	Demonstrate	Speech-Based Comms / Personalized Checks
…the night is reserved for recording only. We looked for a time at midnight, when everybody was free.	Interviews	Appointment	Synchronized Timing / Speech-Based Comms

Table 8: Coding and Constructing Themes

In the above table, the three extracts under Checks and Collective Thinking themes were assigned different codes on Nvivo 11. The first extract points to comparing activity where students learn about their friends' ideas while also having own ideas in mind, the second is about clarifying through discussions to avoid errors in tasks and the third extract is about wanting to complete a task together in order to avoid mistakes. The three codes; 'compare', 'clarify and 'collective' contain overlapping similarity where the activities' objective was to decrease chances of errors in students' work by checking with colleagues. Therefore, the central theme surrounding the mediated activity can be described as 'Checks'. As can be observed in the examples within the table, some themes are interrelated to one another which implies that interactions can be analytically separated although not completely. I selected and presented some of these aspects under certain themes according to its main activity such as grouping the first three extracts in the table under Checks theme because the interactions suggest more of a checking activity among students than Collective Thinking.

4. Reviewing, defining, and naming themes

The analysis is not a linear process and thus requires revisions to the themes to ensure that each encapsulates the essence of the findings. At this stage in Nvivo 11, I reorganised, renamed, and

reviewed each of the themes along with the codes which make up the themes to ensure that all the components reflect the mediated actions which took place. This also includes rationales, details, and perspectives in relation to the themes which fall under the same umbrella. These final analysed texts involved the interpretation of pre-given and finished texts (Kvale, 1983) as a result of inductive and deductive approaches. For example, the 'Checks' theme discussed in the previous step was reviewed because throughout the activity under this theme, I noticed that students were doing 'checking' to each other. Subsequently, I realised that students engaged in checking among themselves because the action is reciprocated at the same time, which means that each student benefitted from the collaborative learning activity. Therefore, I renamed the theme as 'Reciprocated Checks' to better reflect the interactions for learning activities that took place.

Wherever and whenever relevant (e.g 'Checks' to 'Reciprocated Checks'), themes were redefined and renamed to succinctly convey the main findings from each theme. Finally, I report what the study has found and draw conclusions from those findings.

In conclusion, a broader perspective of thematic analysis was employed for interview data from both before and during COVID-19 contexts. I acknowledged that the latter contextual setting employed such thematic analysis as the main method because of the absence of observational data. This means that the study depended on the participants' recollections of learning activities in order to allow the researcher the opportunities to capture mediated actions which occurred between individuals and resources, as much as possible. Throughout the process, the qualitative analysis software tool also helped to automate some of the actions in the analysis, such as grouping extracts for a code and assisted in visually showing connections between the categories across multiple documents. However, the creation of categories for coding and selection of extracts to be coded and grouped had to be done manually.

4.4.2 Interaction Analysis

Interaction analysis is a sequential analysis of the talk and interaction between people (Jordan & Henderson, 1995). A sequential analysis suggests that every utterance in a selected excerpt is considered to be related to the previous utterance in an on-going interaction. Consequently, the emphasis is not so much on the meaning of a single utterances, but on how meaning is created within an exchange of utterances between speakers (Ingulfsen, et al, 2018; Mercer, 2007). Interaction analysis is an empirical method to analyse social interaction as it progresses through talk, non-verbal interactions, and the use of artefacts including technologies between interlocutors (Knain, et al, 2021; Furberg, 2016; Jordan & Henderson, 1995). Hence, the focus of elements from interaction analysis as appropriated in this study is on students' moment-to-moment face-to-face interaction taking place in task-completion settings where students are instructed to complete either individual or group tasks in classroom.

Furthermore, it improves the goodness of the study by displaying excerpts and explicitly connecting claims to tangible instances of interactions. The extracts chosen for the analysis are interesting for one main reason; they demonstrate the different forms of interactions with mediational means occurring between students in their efforts to complete a given task. This focus aligns with the socio-cultural analysis that aims to understand support among students as a process embedded in and interdependent on complex social and cultural contexts. Theoretically, moment-to-moment analysis of learning activities considers how continuity and change are constructed in interaction over a trajectory timeline (Furberg & Arnseth, 2009). Trajectory suggests that in talk and interaction, topics and themes are discussed, negotiated, and left behind before getting reintroduced again later. Trajectory in this study's sense can be seen as the progression of a task in a single lesson. As the research follows students' learning

activities in moment-to-moment analysis, it allows different characteristics and thematic patterns of support to unfold.

Sociocultural research treats communication, thinking and learning as interlinked processes which are moulded by culture. Accordingly, I approached the data by analysing the conversations and actions going on then and there. Although as highly context-sensitive excerpts, they also carry cognitive, emotional and student dimensions arguably relevant across broader contexts (Carson, et al, 2021). Hence, this research may qualify as an analytical generalisation despite the empirical manifestations (Yin, 2011). This is necessary because even though other methods are used for data collection such as interviews, a fundamental premise in interaction analysis is that findings should be linked to concrete instances in audio (Jordan & Henderson, 1995).

Throughout the process, I worked on the transcribed audio recording in verbatim and analysed it in the original language spoken and recorded to avoid misinterpretation. I also included some features and examples of the talk such as non-word utterances (e.g mmm, ooh) wherever relevant because they are judged to have a communicative function (e.g to suggest thinking, to show agreement or to extend a speaker's turn in speaking). I appropriated Microsoft Word as the tool to conduct moment-to-moment analysis because I could closely peruse the words in the document and highlight important parts for interpretation purposes. In the analysis, I coded exchanges of utterances or sentences to identify the actions taken to complete tasks and other visible interaction aspects such as gestures, eye gaze, and ways tools were appropriated. I practiced with a short extract from the audio recording (refer Appendix F for the example), before working on a longer classroom extract as per the one which can be found in Chapter 6. Below is an example of how I analysed a part of the extract.

12	Bashira	**F A C T O R S.. in influencing, C I N G**.... consumer review, relating to the purchasing.. P U R C H A S I N G … of honey. [guide]
	[compare]	(*peeks at the other pair*) Hold on a second! Their title is, for Final Year Project *(FYP)*. **I think our title is wrong (in subject line). Because** it shouldn't be the title of FYP, but the email is for what purpose. [argue]
13	Putri	Submission for FYP?
14	Bashira	It feels odd. Or, FYP submission? [agency] [negotiate]
15	Putri	'For' feels odd, writing 'for' makes it odd. **Submission of Final Year Project?** (*types this in the subject line*). Like this? (*shows what she types on the screen*) [appropriation]
16	Bashira	**Yes, correct.** (*reads textbook example while Putri types and **utilizes Gmail predictive text***).
	[affirm]	Next step is, 'How to write the ending of an email'? 'Attached is the completed … application form …. for your review.' Fullstop. 'Please let me know … and approval', A P P R O V A L.
	[collective]	Then at the bottom, 'thank you for your..' eh **no need. Just thank you, comma, then below that..** 'kind regards.' [guide]

Table 9: Interaction Analysis Extract

In the above table, we are seeing argue, negotiate and collective as codes that described the Collective Thinking process (Rojas-Drummond et al, 2010; Perfetti et al, 2008; Mercer, 2007; Mercer & Littleton, 2007). Other codes in the above – guide (Warwick et al, 2010), agency (Carson et al, 2021), and appropriation (Saljo, 2019) were deductively done while the code affirm inductively emerged. Literature mainly focused on affirmation by teachers (see Mercer et al, 2009; Rasmussen et al, 2003), but not by colleagues.

Techniques inspired from Interaction Analysis were employed to carry out analysis of interactions on data from the pre-pandemic context. This decision was made due to the availability of observational and audio data that captured some mediated actions as it was happening, whereas the during pandemic context did not contain similar data. In this broader use of moment-to-moment analysis, I analysed ways that individuals interacted with mediational means to cause changes and attain the objective of their actions, such as to complete a task. These microelements are subsequently related to the macro level, namely the institutional context in which the collaborations took place. From this viewpoint, meanings and

knowledge are 'co-constructed' as joint interactional activities, which also implies that meanings are negotiated through talk and other non-verbal cues registering the creation of categories that are embedded in the dialogical and situated nature of social action (Rojas-Drummond, et al, 2008).

4.4.3 Interplay of Thematic and Interaction Analyses

The appropriation of aspects from Thematic and Interaction Analysis are complementary approaches to each other as I used them purposefully according to the advantages and findings which I could yield from each method based on the types of data that I gathered in the two contexts. Both analysis methods were employed concurrently where the themes found in Thematic Analysis were used as guidance in the Interaction Analysis, and vice versa. Nevertheless, I did not intend for these two methods to produce completely identical or non-identical findings because each of them was employed for unique purposes. As I have demonstrated in the earlier two sections, some codes that can be found in Thematic Analysis (see Tables 8) such as Checks, can also be found in the extracts where I did Interaction Analysis (see Table 9), and vice versa. It shows how both analytical processes can afford a sociocultural lens to exposing the interrelated relationships between humans and tools within a situated interaction activity.

There were evidence and themes related to mediational means as supports in learning activities that could be found out of the inspired techniques from Thematic Analysis but were not found in Interaction Analysis, and vice versa. For example, Interaction Analysis paved a way to understand how a tool was appropriated, while Thematic Analysis provided rationale and reasons behind the uptake of the tool, such as the appropriation of Euler Formula was discovered in interviews that it was used to gain control of a discussion (see Wertsch & Rupert, 1993). Hence, both analysis methods were used in ways where I could constructively

understand learning activities as processes that are embedded in and interdependent on complex social and cultural contexts (Furberg & Ludvigsen, 2008).

In summary, the approaches of thematic and interaction analysis are adopted because they provide the answer to the question of who is carrying out an action is "individual(s) in the concrete situation *and* the mediational means employed" (Wertsch, in press, p.12) and the level of descriptions include activities in situ, contextual settings as backdrop, content elements, turns, and episodes (Ludvigsen, Warwick, Rasmussen, Rodnes, Smordal & Major, 2019).

4.5 Criteria for Goodness

Reflexivity and awareness of possible biases were crucial to be noted to guarantee goodness or the overall quality of an inquiry (Merriam & Tisdell, 2016; Yin, 2011). The reflective journal for this research assisted in reducing predispositions and assumptions about the participants and topics of interest that could make the interpretations questionable, as echoed by Guba & Lincoln (2005, p. 207): "Fairness was thought to be a quality of balance: that is, all stakeholder views, perspectives, claims, concerns, and voices should be apparent in the text". Hence, the reflective journal kept a trail of what was happening, how the data was being collected, how its categories were derived, further questions to probe, how decisions were made, details about assumptions, possible biases and other matters that shaped my views about the field and consequently affecting the analysis and reporting of the study.

The complementary interplay between observations and interviews provided the capacity for participants and I to make sense of a learning activity in a more holistic manner. Both classroom and online observations served as a method of inquiry that enhances understanding of the context such as aspects influencing participants' interactions, and discovering new elements that can be discussed during interviews, and vice versa (Merriam & Tisdell, 2016). For example, actions that were recorded during observations can provide further probes during

interviews in terms of why it was done the way it was, and vice versa. Hence, this is a form of triangulation by cross-checking observations and interviews data to improve the overall quality and reliability of the research's inquiry (Yin, 2011; Flick, 2004).

An approach to ensure transparency is by presenting some dialogues from data in the original language alongside its English translation in Appendix D to increase validity and to formulate explicit evidence and arguments for the interpretations so that readers may review, gauge the adequacy of the translations, and inspect the data in close scrutiny (Yin, 2011; Kvale, 1983). Moreover, to ensure the trustworthiness of the study, I followed the specific procedures for data analysis that have been used in other empirical studies (e.g Braun, et al, 2019; Braun & Clarke, 2012; Furberg & Arnseth, 2009). This means that the data analysis procedure had previously been tested and appropriated for similar research to yield findings that were of useful reference for this current study.

4.6 Ethical Considerations

The ethical considerations ensured important aspects are made aware, considered, and intervened (refer Appendix G). The following sub-sections highlighted the ethical considerations in this study.

There are ethical concerns, starting with entering and exiting the fieldwork site because the setting involves real-world situations (Yin, 2011). An initial step was to secure an ethical clearance from the Research Ethics Board at the University of Bristol (UoB) to ensure that the research does not to cause harm to the participants, myself as the researcher and the institution concerned (Hamilton & Corbett-Whittier, 2014; Yin, 2011). Following this I sought permission from those considered gate keepers – the Dean and Director of the Department (refer Appendix H). The authorities were provided with a formal letter, a brief proposal that elucidated the scope of the study, and informed consent. To ensure participants were not coerced into participating,

I provided an information sheet along with an invitation to participate (Yin, 2011). Exiting the fieldwork was done upon achieving a mutual understanding with the participants by 'staying in touch', offering to share some of my later writings about the study (Yin, 2011). Overall, I was with the participants from the beginning until the end of the fieldwork to avoid any sense of a sudden entry or exit.

Informed Consent

A research information handout (refer Appendix I) and informed consent (refer Appendix J) were given and explained to all participants. The two sheets of paper supplied participants with some knowledge of what they were participating in prior to data collection to ensure no physical or psychological coercion (Dicicco-Bloom & Crabtree, 2006). The information provided addressed the following issues: the purpose of the study, the researcher's expectations of the participants, overt recording and collecting in both face-to-face and online instructions, anonymity and pseudonym, data security and protection, risks and benefits of participating, voluntary participation, and rights of withdrawal, and reporting of research. Even though the handout consisted of introductory information for the previous research topic, the consent needed for types of data and access to participants remained relevant throughout fieldwork.

As the research progressed into the COVID-19 context, I informed the participants of changes that took place verbally and in text via WhatsApp, which allowed them the opportunity to reconsider their participation. For example, when interviews moved to an online medium, I advised participants on how it would take place, where recordings would be stored and the available options to either switch on or off their webcam. As a result, consent forms for student were recollected online during the pandemic (refer Appendix J). Further, both lecturer and students were encouraged and aware of the opportunities to ask face-to-face or email/text message me any queries or concerns that they had about their involvement in this research.

Participants were also made aware of the collection of course materials and online records related to learning activities as explicitly stated in the research handout and informed consent. Collection of other documents, evidence and extracts from students learning activities were obtained at students' discretion.

Power Relations

To reduce any potential conflict of interest and perceived coercion to participate in the study, I assured participants that I did not have any power to influence students' academic marks or to make any formal evaluative judgments on students' learning and instructors' teaching. I was also aware of the potential biases and the perceived power-gap as a researcher who asks questions and observes the participants in this study. Therefore, I revealed some experiences, biases, and values concerning working in before and during the pandemic situations, and how all mediated actions may similarly or differently occur in students' learning activities in both contexts. In all face-to-face interviews, I prepared snacks and drinks for students, while interviews with the instructors were conducted in their offices. These actions were intended to make participants feel at ease, comfortable and to avoid portraying me as having any position of power. Additionally, I did not have any bias against any of the participants, and I appraised all their viewpoints in this research, hence there was no apparent conflict of interest. These steps align with the process of socially constructing knowledge in the research.

As a researcher, my appearance and behaviour must be ethically appropriate for the context (Milligan, 2016). Lecturers at the language department had been informed of my arrival by the Head of Department. I reduced any potential position of power as a researcher from the UoB by acknowledging the lecturers' status as senior colleagues. Other approaches taken to position myself as a non-threatening researcher and colleague were to encourage students to call me "Kak Alia", as opposed to "Miss Alia", and "Alia" for the instructors. The term "kak" derives

from the Malay language and is usually used to address an older sister. This is an uncommon practice because students do not call teachers by their name as it may culturally seem inappropriate and unprofessional. In addition, I had worn simple baju kurung (traditional national attire) paired with black flat shoes as opposed to covered and heeled ones as required in government service, as well as brought a laptop backpack. However, during the COVID-19 lockdown online interviews, the choice of clothing became less important because of the home settings involved.

Any complaints regarding my conduct, could be made to my supervisor at the UoB, or to my line manager, the Dean at the University (refer Appendix I). This strategy assisted in lowering any power I may have because it demonstrates accountability. Navigating power relations was important because participants are in the middle of the continuum where they do have a certain amount of authority, but they are also not ultimately in control of the research (Karnieli-Miller, Strier & Pessach, 2009). Through the strategies discussed above, I believe that I had harnessed a sense of trust in the relationship, and established a safe and comfortable environment for sharing personal experiences related to students' education and instructors' teaching approaches (Dicicco-Bloom & Crabtree, 2006). As a result, preconceived hierarchy or subtle distinctions between participants and I were presumably minimised (Hamilton & Corbett-Whittier, 2014; Foster, 1996).

Reciprocity and Relational Ethics

The focus of the study does not concern the university's course curriculum, contents, and assessments performance, but rather centres on the participants' learning experiences within the university's course. Therefore, this study views knowledge creation as socially constructed through participants' experiences as it is lived, felt, and undergone (Schwandt, 1998). Such a perspective aligns with the study that delves into participants' naturalistic settings of before

and during the pandemic. In order to gain access to the participants' experiences in the two contexts, it became essential to establish a level of trust forming between participants and I. To foster this trust, I actively nurtured and maintained rapport with the participants from the start of the fieldwork.

From the onset of data collection, I engaged with the participants using informal and casual language. These interactions started in face-to-face meetings before the pandemic lockdown took place. Additionally, prior to the arrival of COVID-19, I created WhatsApp group chats with student participants from each classroom and arranged all face-to-face interviews and observations via the platform. Further techniques that I employed to create a safe space and open communications in face-to-face meetings were explained in the previous sub-section (see Power Relations above). During the pandemic lockdown, my relationships with the participants continued in the online spaces despite the period of restricted one-way communication between university staff and students. In particular, I got in touch with the participants through our WhatsApp group chats when the lockdown restrictions were announced. I informed them to wait for further announcements from the university about how and when their learning activities will resume as the data collection will commence simultaneously with the university's online learning.

During the COVID-19 lockdown, I sought participants consent again to continue the data collection activities via online mediums. All participants agreed and renewed their commitment through a newly collected consent form via Google Form (refer Appendix J). This ongoing process of communication and negotiation of access allowed me to maintain a strong connection and retain all participants throughout the duration of fieldwork. The study's focus combined with the methods employed to approach and manage relationships helped me to gain participants' trust and confidence. Consequently, they were actively involved and committed

to sharing their experiences in both contexts. The researcher-participants relationships in this study are reciprocal and constructive for three reasons. One, student participants were able to express their education experiences and frustrations in before and during COVID-19 situations without filtering their opinions. This is possibly because of the consensus established from the beginning of fieldwork. I clearly communicated to the participants that I did not have authority or power to influence their academic performance. As a result, this understanding may have created a sense of trust and reassurance.

The second benefit concerned both of the instructor participants, as they had the chance to openly share their experiences and plans regarding the challenges while transitioning to teach in a fully online medium with limited support during the pandemic. More importantly, this study enabled the instructors to engage in reflective thinking and critically contemplate their teaching experiences. Subsequently, they were able to plan instructional approaches to improve their lessons delivery in the coming semesters. Finally, participants and other staff members at the university where I conducted fieldwork may benefit from this research findings through future publications and sharing sessions. By disseminating the research findings, participants and others can gain an in-depth understanding of the advantages and constraints of interactions in situated contexts. The reciprocal relationships between participants and I is a demonstration of this study's alignment with the principles of social constructivism when researching in naturalistic settings.

Data Protection and Storage

Participants were informed that they could withdraw from the study at any time and the data collected would no longer be used. Lecturer participants were aware that they must state the intention to withdraw prior to data collection because the study requires commitment and access to the classroom from beginning until the end of fieldwork. Another important ethical

aspect in the proposed research was ensuring the anonymity of participants by assigning pseudonyms, which would help reduce harm and increase protection of participants' privacy (Dicicco-Bloom & Crabtree, 2006). My responsibility is to not reveal any information that participants discussed with me in confidence. The study only requested for the participants' names, email addresses, telephone numbers and signatures. Information collected will be stored for no more than six (6) months after the completion of the research before being discarded.

Data was safeguarded by duplicating and keeping them separated from the original because fieldwork cannot be replicated (Yin, 2011). After all audio data from face-to-face fieldwork had been gathered, they are transferred into a computer. Meanwhile, the physical notes from observations were retyped verbatim using Microsoft Word and stored online. As for data that were gathered from online mediums such as online interviews, the recordings are automatically stored in my personal Google Drive. The electronic data are stored securely in UoB's encrypted student account while a copy of it will be also kept in my Google Cloud account, protected by passwords – on my computer and on the Cloud account itself to prevent data loss. The physical data are kept in the locked drawer at my residential house.

Reporting

In all of the reporting, I assigned pseudonyms to participants and omitted non-related information to the area of focus or private conversations that the audio recorders may have picked up during in and out of classroom observations and interviews, both from lecturers' instructions and students' activities. The data pertaining to individuals (i.e a friend of one of the volunteer participants) who did not consent to being observed was not included in analysis and report. The reporting is, of course, sensitive to the participants and researched university as I avoid any negative reporting. Findings will also be shared through conferences and article publications so that it may benefit the academic community, participants and funders of the

research. A copy of my thesis will also be made available in the UoB and funder's main library. Meanwhile, the digital copy of the thesis can be accessed online via UoB's library.

4.7 Summary

In summary, the research took place in the naturalistic settings of before and during the COVID-19 lockdown landscapes. The study focuses on exploring and understanding how and what interactions in the two contexts may look like from a sociocultural perspective. Subsequently, the research was aligned with the social constructivism paradigm that views knowledge as a constructive activity that must be created, is contextual, and affords multiple perspectives. This perspective is complementary to the sociocultural lens that asserts that knowledge is not static and is evident because it must be negotiated and seen in context to allow the construction of meaning. Throughout the research, it involved two instructors and ten student participants from a pre-requisite English language course at a public university in Malaysia. The study employs a qualitative two-phase case study as the methodology to conduct the research with interviews and observations as primary methods. Open-ended observations aimed to capture a particular learning activity as it happened, while the semi-structured interviews were used to elicit perspectives and to gather the accounts of individuals-acting-with-mediation-means for learning activities. The analysis was inspired from the Thematic Analysis and Interaction Analysis where words and talks that pointed to mediated actions were coded and linked to examples in audio recordings.

Chapter 5: Overview of Themes

5.0 Introduction

This chapter reviews the themes derived from the analysis of audio-recorded data obtained from interviews and observations to facilitate an examination of interactions in the before and during COVID-19 contexts (see Section 4.4). These identified themes provide a pathway to gaining a deeper understanding of interactions. The utilization of themes to present findings serves the purpose of enhancing the comprehensibility and accessibility in understanding interactions within the before and during COVID-19 periods. This is followed by an overview of the main themes with the aim to guide readers through this study's findings. The coding and iterative examination of the collected data revealed four main themes for the before COVID context, and five main themes for the during COVID context. The chapter concludes by addressing constraints of using themes to present the study's findings in terms of its descriptive nature that was insufficient to gain in-depth understanding about interactions, and the complexity in presenting and separating interactions into aspects whilst attempting to ensure its interlinked relationships with each other are intact.

5.1 Understanding Interactions through Themes

In order to make sense of participants' actions and recollections of their interactions for learning activities in pre and during COVID-19 situations, a primary approach appropriated in this study involved a broader use and interpretation of Thematic analysis (see Section 4.4.1). Subsequently, the findings presented in Chapters 6 and 7 are organised around the identified themes and sub-themes (see Sections 4.4.1 and 4.4.2). The rationale behind presenting themes as the form of narrative is rooted in the aim of enhancing comprehensibility and accessibility of the topic understudy. Interactions is a complex topic to study and is often overlooked. But a closer look into it will reveal multifaceted aspects that are closely embedded, simultaneous,

and interlinked with each other within the specified timeframe (Wertsch, 1991). Therefore, attempts to present and understand interactions in all its complexities with or without a structure, can be a difficult task.

Presented with such a challenge, I decided to employ a framework that allows a systematic exploration and interpretations of data to identify meaningful patterns and themes to grasp the essence of participants' interactions for learning activities. In particular, I analytically separated the aspects within the interactions (see Sections 4.4) and presented them according to their major themes and sub-themes that emerged from the interaction activities (see Sections 5.2 and 5.3). This form of findings' presentation strives to facilitate a gradual understanding about interactions, taking into account a micro perspective while ensuring a holistic interrelation that can be understood from a macro perspective. Such particular awareness and approach are also crucial in ensuring the study's alignment with sociocultural theory that takes into account interplays between all participants and tools which cannot be separated from learning activities, except analytically (Lund, 2008). The following two sections provide an overview of the codes and themes that emerged from the data analysis.

5.2   Before COVID-19 Themes

In the previous methodology chapter, I described in detail the steps and processes of data analyses for the before COVID context using thematic, and interactions analyses as well as how the codes from both analyses interlinked (see Section 4.4). As a result of these analyses, there are four main themes and two sub-themes in relation to teacher and students' interactions before the arrival of COVID-19.

The first themes include in turn: confirm, explain, probe, and authority as its codes. The first theme is called 'Teacher Feedback and Affirmation'. The theme focuses on instructors' support in terms of providing constructive recommendations, guidance, and confirmation on students'

work. The theme was created from both interaction analysis of classroom audio recordings and from thematic analysis of the interviews (see Section 6.2).

The second theme entail codes such as codes: guide, agency, appropriation, affirm, argue, negotiate and collective. These codes describe students' actions and activities when they were assigned with a classroom group task. The codes then form a 'Collective Thinking' theme which implies students' collaborative work during the group task. As I have explained in Section 4.4, the findings in the before COVID-19 context entail analyses and codes that can be found in both inspired thematic and interaction analyses although they may not be completely identical. In this second theme, I used the style and findings primarily from the interaction analysis in order to show the moment-to-moment face-to-face interaction as it unfolded during students' group tasks (see Section 6.3), while the rest all followed thematic analysis' style of presentation.

The third theme emerged from codes such as: compare, collective, brainstorm, clarify, discuss and together. These codes fall under Reciprocated Checks theme. The theme suggests students' interactions among themselves, particularly on the exchange of feedback and ideas on each other's work. The aspects in this theme can also be found to be interconnected in the Collective Thinking theme above whereby students' activities were collaborative and were supported by a sense of togetherness as they carried out the university's tasks.

The final theme for interactions in the before COVID-19 setting include clarify, gesture, cue, gaze, presence, and speak, as its codes using both thematic and interaction analyses. The codes produce a theme called Prompt Responses which refers to immediate replies which were afforded in learning contexts before the pandemic commenced. The theme consists of two interrelated sub-themes. This is done to emphasise each component of the interactions concerning Prompt Responses. The first sub-theme was Visual Cues, which highlighted

people's gestures, facial expressions, intonation, reiterations, body language and others which could help convey nuanced meanings during the interactions. The second sub-theme is Physical Co-Presence that focuses on support from people in the same room, classroom design, as well as a sense of presence and togetherness.

Below is a table summarizing some of the main codes that later on form the themes concerning teachers and students' interactions before the COVID-19 outbreak.

Codes	Themes and Sub-Themes
confirm, explain, probe, and authority	Teacher Feedback and Affirmation
guide, agency, appropriation, affirm, argue, negotiate and collective	Collective Thinking
compare, collective, brainstorm, clarify, discuss and together	Reciprocated Checks
clarify, gesture, cue, gaze, presence, and speak	Prompt Responses • Visual Cues • Physical Co-Presence

Table 10: Codes and Themes for Interactions Before COVID-19

In summary, all of the themes above share close relationships with each other, which renders a complete separation of the components embedded in the interactions almost impossible. Seeing them as interconnected is important in order to avoid any sense of reductionism. These themes provide insights for us to understand human interactions in learning activities within a context where both face-to-face and online interactions are available.

5.3   During COVID-19 Lockdown Themes

All data from this COVID-19 context were analysed using aspects from thematic analysis fitting for this study (see Section 4.4.1). Analyses produced five themes and three sub-themes that focus on explaining teacher and students' interactions for learning activities during COVID-19 lockdown.

Codes for the first theme are: eye gaze, independent, participation, unstructured, and expectation. These codes formed a theme called One-Way Lessons Delivery. The theme implies non or less-interactive teacher-students communications in their teaching and learning activities in the COVID lockdown period.

The second theme consists of a number of codes including delegate, invite, volunteer, proactive, appointment, and practicality. All codes describe students' online interactions where their activities were structurally organised to get their university tasks completed. The codes produce Structured Social Space as the theme that entails three sub-themes of presumed workflow that show how students interacted within the online space. This second theme refers to the establishment of orderly steps within the online environment where students carry out university activities among them.

The first sub-theme under Structured Social Space theme is a First-Come-First-Served Delegation which emphasises students' enacted agency within the selected online space, while noting that this delegation system allows mainly early comers to select desired tasks while others would have to choose whatever is left over. The second sub-theme is named Synchronized Timing, it implies the arrangement that students made with colleagues to support online collaborative work where interactions may only happen at a certain time and tasks completed within a designated timeline. Submission Priority is the third sub-theme that suggests students' actions are pointed to their underlying primary concern of having the assignment sent to their instructors although there is a sense of knowing that the contents ought to be checked by all members prior to submission.

A few codes for the third theme are respectively: affirmation, confidence, choose, and compare. The codes produce Personalized Checks theme. This theme focuses on students' actions to selectively choose, compare, and accept or disregard input from their colleagues' work that

they deem as either useful or not useful for their work. Students check their work by inquiring directly from colleagues' input through private messaging platform or from colleagues' submitted work on their classroom's online platforms.

Some codes which fall under the fourth theme are clarity, clarify, speak, demonstrate, and intonation. The codes form Speech-Based Communications as a theme that highlights students' preferred form of interactions among them where they choose to speak to each other because the audio mediums (i.e voice notes, voice calls, and video calls) are deemed advantageous to complete tasks. The theme explores and explains how, when, and why students choose to communicate beyond a text-based medium.

Codes for the final theme include not exclusively: reliance, guidance, and immediacy. The codes produce fifth theme called Outsiders Support which refers to students seeking assistance from non-colleagues and instructors. The people they seek help from include family members and friends who are either in close physical proximity or available online.

In the table below, I summarize some of the main codes that produce themes about teachers and students' interactions during the COVID-19 lockdown.

Codes	Themes and Sub-Themes
eye gaze, independent, participation, unstructured, and expectation	One-Way Lessons Delivery
delegate, invite, volunteer, proactive, appointment, and practicality	Structured Social Space • First-Come-First-Served Delegation • Synchronized Timing • Submission Priority
affirmation, confidence, choose, and compare	Personalized Checks
clarity, clarify, speak, demonstrate, and intonation	Speech-Based Communications
reliance, guidance, and immediacy	Outsiders Support

Table 11: Codes and Themes for Interactions During COVID-19

In summary, the codes and themes in the above table point to participants' actions to perform teaching and learning activities in the COVID-19 context. Similar to findings in before COVID settings, many of the codes and themes are interlinked because interactions entail simultaneous use of physical and psychological tools within a snapshot of an activity as it takes place. But the difference lies in how people interact within their specific contextual settings and also with what tools are involved during those interactions. In many of the themes during the pandemic context, interaction cues from body signals including gestures, eye gaze, and facial expressions were found, but were not evidently or consistently visible. Thus, a theme for such psychological tool (i.e body cues) was not created.

5.4   Constraints of the use of Themes

The findings are presented using themes as the narrative form for the findings because of the advantages that the approach offers (see Section 5.1). Despite the case, I found two issues with the thematic analysis appropriated for the study. Firstly, the themes were descriptive and unable to fully capture interactions in their entirety. For example, students were found to clarify, compare, and check their work with each other prior to their submission of assignments (see Section 4.4.1). The extracted data provided valuable insights about the rationales, recollections of activities, and other relevant details regarding their collaborative work. However, it became apparent that these extracts alone were inadequate to fully illustrate the dynamics of a specific interactions as they took place in real-time. Hence, it was imperative to capture a holistic and broader picture of interactions that encompassed activities within a particular timeframe. The interactions must include not only the verbal exchanges between participants, but also the utilization of tools such as digital devices, body cues, space, and others.

To address the limitations above, I searched for another analytical method that would complement the broader version of Thematic Analysis I was using for the purpose of this

research. In my searches, I came across Interaction Analysis and recognised its potential to increase my understanding of the aspects captured within interactions in the collected data. In Section 4.4, I explicitly state the purposeful use of both analytical methods according to the advantages and insights that I could yield from each method. Thus, I incorporated and drew inspirations from Interaction Analysis alongside Thematic Analysis (see Sections 4.4.3 and 6.3).

Subsequently, I included analysis and interpretations derived from moment-to-moment Interaction Analysis' techniques. In particular, I selected and presented three episodes as Episodes 1, 2 and 3 (see Section 6.3). These episodes were chosen for two main reasons. Firstly, they allowed a deeper understanding of the relationships between different themes in the chapter and the various types of interaction captured in the analysis of interactions. Secondly, the episodes offer rich data and characteristics to demonstrate the different forms of interactions with mediational means occurring between students in their efforts to complete a given task. This focus aligns with the socio-cultural analysis that aims to understand support among students as a process embedded in and interdependent on complex social and cultural contexts.

The second constraint was concerning the organization of themes for both before and during pandemic findings. Determining the order of presentation became challenging because interactions are dynamic where aspects are simultaneous and all-encompassing. However, the study's explicit focus on people's interactions and their interactions with tools (i.e teacher-student, student-student, and people-tools interactions) differentiates it from exploring institutionalized backgrounds or cultural influence on people's interactions. Notably, all of these aspects remain as part of the sociocultural theory underpinning the study. Nonetheless, I highlight the emphasis of the study to distinguish it from other studies and to guide the presentation of the findings.

The methodological consideration to present findings according to the focus of the study is also part of my efforts to ensure alignment between the literature, data analysis process, themes that emerged, and sociocultural perspectives. As a result, I arranged the themes by presenting teacher-student interactions first, followed by themes related to student-student interactions, and concluding with themes related to people-tools interactions in both learning contexts. The aim of this organization is to provide coherence and clarity in the presentation of the research findings as well as enabling a focused analysis of the interactions within the situated contexts.

However, in the case of the findings and presentation of themes for during the COVID-19 context (see Chapter 7), the challenge was to rely on analytical techniques derived primarily from Thematic Analysis to capture interactions. This was due to the nature of the data which rested upon participants' recollections of their activities to complete tasks during the remaining semester. The lack of audio recordings and direct observations posed a difficulty to corroborate the themes. Nevertheless, I address this issue by cross-checking the themes with other recollections and asynchronous observations data from online learning activities. Despite the limitation of relying on participants' recollections, it is pertinent to emphasise on the availability of data that still allowed for analysis and affords us deeper insights into the topic understudy during the unprecedented pandemic lockdown.

5.5   Summary

The chapter highlights the use of themes to facilitate a gradual and comprehensible presentation of the findings related to interactions for learning activities. An overview of the main themes and sub-themes that emerged from the analysis was meant to give readers a prelude to the forthcoming detailed findings. Despite the case, themes were descriptive and difficult to be organised. Thus, Episodes in Section 6.3 using inspirations from Interaction Analysis were added to enrich the findings (see Chapter 6). The subsequent Chapters 6 and 7 will delve into

these themes in greater detail to allow for more in-depth exploration of the findings. The findings are presented thematically and categorically in Chapters 6 and 7, starting from the contextual settings as backdrop of where interactions occur in the study's education contexts, to themes that reflect teachers-students, students-students, and people-psychological-and-physical-tools interactions.

Chapter 6: Before COVID-19 Findings

6.0 Introduction

This chapter aims to address the first research question regarding interactions for learning activities before COVID-19. The synthesis of the findings in this chapter suggests that face-to-face interactions play a vital role for learning activities. This is due to the processes within interactions that are fluid, engaging and embedded with complex interplay of physical and psychological tools, all of which occur simultaneously in a shared physical space.

The chapter begins by providing contextual settings to highlight their significance in before-pandemic interactions. The main themes reflecting people's interactions and people-tools' interactions are teacher feedback and affirmation, collective thinking, reciprocated checks, and prompt responses. This chapter also explores the concept of appropriation through interactions with tools, which highlights the agency that lies in the interplay between human action and the uptake of tools (see Episode 2 in Section 6.3). Throughout the chapter, it is crucial to note that the presented themes and concepts that are embedded in them should not be viewed in isolation. Instead, they should be seen as interrelated components within a sociocultural lens. This approach affords for a comprehensive analysis of each concept individually while noting their interdependencies and the broader socio-cultural context in which they are situated.

6.1 Contextual settings

This section, then, illustrates the contextual settings at the university before the pandemic. Both students and instructors in Classes A and B met face-to-face twice weekly, in a one-hour lesson and a two-hour lesson as part of the course. The students lived either in university's hostels or rented accommodation nearby where they also got to see each other regularly outside of classes.

The following subsections detail the layouts of the classrooms observed, and also the learning materials and online platforms used for teaching and learning activities.

6.1.1 Classrooms

Before the arrival of COVID-19, lessons would frequently entail whole classroom discussion, and small groups or pair tasks. Students were normally grouped based on their seating arrangements which may also depend on the classrooms' designs, such as a round table of five students makes up a group, or students seated next to each other become pairs/groups. These activities allowed for easy observations and audio recording of the interactions between students, with the teacher and tools (see Section 6.3).

A total of four rooms were allocated for this course; two Interactive Rooms, one classroom, and one Computer Lab. Class A and B were both assigned Interactive Classrooms where the tables are round in shape and projectors are at the front and the back of the classes. Both tables and chairs can be moved and arranged as desired. When in these two classrooms, students chose to sit at almost at all tables where each table usually sat 4 to 5 students. Class A was assigned to the Interactive Classroom for both twice-weekly lessons, the layout can be seen below:
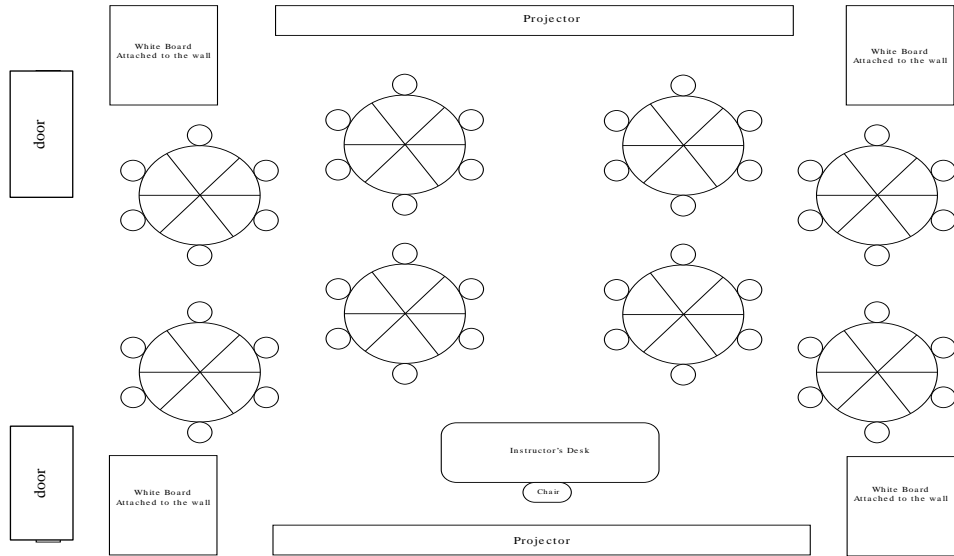
Figure 4: Class A's one and two-hour lessons (author's illustration)

Awan would normally utilize both projectors except on the rare occasions where the projector at the back could not be turned on for some reason. Awan also used the small whiteboards in one of his lessons in order to demonstrate examples.

Class B was assigned different classrooms for the twice-weekly lessons. Figure 5 below refers to Class B's two-hour lessons while Interactive Classroom for Class B is for one-hour lessons has a layout that mirrors Figure 4 (refer Appendix K).
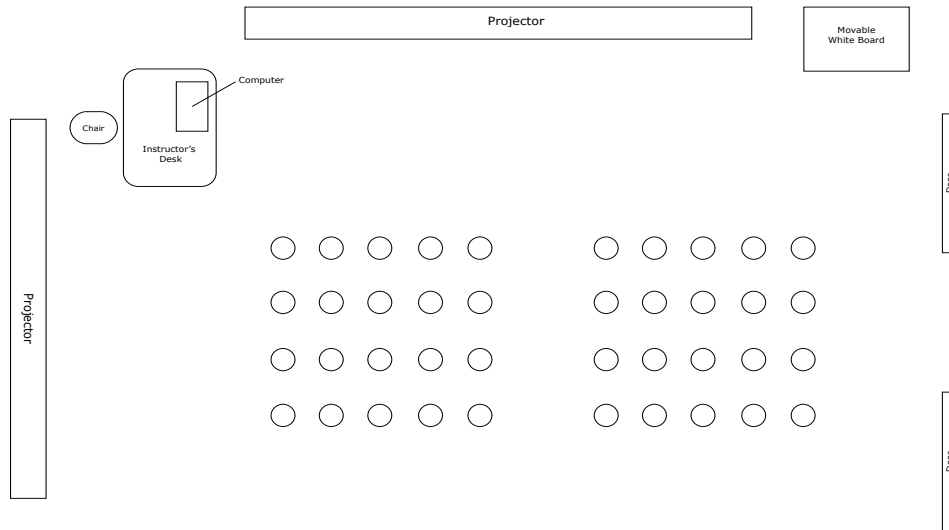
Figure 5: Class B (1) two-hour lessons (author's illustration)

In Figure 5, students would normally sit in the front rows, except for a few chairs at the back that were seated by a group of male students. The chairs are front-facing and are equipped with a sidearm table. In both rooms, Bayu used only the front projector that was closest to the instructor's desk and occasionally used the whiteboard. In both classrooms, students would move and rearrange the chairs when they were assigned to work with colleagues. On one occasion, Bayu booked the Computer Room below for an Email Writing lesson (refer to Appendix K for a full layout).

Figure 6: Class B's Computer Lab for Email Writing

The room above has a partition in between each student, with two computers placed side by side. Every table is equipped with one computer, one chair, and one set of headphones. The chairs are cushioned and movable. The instructor's table is situated in front of the room and is equipped with a computer. The room is air-conditioned. The computer lab is overseen by a technician who sits at the back of the room and comes over whenever assistance is required.

6.1.2 Learning Materials and Online Platforms

The course unit has a textbook, but its use is not compulsory, which allows instructors to decide whether they want to use the textbook for their lessons or to rely on other materials related to the contents and objectives of the course. Bayu instructed her students to each get a copy of the textbook while Awan alternatively used online resources to teach the unit. Both instructors had their own teaching notes as well as Power Point slides on each topic they taught. The instructors

provided these materials to their students by uploading them on preferred online platforms for their respective classes.

There are a total of four online platforms that are used by instructors. Two common applications in both classes were the university's Virtual Learning Environment (VLE) and WhatsApp. The university's VLE is the official and only university supported platform for administrative, resource materials, and teaching and learning. The remaining three online platforms were chosen by the instructors to support the course's activities. WhatsApp – is a free messaging and Voice over Internet Protocol service which supports texting, audio messages, video and voice calls, images, documents, locations, and other media. The main online teaching and learning applications differed in each classroom. Awan in Class A opted for Google Classroom, while Bayu chose Padlet (refer Appendix L for summary of key features). Below table is a summary of virtual learning platforms in the two classes.

Platforms / Classrooms	University's VLE	WhatsApp	Google Classroom	Padlet
Class A	√	√	√	
Class B	√	√		√

Table 12: Online platforms of the course

Google Classroom is similar to other e-learning platforms such as the university's VLE, Blackboard, Edmodo, and Moodle, while Padlet functions more like a "bulletin board" where users can post and share notes on a common page. It is important to note that this study does not concern which platform offers better features, but rather how these features are used to support interactions during teaching and learning. Another main source of online information which was not specified in either class is generally referred to as the World Wide Web, where instructors and students use any convenient search engines available to them to seek online resources for learning activities.

6.2 Teacher Feedback and Affirmation

Teacher Feedback and Affirmation is a major theme that reflects the main sentiments found in teacher-student interactions for learning activities. In the following analysis, selected extracts of audio recordings from classroom lectures are used to demonstrate one of the regular lessons in Classes A and B pre-pandemic. Awan is the instructor for Class A while Bayu teaches Class B. The two-hour Cover Letter lessons in Classes A and B took place on different dates but were both delivered face-to-face at the university in Interactive Classrooms (see Figure 4 in Contextual Settings section and Appendix K). I chose Cover Letter because of the rich data on ways teachers interact with students when teaching the same topic. At the beginning of the lesson, the instructors started with an introduction on the subject while prompting students to respond:

> Awan: Who doesn't know what is a cover letter, raise your hand.
>
> …..………..
>
> Bayu: What is a cover letter for? (students murmuring 'formal') Formal? For formal purposes. Yes, it is a formal letter for a formal purpose. What is the purpose actually? … What is the purpose of writing a letter? (students murmuring 'to apply jobs')

In the above extract, Awan in Class A started with a question about whether anybody in his class did not know what a cover letter is. He invited a response to the question by saying "raise your hand" which means that a physical gesture became the signal to obtain an indicator that may reveal students' understanding or previous knowledge of the subject. Meanwhile, Bayu in Class B, asked questions prior to revealing more information on the subject, such as "What is a cover letter for? (students murmuring 'formal') Formal? For formal purpose. Yes, it is a formal letter for a formal purpose". In this instance, though both teachers were employing different communicative methods to acquire feedback (i.e Awan requests for visual signals, while Bayu probes for verbal responses), both teachers' actions at this stage can be interpreted as attempting to gauge students' knowledge of the topic.

The observation which accompanied the lecture revealed that students in Awan's Class A did not raise their hands, possibly because all of them do have an idea about the topic, but it could also be due to cultural influences such as a fear of being reprimanded by the teacher or feeling embarrassed in front of fellow colleagues for a lack of knowledge about the subject. Instead, in Class B, Bayu successfully received feedback on every question posed to students while simultaneously reiterating their answers. By doing so, she is providing affirmation of students' knowledge and helping them to move further into the topic.

Awan later prompted responses from students through questioning as he gradually progressed in the lecture, "What do you know about email? Where do you write your cover letter? Where?". Similar to Class B, students in Class A provided answers to the probes, "in application form". Awan then replied, "but the word letter (in Cover Letter) implies that it is a letter, so it's not available in the application form. Nowadays, how do you send cover letters?". Students answered, "(via) email", which Awan affirmed and continued with explanations, "Email. So, cover letter isn't …on paper anymore…but in email". The analysis of this excerpt contains the same findings as in the previous paragraph where instructors were probing to gauge students' knowledge about the subject while correcting and affirming students' input by reiterating the answers provided.

As the lessons progressed further, instructors would engage in checking whether students understand and are following the lecture properly, for example, Awan asking "Understand so far?" and Bayu with, "Any questions regarding number one?". In this example, checking whether students could follow the ongoing lecture at different intervals provide an opportunity for students to seek clarifications and obtain immediate support as they experienced the lessons. Checking on students also provides the space for instructors to estimate students' understanding that allows them to clarify matters related to the topic as they go along while

avoiding having to spend more time repeating or resolving issues at the end of the lesson. If students were given such opportunities only at the end of the lesson, it could be too late for those who may have formed their own understandings, which were inevitably different than what was intended by the instructors, or were unable to follow the lecture but did not have opportunities to catch up and thus leaving the lesson with lack of understanding on the topic. The potential difficulty if students had understood anything differently or had not grasped an understanding about the topic may surface when they do tasks, such as producing contents that were different than what was taught or unable to meet the tasks' standard.

Further into the lessons, instructors engaged students with formative assessments where time was allocated for completing tasks before classroom discussions or answers checking at the end of the task. For instance, Awan in Class A tasked students with a collaborative letter composition where a group seated at each table was assigned with a paragraph that would make up the letter, such as Group One for 'Introduction of the letter' and Group Five for 'the Conclusion'. The letter was composed on Google Document in real-time to allow collaboration and simultaneous viewing by all members of each group as well as all students in the classroom. Both available screen projectors were used to upload Google Document so that students could view the Cover Letter being written . Each group had one or two members who used their smartphones to type the group's input on their assigned paragraphs. Nearing the end of the time allocated, Awan went from one group's table to another and checked on students' progress. He stopped at Group's One table and read their output on Google Document before complimenting them. The students seemed pleased as they smiled upon hearing the below feedback.

> Awan :(says to Group One) I think this sums up the 1st paragraph very nicely, succinctly. It's a good achievement on your part. *(students smiled at each other)*

The affirmation provided by Awan to the students assured them that they are on the right track with their learning activities. Students' smiles to group members conveyed a sense of group

accomplishment and personal confidence about the work they had carried out. Meanwhile, Bayu in Class B assigned a task from the course's textbook. The task consisted of five questions related to the delivered lecture and was one of the few formative assessments in the two-hour lesson. During this individual task, Bayu walked around in the classroom and stopped to check on students' progress and to answer questions from them. Near the end of the task, students were selected from the attendance register to provide answers. Bayu was either standing or walking in the classroom at this stage. Haz was called to answer the question, 'why a cover letter is needed to apply for a job position?':

> Haz : *(stands up)* To convince the employer that he has the ability to the knowledge and ability do the editing.
>
> Bayu : *(nods)* To convince the employer that he has the ability **and the** knowledge as well as ability **to** do the editing, okay and actually it is because in the job advertisement, you may sit down thank you *(looks at the student)*, … because here the requirements, ……. **remember**, when you write the application letter it is to show that you are the best candidate for the position.

The extract shows that Bayu nodded and looked directly at the student in question, as well as correcting Haz's reply while reiterating the answer provided by the student to the whole class. Nodding and reiterating conveyed affirmation that the response provided by the student is correct. Meanwhile, looking directly at the student and having the student participate physically (standing up to read), displayed a form of collective participation that can be achieved through co-presence in the classroom as all members in the classroom can see that someone is responding and answering a question from a task that they had each done individually. Further, standing up and sitting down when answering a teacher and complying when selected to answer the exercise questions suggests the teacher-students power gap and a cultural aspect where volunteering to answer is not a norm in the context. Additionally, while the class is on the subject of discussing the student's answer, Bayu took the opportunity to correct it (i.e **and the** knowledge) and to offer extended explanations while making connections to some of the contents previously delivered in her lecture, "**remember**, when you write the application letter

it is to show that…", as an example of prompt and direct feedback on the student's work for others to learn from the examples.

Generally, both of the lesson's introductions on the Cover Letter topic consisted of instructors' probes that can be interpreted as exploring students' previous and/or current knowledge of the subject. It also means that instructors reveal and share information about the topic in a gradual manner as opposed to delivering a lump of information without any interactions for learners to engage and participate in. These actions later proved to be useful to complete tasks successfully because instructors became facilitators for students from the beginning of the lesson until the end of formative tasks, as seen in individual and group task examples in Class A and B, respectively.

Further, physical signals helped the instructors and students alike to derive feedback about the lessons, such as instructors gauging students' understanding of the topic which could help them adjust the delivery of the lessons (e.g repeat or rephrase information). In addition, physical gestures in a shared classroom space contributed to the learning activities (e.g tasks completion, and confidence), such as the teacher's nod as a sign of approval that the answer given was correct and group members smiling after hearing the teacher's feedback. In retrospect, these signals and responses throughout the lessons can be described as feedback or affirmation, afforded in a shared space. This is evident when any visual cues such as eye gaze, nods, and raising hands are transmitted between participants and can be immediately understood and responded to, and quick support can be provided in the two-hour lessons, particularly because opportunities to obtain support could be offered many times, for example in "Understand so far?" and "Any questions regarding number one?".

In relation to the lesson's delivery, interviews corroborated a similar finding where feedback is direct and prompt, as disclosed by Orked "With lecturer, only when she was checking it (in

class) then I get feedback". This revelation confirms that the flux of interactions between teacher-students in learning activities is mainly taking place face-to-face. Far from being a disadvantage, Putri in her interview shared that she prefers securing feedback in the classroom because she could acquire the needed affirmation of her work prior to submission, "Before submitting, I ask 'Madam, please check first'". This sharing simultaneously highlighted the appropriation of shared spaces whereby direct interactions allow students to be immediately supported in their learning that in turn makes them feel more confident about their task output.

In this pre-pandemic context, students would occasionally seek affirmations from their instructors through online communications. For instance, Orked shared a minor conflict that occurred in group work, where she and a member thought that a groupmate had been doing an assignment incorrectly. They decided that it was best to contact their instructor on a personal WhatsApp chatroom for feedback about the correct manner to do it. After the instructor responded that the groupmate's work was also acceptable, the conflict was considered resolved and no further questions were asked, "Then in the end, we asked Dr. on WhatsApp, Dr. said yes can do it (the assignment) like what he did". The communications that occurred here conveyed the role of a teacher's affirmation in learning activities to solve a group conflict and to provide assurance on students' work. It also emphasises the cultural and institutionalized aspects of not questioning a teacher even though some students felt that a groupmate's work did not meet their expectations or understanding of the assignment. The analysis echoes the findings in the moment-to-moment analysis of Group Task excerpts (refer Episode 3) of this chapter.

When a teacher is not monitoring students' progress in a classroom task such as coming to their group to check on them, other tools such as textbooks may assume the authority to provide affirmation. Students verified that the textbooks served as guidance to ensure that they are

progressing towards task completion as expected by the instructors as well as passing the course.

> Putri : The textbook, it's like I can know what to do first, what to do later, like I okay I don't feel so blank to do the work.
>
> …………………
>
> Orked : The book is only for guidance to get the work done. … I think it's like, to pass the course.

In summary, interactions between teachers and students in both physical and online spaces entail feedback and affirmation, such as checking students' understanding of a topic and providing confirmation on students' work output. The analysis has indicated that learning activities require a person(s) of authority to confirm knowledge or give feedback in learning. For example, instructors' reiteration of students answers and confirmation on their work had boosted students' confidence (i.e smiled upon hearing good feedback and checking prior to submission). Throughout all the interactions, visual cues carry nuanced meanings and a sense of authority in teachers-students interactions, such as 'raise hands' as a signal of lack of knowledge about a topic, and 'stand up' when answering a teacher's question signals the culturally power-gap relationship between teacher-students. As there is a lack of evidence found concerning online teacher-students interactions, it may suggest that many of the interactions at hand do not occur in the online spaces as they are reserved or taking place in the classroom in the before pandemic context.

6.3 Collective Thinking

In the findings below, I presented visible mediated actions among students in Class B as captured in-classroom audio recordings. The three extracts fall under Collective Thinking theme where students were seen collaborating, arguing for their input, and negotiating with each other to complete their task. The extracts in Class B were selected for two primary reasons: firstly, they demonstrate different forms of interactions with mediational means occurring

between students, from the beginning until the completion of a group task. Secondly, the episodes resemble an almost typical lesson that includes a teacher, colleagues, and university facilities in a learning context. In this excerpt, I focused on a group task's contextual contingencies and used it as a case to show how a dialogical space is mediated and constructed, as well as how agents acting with mediational means can be identified and analysed in such space. As episodes unfolded in this activity, the detailed analysis uncovered the forms of interactions that individuals have with mediational means, such as the uptake of tools, gestures, language use, textbook and other interplays in that specific excerpt.

Class B's two-hour group activity for the Email Writing topic below took place in a computer lab (see Figure 6 in Section 6.1.1 and refer Appendix K). In this session, Bayu divided the students into groups of four (4) in each group. She then invited group leaders to come to her desk to hear the instructions. The task was to create an email account and write a mock email to their lecturer. Students were required to prepare a step-by-step illustration using a PowerPoint slideshow (PPT) of the processes and present the PPT slides in the next lesson. The group of four students that I observed consisted of – three student participants who were also friends and roommates as disclosed in their individual interviews (i.e Putri, Orked and Suri), and Bashira who was assigned to join this group. Bashira was not interviewed but was a part of the classroom's composition, and thus was willing to be observed.

6.3.1   Episode 1: Setting the Task Foundation

In this episode, students are setting the foundation for their group work, primarily by deciding on the topic and on the direction of the task. The leader, Suri, was seated on the left side of the parallel group row, which positioned her closest to the teacher's desk and meant it was easiest to get out of the row compared to her friends who were further inside and closer to the wall of the room on the right side. When the lecturer asked for a representative to come forward, Suri

exchanged looks with her colleagues before saying, "okay, I'll go?", to which all team members nodded in agreement. After returning from the teacher's desk, all four members formed a circle, facing each other while seated at their moveable chairs. Textbooks could be seen on their laps or held up in their hands. Students did not discuss the language use, but the main language for the activity is Malay though at times they switched to English. After Suri explained the instructions and informed which textbook page to refer, it prompted the following discussion.

1	Suri	*(refers to the textbook)* the task is, we as students, we want to send an assignment to the Dr. Have we done this before? *(looks at her colleagues; Orked and Putri)*
2	Orked	We have never done like this (format) *(looks and points at textbook)*, we just simply sent it (an email not like the one depicted on textbook).
3	Putri	There was, to Dr … *(pauses and knits eyebrows)*
4	Orked	When, which Dr?
5	Putri	Dr. Johar
6	Suri	We did, to Dr. Johar
7	Orked	When? We did, but the issue is we did not send it like this *(points to the textbook)*. We simply write and then sent it. We put our matric numbers, our names, gave answers, just like that.

(both Putri and Suri did not respond to the above and the matter is deemed resolved. Students proceeded to discuss their content for the email task)

8	Putri	*(Putri asked a group behind them about the task's content, comes back to her group and announces her findings)* Mira (a colleague), she said 'subject', (is what) we want to ask to the lecturer, for example asking about an exam, (or) for example the lecturer gave an assignment, so we want to ask about that assignment, maybe ask about…
9	Orked	We'll do on something else.
10	Putri	Yes, those were just examples…
11	Bashira	What about this, a lecturer asks to do an assignment, so we need to seek permission to conduct the research somewhere (outside university).
12	Orked	Like that? *(pauses and looks at other members)* Sure. Let's do that.

Excerpt 1: Setting the Task Foundation

In the above excerpt, Suri summarized and translated the lecturer's instructions in English into Malay in the first person's pronoun while drawing members' attention to the textbook example (line 1). This action can be interpreted as easing the instruction delivery and making the task relatable to assist members' understanding. Suri added a question to her statement, "Have we done this before? *(looks at her colleagues; Orked and Putri)"* (line 1). Looking at colleagues and asking about a previous task potentially aimed to establish a shared learning experience

which could provide a useful frame of reference for the current task. As she was explaining, she used the textbook as a reference by pointing at examples illustrated. This is done to demonstrate what processes they need to undertake and what outcome is expected.

Orked responded by saying that they have never sent an email that matched the format and details for the current task, while looking and pointing at the textbook example (line 2). The act of pointing to the textbook was to emphasise her statement that emails sent in the past were not the same as the one depicted in the textbook. Putri rebutted Orked's response while at the same time pausing and knitting her eyebrows (line 3), likely as a sign of thinking about the matter. The reply was met with a probe from Orked about the previous shared learning experience (line 4).

Putri mentioned the name of a lecturer (line 5), which was reiterated by Suri (line 6). At this instance, Suri's intervention suggests that she had been actively listening and following the exchanges between Orked and Putri, while recalling past learning activities. Orked reiterated that their emails in the past were not the same as the current task's requirements, "When? We did, but the issue is we did not send it like this *(points to the textbook)"* (line 7). Orked provided further details by saying that the contents in their previous email were brief and they only had students' details and answers to the assignment (line 7). As she explained, she again pointed to the textbook example to highlight her message. This action can be interpreted as appropriating a tool to assert authority and to guide members toward the task's outcome as shown in the textbook. Orked's response resolved the issue as both Suri and Putri did not comment further.

The group progressed then into discussing the potential content of the email. Putri went to the group behind their row to seek information before sharing that the email could be anything ranging from examination to assignment-related issues (line 8). By checking with another group, Putri is seen as enacting an agentic action to search for more information beyond the

group's talk. However, before Putri could even finish her sentence, Orked said that they should do so on other topics, "We do on something else" (line 9). The response from Orked can be interpreted as taking a leadership role to decide on behalf of the group and inserting a sense of urgency to do the task because they spent the first few minutes discussing their previously shared learning activities. Putri did not object to Orked's statement (line 10).

Bashira who was silent from the beginning of the discussion suggested that their group email could be about requesting a lecturer's permission to conduct research fieldwork outside of university for a Final Year Project, "What about, lecturer asks to do an assignment, so we need to seek permission to conduct the research somewhere (outside of the university)" (line 11). Bashira who was not heard talking earlier, however, was actively listening because she provided input related to the ongoing discussion when an opportunity arose. This also suggests that students would likely participate when group collaboration provides appropriate opportunities to do so.

Orked agreed to Bashira's suggestion, "Like that? *(pauses and looks at other members)* Sure. Let's do that." (line 12). In that moment before answering, she paused to look at the other two colleagues (i.e Suri and Putri), possibly gauging signals of any disapproval or agreement from their facial expressions. As she neither saw nor heard any objections, she spoke on behalf of the group and duly agreed to Bashira's proposal. Besides enacting agency to take charge of the group's discourse, the action displayed cultural and institutional values where she was expected to conduct group work in an orderly manner and in a way that was inclusive of others.

Analysis

The analysis of the above excerpt indicated three primary aspects. The first is the trajectory of group talk from a broad conversation to a focused one. The pattern to support this can be found in the early discussions between the three students (i.e Suri, Orked and Putri) where they

attempted to recall a shared learning experience. They do so to establish a common understanding and also to draw connections from a previous activity to the current task in hand. At the same time, Suri who summarized the instructions in a first-person view (line 1) by using the pronoun 'we', helped members in the group to relate to the task, and placed emphasis on the main content of the instruction and ensured the message was conveyed without much 'noise'. Another pattern can be seen throughout the episode where students worked from having a general idea about the task to understanding the task's requirements and proceeded to agree on a topic for the task.

The second is regarding the nuanced meanings carried and conveyed by the textbook and eye gaze. For example, when Suri explained the task, she pointed to the exercise and examples in the textbook (line 1) to draw members' attention to the written instructions while also verbally relaying the instructor's instructions after translation, and when Orked emphasised her main point that emails sent in the past were not the same as the current task's requirements (lines 2 and 7). The textbook, as invoked in this context, carries a sense of authority. Students' appropriation of the textbook is also a demonstration of agent-acting-with-mediational-mean because the verbal instructions and the contents of the textbook are complementary of one other and should be seen in tandem. Furthermore, Orked's use of the textbook suggests that it is the main resource available to guide and to control their discussion. Hence, the textbook carries an institutionalized role of what outcome is expected from the task, as well as providing an authoritative role in the absence of a teacher. As for visual cues, the analysis suggests that students gazed at each other to gauge a sense of approval or disapproval. There are three examples that can be drawn from this analysis; 1) Suri looked at two of her colleagues (i.e Putri and Orked) to prompt for response to her query (line 1), 2) Putri knitted her eyebrows as she recall past experiences, which signals a thinking process taking place (line 3), and finally 3) Orked checked her groupmates response to Bashira's suggestion by looking at them to see if

there is a change of facial expressions or gestures that could suggest disapproval or wanting to say something (line 12).

The third observation of note is about enacting agency in learning activities. The analysis showed that when opportunities are presented, students would participate and would contribute to group work that was taking place. For instance, Suri (line 6) and Bashira (line 11) took the opportunity to offer input such as Suri agreeing to a remark made by Putri, while Bashira presented an idea about the task's content. The actions indicated a sense of confidence because students verbalized and shared with others when an idea is deemed worthy. The episode also suggests that students would rise to leadership roles whenever there is an opportunity to do so, such as Suri who took the role of a leader to receive instructions on behalf of the group (line 1), and Orked who took charge by navigating the group's discussion until a topic for the task is decided, while employing the textbook as a tool to assert authority (lines 2, 7, 9 and 12). In summary, Episode 1 shows how the trajectory of the group discussion moved from a broad to a focused one, signals manifested through the textbook and eye gazes, and agentic stance is part of the processes involved in collective thinking among students as they work on a group task.

6.3.2   Episode 2: Designated Roles

Episode 2 shows how students progressed to the next stage after they decided on the topic and direction of the task. This group of four students divided themselves into two pairs, where one pair created an email account while another wrote an email. Orked chose to work with Suri on the email creating task, which left Putri and Bashira as a pair to work on explaining particulars available in an email and also to illustrate a step-by-step guide on email writing. Both Orked and Bashira brought their individual chairs to sit next to their respective partner. even though each student could sit at their own computer, the pairs in this group shared computers to do the

task. The audio extract was focused primarily on Putri; as the volunteer interviewee for the topic.

Putri was in front of the computer and had one hand on the keyboard while the other was on the computer mouse. Bashira was holding the textbook and moved closer to Putri while looking up at the computer screen. Without verbally agreeing on tasks' delegation between them, Bashira fed information while Putri typed on the computer.

1	Bashira	This one, then press this – 'print screen'. *(holding the textbook and demonstrating on the keyboard how to print screen the page, as Putri observes the keys she presses)*
2	Putri	Then, where can I find it (the screenshots)? *(looks at folders on the left side of screen)*
3	Bashira	Look in the docu…not document. Look in the folder. *(also looking at folders on screen)*
4	Putri	Picture (folder)? *(mouse cursor points to the folder)*
5	Bashira	Yes, that one. *(Putri clicks on Picture folder and looks for their screenshot files)*

(the pair continued to review features available in the body of an email such as 'subject', 'recipient', 'cc', 'bcc' and others, and screenshot these features for illustrative purposes in PPT slides.)

6	Bashira	Recipient's name. *(holds and reads from textbook example)*
7	Putri	How to spell?
8	Bashira	R E C E.. eh, C I P I E N T. *(Putri types on the keyboard).* Apostrophe S *(Bashira directly keyed in the ' sign on the keyboard)*
9	Putri	How to spell 'column'? L M or M N?
10	Bashira	M N
11	Putri	Factors, how to spell? *(in between interactions, Putri keys in instructions for email writing into Google Translate)*
12	Bashira	F A C T O R S.. in influencing, C I N G.... consumer review, relating to the purchasing.. P U R C H A S I N G … of honey. *(peeks at the other pair)* Hold on a second! Their title is, for Final Year Project *(FYP)*. I think our title is wrong (in subject line). Because it shouldn't be the title of FYP, but the email is for what purpose.
13	Putri	Submission for FYP?
14	Bashira	It feels odd. Or, FYP submission?
15	Putri	'For' feels odd, writing 'for' makes it odd. Submission of Final Year Project? *(types this in the subject line).* Like this? *(shows what she types on the screen)*
16	Bashira	Yes, correct. *(reads textbook example while Putri types and utilizes Gmail predictive text).* Next step is, 'How to write the ending of an email'? 'Attached is the completed … application form …. for your review.' Fullstop. 'Please let me know … and approval', A P P R O V A L. Then at the bottom, 'thank you for your..' eh no need. Just thank you, comma, then below that.. 'kind regards.'
17	Putri	'Thank you. Kind regards.' *(types and looks at textbook)* Then, 'Suri Binti Aizat' *(types the signing off).* Okay done! *(opens a YouTube tab, searches for a song and sings along)*

Excerpt 2: Designated Roles

In the above excerpt, the pair started by figuring out how to screenshot activities on the computer screen. This was an important action because the step was not elucidated upon in the textbook or class instructions. Bashira showed how to print the screen on the keyboard without Putri verbally seeking help, "This one, then press this – 'print screen'" (line 1). Bashira complemented the process through actions by pressings different keys on the keyboard as Putri observed. In this sense, Bashira became the 'expert' who applied a certain set of skills and knowledge to the current task.

Putri then asked about the file location of the screenshots (line 2). From lines 3 to 5, the pair worked together to determine the location of their screenshot images. The activity can be regarded as having been a collaborative effort between individuals and tools whereby both students paid attention to the cursor that appeared on the screen, and collectively carried out a trial and error while opening some folders. Meanwhile, the computer screen as an accompanying tool became fundamental to materializing students' learning activities, for example, what students saw on the screen during the steps of writing an email was captured, shown, and explained to other classmates through the artifact in use. Hence the tool is a mediational means that students use in the activity to create impacts in their learning.

During the next stage, Bashira was guiding and duly feeding Putri information related to the practice of email writing instructions and their descriptions while referring to the textbook example (line 6). Putri asked how to spell the first word, and this was met with an immediate response from Bashira who spelled it while Putri simultaneously typed the word on the PPT slides. In line 9, Putri continued needing spelling assistance from Bashira. However, this time Putri vaguely knew how to spell the word but perhaps was unsure of the last two letters at the end, "L M or M N?" (line 9). Bashira's answer to the query helped them progress as they started writing contents for the email next (line 10).

In between doing the activity, Putri had been using Google Translate from Malay to English to translate and check on their sentences (line 11) (refer Appendix M). This action demonstrates the appropriation of Google Translate as a tool to help convey their instructions in potentially correct English, while ensuring meanings are intact despite the code-switching. In this instance, there was also less reliance on the textbook because email contents, ultimately. must be composed by students. In line 12, Bashira guided her partner again by spelling the words while Putri typed them on the computer. Bashira then peeked at their groupmates' computer screen and realized that their email subject could be wrong (line 12). This action constitutes a checking activity because the students reflected on potential mistakes in their own work and ensured a collective and coherent outcome as a group despite currently being separated into pairs.

In line 13, Putri's suggestion to write the subject as "Submission for FYP", was met with a comment from Bashira who felt the title was unsuitable and suggested "FYP Submission" would be better (line 14). Putri realized that in Bashira's suggestion, the word 'for' was omitted. Putri proceeded to amend her earlier suggestion by changing 'for' to 'of' and proceeded to type "Submission of FYP" (line 15) in the subject column. This is an agentic action taken on by Putri for her input through her role as the typist. After Putri made the changes, she then showed it to her partner for approval. Bashira confirmed that this was acceptable (line 16) and continued to guide Putri on the remaining instructions for email writing while referring to the textbook (line 16). The use of the textbook became important again because the following steps and contents could be copied from the textbook. In line 17, Putri finished typing the instructions that Bashira had relayed and signed off using the group leader's name. She exclaimed that the work was now done and proceeded to open a YouTube tab (an online video-sharing platform), searched for a song to play, and sang along to it, which is an example of where students prioritized the tasks at hand before moving to other activities.

<u>Analysis</u>

An analysis of Episode 2 suggests two main findings. Firstly, there is a reliance on a partner to complete tasks, as seen in the above extract. It started with delegating and dividing the group task into pairs at the opening of this episode, and then in another cycle of delegation and division of tasks when both Bashira and Putri took on different roles in their respective pair-work. More examples of this include some collaborative efforts to search for a screenshots folder (lines 2 to 5), commenting on each other's ideas (lines 13 to 16), and carrying out each other's role in a complementary manner (i.e one reads while another types) (line 6 to 17). A reliance on people as a resource becomes evident when students do not question the input from their partner, for example, Putri accepted instructions and information from Bashira without any objection (lines 8 and 12). However, this reliance could be met with an agentic stance whenever justifications can be provided. A case in point is when Putri revised the input suggested to her partner and proceeded to use it as part of their email writing (lines 13 to 15). The actions in this episode indicate a collaborative pattern in managing group workload and ensuring task completion because every member is expected to perform the tasks assigned.

The second aspect featured in this episode is the appropriation of tools to achieve the desired results and attain the task's objectives. For example, the keyboard in front of Putri was used to demonstrate taking screenshots of the computer screen (line 1). Here, the keyboard along with its connected devices (i.e other devices that make up a computer system) function in two ways, firstly as a teaching tool, and secondly as a thinking tool that assisted individuals in materializing and illustrating to other individuals the steps that they have in their minds. Another digital tool uptake was the use of Google Translate. As this lesson took place on an English language course where the students' native language is Malay, they potentially needed a tool or someone to confirm the output of their work. In line 11, although Bashira provided

input for the email contents and helped Putri to spell the words for the task, Putri still decided to use Google Translate to check and translate the intended meaning that they wanted to convey. In this instance, Google Translate may had provided students with a sense of confidence about their work. Moreover, the textbook's use was not relevant here because the contents had to be produced wholly by students and the teacher's help was probably deemed not needed or nearby, hence making the appropriation of Google Translate seem necessary. Another example of appropriation is the use of a textbook throughout the assignment where it was used as the main reference which carries the institutionalized expectations of students' academic performance. The use of tools in this episode is influencing students' learning by facilitating their group thinking, bridging the reasonings among them, and also materializing their ideas for the task. Therefore, the reliance on people and tools here can be described as a flux of interactions embedded in collective thinking where individuals and artefacts worked together to complete a task successfully.

6.3.3   Episode 3: Finalizing Output

In this final episode, the pairs came together as a group to finalize their output. Suri and Orked went to Putri and Bashira's desk to check on their work and to compile the tasks' outcomes.

1	Suri	*(reads email composed by Putri and Bashira)* This is wrong, change (application form) *(points to the word)* to 'questionnaire'.
2	Putri	Seriously, spelling of 'questionaire' is like this?
3	Bashira	Ya ya
4	Putri	Because this is incorrect, it's in red (underlined in red as shown on screen).
5	Suri	Double N (questio**nn**aire) *(Putri hears and adds one N to the word)*
6	Bashira	If someone is a mentor, we are called mentee. If a supervisor, what are we called?
7	Putri	Your final year project (FYP) student.
8	Bashira	Only FYP student?
9	Putri	*(goes to consult the lecturer and types after consulting)* Final Year Project student. (rereads the body of the email) Why 'a' respondent? This means only one. Should it be 'some respondents'? Find 'the respondent'?
10	Orked	'Find the respondent.' *(Putri types in the email).* 'Please let me know if you have any question', change it to like the one in this textbook. 'Please let me know your review'. *(Putri types and utilizes Gmail predictive text)*
11	Suri	'Please let me know your…'

12	Bashira	Supervisor's decision after checking the work (attachment)
13	Putri	So, what about this? ('Please let me know..') 'your feedback' is also okay, right?
14	Suri	I think this is enough. Stop at that part where we give attachment
15	Bashira	(But) we need to request for action to our query.
16	Suri	'Please let me know any questions'. *(Putri types and utilizes Gmail predictive text).*
17	Orked	Okay, send it to my email, alright.

Excerpt 3: Finalizing Output

In the opening line, Suri corrected the email that was composed by Putri and Bashira, as she thinks 'application form' (from line 16 in Episode 2 extract) is not an accurate description of the attachment. She asked for the word to be changed to 'questionnaire' which she felt more apt, "This is wrong, change (application form) to 'questionnaire'" (line 1), while pointing to the word on screen. Putri and Bashira did not object to the feedback. Putri noticed that the spelling of 'questionnaire' was incorrect correct and asked for confirmation (line 2), where Bashira responded by confirming that the spelling is correct (line 3). Putri raised the issue again by pointing out that the computer software underlines the word in red, indicating that it may not be correct (line 4). In this example, Putri sought a second opinion to perhaps gain confidence on the matter despite knowing that the word is inaccurately spelled. Suri then said that the word should have two 'N' (line 5). A buffer time between Putri's query and Suri's response could be because Suri was thinking about the matter before responding.

The discussion continues where Bashira gave an example of mentor–mentee relations before asking what the complementary term for a supervisor is, "If someone is a mentor, we are called mentee. If a supervisor, what are we called?" (line 6). Through the above example, Bashira was alluding to the term 'supervisee' though she may not know or remember the word. Putri replied with "your Final Year Project student", (line 7). Bashira, who was not convinced, had raised a question about the matter, "Only FYP student?" (line 8). In this instance, Putri sought some verification from the instructor and proceeded to type her answer in the email (line 9). Putri's

action in this example amplifies a teacher's authority, who is regarded as the go-to person for confirmation and affirmation in learning activities.

Putri then raised another issue on whether they should add 'some' or 'the' to the word 'respondent(s)' (line 9). She commented that their earlier sentence of using 'a respondent' is not accurate because it refers to only one person, "Why 'a' respondent? This means only one.", (line 9). Orked answered with 'find the respondent' (line 10) and added a comment to the following sentence in the email, "'Please let me know if you have any question' should be changed to the textbook's sentence, 'Please let me know your review'", (line 10), while pointing to the textbook. Putri did not object to Orked's feedback and made the appropriate changes while using Gmail's predictive text feature (line 10). Orked's action here can be interpreted as resuming the leadership role that she took in Episode 1 and continuing to make decisions for the group. Meanwhile, Putri, who made the correct observation and identified the error in the sentence but may not know the correct answer followed through with Orked's suggestions.

Suri continued from Orked's suggestion and gave input on Putri and Bashira's delegated pair task (line 11). Bashira intervened before Suri could finish her sentence and said that the sentence should also request feedback from the supervisor (line 12). Both Putri and Suri seemed to disregard Bashira's comments as they were discussing whether 'your feedback' as a continuation to Suri's suggestion is acceptable (line 13). Suri replied that what they had written was sufficient and deemed that the email writing may end with providing an attachment (line 14). Bashira reasserted her opinion with a rationale as she said that the email needs to request a response from the recipient, "We need to request for action to our query" (line 15). Suri neither rejected nor accepted the suggestion as she constructed a new sentence to the email, "Please let me know any questions" (line 16). The conversations between Suri and Bashira

suggested tension between members but also highlighted the importance of exchanging opinions and negotiating ideas. Putri followed Suri's suggestion and typed it on the computer while using Gmail's predictive text feature. Orked who had been following the group's activity responded as soon as Putri was done typing and requested for the pair's task output to be sent to her email address (line 17). This activity ended the group task that was deemed to have been successfully completed.

Analysis

The analysis indicated two key aspects. Firstly, it is about checking work and negotiating ideas between the four members after having worked in pairs to do different tasks. For example, Suri and Orked commented and suggested amendments to be made to the work done by the Putri-Orked pair (lines 1 and 10). While this episode demonstrates a level of collaboration and the conclusion of work as a group, it also showed there is tension which arose between different members (lines 11 to 16). In this instance, Bashira's argument (line 15) was accepted by Suri but was also edited (line 16). This suggests that negotiations between students do not always result in them consenting to the ideas completely as each member would retain their agentic stance, as well as because ideas are revised and amended by other group members before being collectively accepted or finalized.

Secondly, there was the brief yet significant interaction involving teacher and students. Putri's partner who was unsure about the input provided by her, sought consultation from the teacher and was able to retain her contribution (line 9). The fact that the matter was deemed to be resolved pointed to the power relationship between teacher and students whose authority looms over certain learning activities. This also reflects cultural and institutionalized influences where the power-gap between teacher and students does exist, such as teachers' feedback being neither disputed nor questioned, and the teacher being an authorized individual who affirms

knowledge. Besides these two interactions, similar to Episode 2, there is an appropriation of digital tools (i.e Gmail predictive text and spelling check) to avoid grammar and spelling errors, as well as the textbook to avoid any mistakes in the task (line 10). Any negotiation of meaning and ideas that took place in this episode are interpreted as collective thinking done as a group to complete the task assigned.

To recap the main findings in the extracts, Episode One showed the trajectory of group talk from broad to focus, meanings conveyed by the textbook and students' eye gaze, and students' agency in a group task. Episode Two disclosed students' reliance on people and tools as resources, while Episode Three suggested the process of negotiating ideas among students, and teacher authority in learning activities. These episodes illuminated the dynamic flux of collective thinking between students and the tools available in their surroundings. Throughout the activities, I discovered that students act with and maximize opportunities by matching different types of resources available in their context for specific purposes. For instance, colleagues were appropriated for immediate input and for task management (e.g one person feeds information while another person types, as opposed to one person doing both – searching for information and typing), and also tools were deployed to extend students' activities, such as digital tools (eg Google Translate and Gmail predictive text) assisting in minimizing errors in the target language, and also non-digital tools (textbook) as a reference to help complete the task.

Interrelated in this activity is the agency that is enacted by students to make decisions about a task's particulars and to assign tasks, as well as institutionalized roles invoked through the appropriation of textbook and teacher (i.e to have one's ideas accepted by others). At the same time, students can be described to be using language and gestures as the primary tool to collectively negotiate their ideas and roles. Many of the themes, whilst embedded within the

collective thinking activity in the above episodes, were also identified in the thematic analysis of interview data which are presented in the following sections.

6.4 Reciprocated Checks

Reciprocated Checks is a theme that highlights students' reciprocal collaboration to check on each other's work and gather more input that assists task completion. The following individual interviews presented ways and rationales for interacting with colleagues during learning activities, such as Fasha and Didi from Class A, who reported discussions with colleagues were aimed to pool ideas and opinions.

> Fasha : If we do the task with friends, we learn about their ideas too.
>
> ....
>
> Didi   : Friends or colleagues, more to discussion to get more opinions.

In a similar manner, Orked in her interview stated that she prefers discussions with colleagues to further her understanding of a subject. In her example, she said that as study notes could be different, she and colleagues would exchange them and learn from one another during discussions. To further support learning with and from colleagues, they would collaboratively divide revision chapters and later come together as a group to explain and discuss the assigned chapters.

> Orked : (Discuss) to help understand better, and if we study together, our notes are different, maybe her notes are more complete than mine, maybe my notes are more complete than hers. So we'd exchange. Like us, when we are having exam soon, for example there's three of us. One person will read this chapter, one person that chapter, one person another chapter. Then, when we want to do revision, that's when you explain your part.

In the above interview extracts, the primary learning activity was checking to extend or spark ideas in a new direction as well as to deepen understanding about a given subject, while employing language as the tool to mediate discussion, to negotiate ideas, and to offer or seek help. The activities demonstrate how students manage the amount of individual learning by collaboratively working in groups to minimize tasks and to conduct peer learning. Study notes mentioned in Orked's interview can be described as a physical tool that is used in conjunction

with the primary tool (i.e language) to complement the learning activity. She did not elaborate on whether the study notes had details such as pictures, mind maps, or other illustrations.

Students believed that discussions with colleagues assisted in minimizing errors in the task outcome. For instance, Putri believed that though she can complete a task alone, she also thinks that chances of making errors would be higher when working independently, hence preferring to conduct group discussions to avoid mistakes. Likewise, Fasha from Class A prefers doing learning activities in groups to allow discussions among students which may help them avoid errors in their work.

Putri   : I can do it myself but still need to ask friends. … If I did it alone, chances of errors will be higher, so it's better to do group discussion.

…………………

Fasha   : Do it (activities) in group is better. If in a group, say of 5 people, it's okay, we can discuss, less mistakes.

Despite feedback and discussion input from colleagues possibly not being correct, students would proceed to accept and amend their work accordingly. Examples in point are Putri and Didi who acknowledged that even though their friends could either be correct or incorrect, the feedback to improve their work surpassed their concerns and became more important.

Putri   : Yes, that we don't know whether (work or feedback from friends) is correct or not. But .. at least we know what the mistakes are.

………………………..

Didi   : If we do the task with friends, … like oh maybe they are right, maybe.

A preference for discussions over working independently suggests the confidence that students have in each other's competency in relation to the tasks' outcomes, as well as a sense of security of not working alone. Particularly in group work, working together implies shared accountability that each member must take unlike in an individual task where every individual is rendered responsible for their own work. Accountability is implied in the above assertions where students are aware that their colleagues' feedback and discussion input may not be correct, but students remain willing to accept them.

Regardless of what students' motivations to work with colleagues may be (e.g to draw ideas, to avoid errors, or to learn from and with), I identified one similarity in the activities which is to work in groups even though students were tasked with individual assignments. The self-organised group initiatives elicited extended emotional support through the presence of other people who are tasked to do the same assignments. This can be corroborated in an interview with Orked from Class B whom I observed doing an outside the classroom individual task with colleagues. She reportedly noticed that the whole process of doing the assignment did not feel tedious and felt she could casually chat with others while doing work.

> Orked   : Not boring while doing it (assignment) together. We can chit-chat (while doing work).

Even when students managed to complete tasks alone assisted by other mediational means such as digital resources (i.e online searches, Google Translate, and Padlet board), students affirmed that colleagues were their primary point of reference. For instance, both Putri and Orked normally use Google Translate to know the meaning of a word or to convert words/sentences to English. However, colleagues were asked to verify or evaluate the accuracy of these outputs from Google Translate. In the end, feedback from people is valued higher.

> Orked   : I'd use Google Translate if I didn't know some words in English. (but) I don't trust (Google Translate) completely, because sometimes it gives inaccurate words. So, I'll ask them (friends).
> …………………
> Putri   : Not fully (rely on Google Translate), because when Google Translate gave the meaning of a word, I would prefer my friends (input) more.

Putri added by giving an example below using the word '*percaya'* in Malay, which Google Translate would convert as 'believe'. However, the Malay word could also be translated to 'trust'. This means the use of 'percaya' as either 'believe' or 'trust' would depend on the context that students wanted to convey in the sentence. Consequently, this situation calls for assistance or a second opinion from colleagues.

Putri   : For example, Google Translate says 'believe' means 'percaya', so I'll ask friends, whether the word is suitable to be used in the sentence.

In summary, the main activity occurring in students' interactions here suggests a pattern of reciprocated checks with colleagues despite having done tasks individually or assisted by other mediational means, such as online and textbook tools. While there are a number of rationales behind each of the interactions, the analysis indicates two main aspects of these interactions. Firstly, checking with each other to improve or know how to do a task. This is because conversations and working with colleagues present opportunities to acquire or extend ideas and to learn from each other.

Secondly, checking is done for reasons of emotional support. The examples can be found in the analysis where students checked with colleagues, 1) to assert confidence about their work because if other people did a task similarly (be it output or method of doing), they perceived that the work that they have done may be correct, 2) to seek affirmation about their work despite having employed other mediational means, and 3) to ensure shared accountability where colleagues' input was taken despite the uncertainty of whether it was correct or incorrect. A related case in point to the third example can be linked to Episode 3, where Orked told Putri to write 'find the respondent' (line 10) even though 'find some respondents' (line 9) from one of the suggestions made by Putri was better fitting for the context of their discussion and for the content of the email composition.

6.5 Prompt Responses

In Episode 1 (see Section 6.3.1), I presented how interactions through immediate verbal or body responses such as nods, and eye gaze were able to transmit communicative signals during students' group tasks. Drawing a link to the analysed excerpts under this theme, students' individual interviews suggested that the immediate responses afforded by visual cues and shared spaces were important aspects of learning activities in the before COVID-19 context.

Both visual cues and shared spaces are interlinked because they depend on each other's availability for interactions to take place, such as in order for one's body movements to be seen with fewer filters, it requires individuals to be in the same physical settings. Even though one's gestures can be seen through a mediated tool, such as a computer screen, the view is limited to what the camera captures and also to what a person intends to show on the screen.

6.5.1 Visual Cues

Student participants who were interviewed before the pandemic pointed out that they preferred face-to-face meetings because other mediated communications may implicate other forms of limitations. Didi expressed a preference for face-to-face interactions as the people involved could immediately and verbally convey their message as well as repeat many times to avoid misunderstandings. He also perceives that face-to-face communications are most suitable because a complete input of what an individual has in mind can be conveyed better.

> Didi : If he/she doesn't understand, … if he/she is in front of our eyes, we can explain many times. … Because I think it's like this, (when) we think, (input) it's 100%, then when we speak, only 90% comes out, when writing only a few % left. Slowly the input gets lesser, so it's better whatever he wants to say, just say it directly face-to-face.

In the above extract, he illustrates an example where according to him, input in our mind could be in a 100% wholesome state, but only 90% could be verbalised, and the percentage of input would be much lesser when it is written down. As a result, he concluded that it is best to communicate directly to avoid any missing ideas during the interaction. Fasha echoed a similar opinion when she too said that she prefers direct interaction in a face-to-face setting for comprehension reasons. According to her, she requires the speaker to convey or explain a topic physically in front of her, as it enables attentive listening.

> Fasha : I need someone to explain in front of me… I have to look at the person, I have to listen carefully

As asserted in the above interview excerpts, interacting face-to-face would allow listeners to be attentive, reiterative, and clear in speaking one's minds. Moreover, due to opportunities available in physical settings, participants in conversations may ask impromptu questions, such as Putri wanting to inquire about many questions directly while meeting face-to-face. Orked voiced a similar idea where she said that if there is anything that requires further explanation, she can conveniently and directly ask about it.

> Putri : Because face-to-face is easy. Meet face-to-face and directly ask, no matter how many questions you want to ask, can simply ask.
> ....
> Orked : Face-to-face is the best, it's easier, direct. If we want to ask, for example, if we don't understand this, then we want to ask about that (other matters), isn't it easier to just ask directly.

The above interview extracts showed students preferring face-to-face meetings to avoid misunderstandings and to have communication flexibility (e.g ask impromptu questions). The situation alternatively suggests that in-depth discussions about work rarely happened online. To support this claim, the below photograph depicts an online environment taking place in a WhatsApp group of Class B before the pandemic.
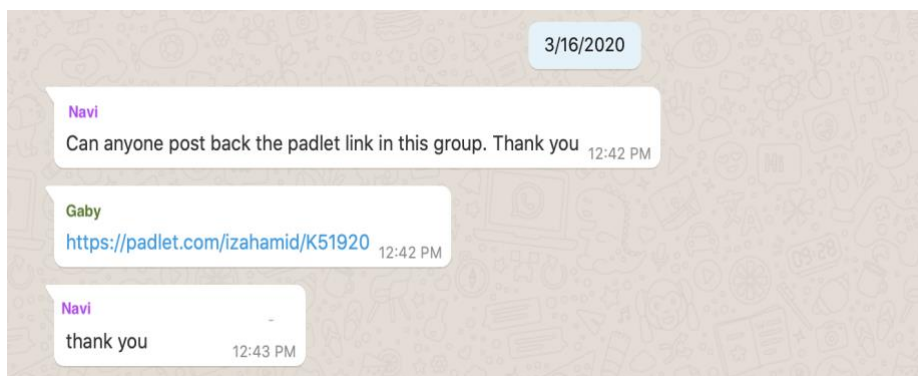
Figure 7: Communications via WhatsApp Group Chat

As seen above, Navi posted a message in the group and asked if anybody in the group chat could help to post a link to the class Padlet. The timestamp showed that without much delay, a colleague, Gaby, responded by posting the link in the chat. The above activity is an example

of how students communicate online for quick communication purposes. I corroborated this analysis through data found in Fasha's interview excerpt, who reported that even though online discussions with colleagues do sometimes happen, they were usually reserved for matters where students were not thoroughly engaged with the issue. She said, "There are discussions but just simple ones, not really discussed in detail in there, in the WhatsApp group.". This means that online verbal or written discussions between students may only be on the surface as students do not go in-depth. Therefore, students normally meet in a physical setting that affords a multitude of communications purposes, such as asking impromptu questions, explaining or discussing a topic repeatedly, and avoiding potential communication errors.

In this sub-category, I presented ways that interactions are afforded by the interplay of visual cues and verbal exchanges in a physical setting. Language and signals (e.g body language, facial expressions, and others) were integral where they become the mediated tools between people to support face-to-face communications for learning. Interview extracts and analysis in Collective Thinking suggested that direct and quick verbal responses are necessary to establish a common understanding between people involved in the interaction. This is done when participants are able to verbalize their thoughts by reiterating and rewording the main ideas that they wish to convey as many times as they need to, providing visual signals and meanings through eye gazes, nods, and others, which in turn helped them to progress in the assigned tasks. Implicated throughout these interactions is the emphasis to 'meet' and 'see' each other, which confirms that visual cues are necessary to be embedded in learning activities.

6.5.2 Physical Co-Presence

While physical co-presence is inextricably linked to visual cues, the following findings, however, highlights the affordances of the former which entail artefacts and facilities to support learning activities. A case in point is when Fasha shared that sometimes when she is not able

to fully listen and capture the main points delivered in a face-to-face lecture, she would inquire and obtain information from her colleagues who attended the same lesson.

> Fasha : In lecture for example, we could not fully hear to what the Dr is saying, I feel like later I can ask Su, or Isha, so I can get information from them.

The interview excerpt above suggests that despite not being able to pay full attention or to retain all the information from a lecture, students may ask for support from colleagues who are also physically present and are exposed to the same contents and environment. Another advantage is the capacity to re-focus at any stage of the lesson, after anyone is distracted which signifies that when we are present in a shared physical setting, there are fewer chances of persistent distractions such as internet issues, noises, and physically diverted from the lesson.

Individual interviews disclosed the rationales for working with colleagues face-to-face, both in and outside of the classroom. Orked shared that due to some constraints at their rental home near the university, she and her colleagues would normally work at the university to secure a stable internet connection. They sometimes would go home at dawn and climb the university's gates after midnight, or would spend a night at the university. Normally, public universities in Malaysia close their gates past certain hours and reopen at dawn, which is why Orked and her friends resorted to such seemingly drastic actions.

> Orked : Normally, we would go to places that have Wifi within the university. Sometimes we sleep there. At dawn, we will go home. Sometimes, we would have to climb the gate at the facility (to go home).

This quote shows that beyond the affordances and the physicality of resources, shared spaces also afforded emotional support between students. This is because students were able to enact agency and complete tasks by taking necessary actions while experiencing learning with colleagues who were tasked with similar assignments. In another example where physical co-presence afforded emotional support, Putri and colleagues shared that they would keep each other awake in the classroom whenever they felt sleepy during a lecture. A situation like this

could happen when an instructor reads notes from the slides in his/her lecture, causing students' disengagement. Putri further commented that students could read the study notes themselves at home, thus making any reading from slides in classroom less interesting to students. Therefore, to avoid from getting caught sleeping in class, students would briefly look at their phones and playfully pinch each other to stay awake.

> Putri : Classes lately focus more on reading. For example, Dr shows the slides, read and read. Like, when we go home, we can also open it up and read. So, it's okay we can read on our own. When it's like that, it's better for us to briefly look at the phones, sometimes we playfully pinch each other. Just to stay awake.

The recollections in this physical co-presence category elicited a sense of presence and togetherness to motivate each other in completing tasks, such as asking for missed information from a friend seated next to a student, pinching one another to help stay awake during a lecture and climbing the university's gate after completing tasks with colleagues past university' opening hours. Furthermore, physical co-presence does not merely entail the interactions between individuals but also engagement the space and artefacts available in students' surroundings. A classroom's design supports learning because students are drawn to give attention to the speaker in front of the classroom where the chairs and tables are facing (see Section 6.1.1). Another example can be found in the Computer Lab for Email Writing task (see Figure 6 in Section 6.1.1), where the design of the classroom influenced the way students delegated their group assignment. In particular, the space is designed to afford pair work because of the seating arrangements (i.e two computers are placed next to each other). These are examples of how individuals physically interacted with artefacts in their surroundings to attain the learning objectives that they outlined.

Overall, interactions for learning activities in the before pandemic context entailed prompt responses through visual cues and co-presence in order to focus on what is happening in his/her environment. The analysis of interactions taking place suggests that when we are present in a

face-to-face environment, there are less chances of persistent distractions. This is because having direct interactions and fewer filters in learning activities aid people to think and act or verbally respond quickly, which form an engagement between speaker/doer and listener/observer.

Culturally, and institutionally, students feel better supported and more confident when they work in groups, which explains students' preference to meet face-to-face to obtain immediate support such as verbal reiterations to explain a topic, access to ask impromptu questions, and a sense of togetherness when fellow colleagues also experience the same learning activities. In summary, the influence of visual cues and co-presence in the before COVID-19 context can be understood by looking at them as mediational means that afford prompt responses in students' learning.

6.6 Summary

Interactions prior to the pandemic can be synthesized as encompassing dynamic processes within the interplay of physical and psychological tools in a shared physical space. Specifically, face-to-face interactions afford nuanced signals that convey meanings between individuals, such as the appropriation of textbooks and eye gaze to gain authority, the use of visual cues and co-presence to enhance students' focus, and checking among students to obtain emotional support. Other dynamic processes embedded in face-to-face interactions include the reliance on colleagues to manage and complete tasks, and the importance of the teacher's authority and affirmation to progress in their learning activities. These key findings underscore the importance of face-to-face interactions for effective learning activities because they foster a sense of presence and togetherness, thus creating a conducive learning environment. In the next chapter, the focus will shift to interactions that occurred during the COVID-19 pandemic, where teachers and students were physically distant from each other.

Chapter 7: During COVID-19 Lockdown Findings

7.0 Introduction

This chapter presents the findings related to the second research question: "How do students and teachers interact for learning activities during the COVID-19 lockdown?" The synthesis of the findings indicates that an entry into the virtual context necessitates stability from one's physical environment and an understanding of the affordances offered by the online setting to support engaging interactions. The chapter begins by highlighting the main findings resulting from the transition to fully online learning due to the pandemic. The key themes exploring people-people and people-tools interactions are characterized as one-way lessons delivery, structured social space, personalized checks, speech-based communications, and outsiders' support. These themes assist in understanding the recollections shared by instructors and students regarding their academic activities in the fully online learning context. Throughout the chapter, it becomes evident that students as young adult learners displayed agency by actively assessing situations and seeking alternatives to complete tasks despite having to cope with challenges such as cultural priorities and filtered communications.

7.1 Contextual Settings

The English course's learning activities resumed fully online during the nationwide lockdown. At the beginning of the online learning, Awan, for Class A, organised two lessons on the same times and days as allocated in the course schedule for the semester. Later, Awan changed his lessons into fully asynchronous where materials were uploaded on Google Classroom. Bayu, for Class B, had decided to provide materials on Padlet and informed her students of this arrangement since the beginning of the fully online learning. Moreover, the instructors organised synchronous sessions with their students only for assessments (i.e Mock Job Interviews).

The majority of students returned to family homes before COVID lockdown was imposed. This means that most students could no longer meet any of their colleagues throughout the remaining semester. The students' family situations were also quite different, and many were expected to take on different responsibilities.   Table 11 below, is a summary of the 10 student participants' settings during the pandemic lockdown including some of the known changes, differences, and similarities among students.

Pseudonyms	Room		Home chores	Part-Time Work	Digital Devices	Reliable Internet Access	Internet Costs as an Issue
	Shared	Personal					
Class A:							
Didi	√		√		√	√	
Fasha		√	√	√	√		√
Lana		√	√		√		
Maya		√	√		√	√	
Nurin	√		√		√	√	√
Class B:							
Orked	√		√	√	√		√
Putri		√	√		√	√	
Ramli		√	√		√		√
Suri	√		√		√		
Zain	√		√		√		

Table 13: Students' Settings during COVID-19 Lockdown

The above table shows that some students shared rooms with other family members at home while some of them had personal rooms. In terms of family commitments other than household chores, two students were working to contribute to the family's income, while Suri was tasked with looking after her aunt's young children when she was living briefly at her aunt's house. All students reported having digital devices for online lessons during the pandemic. Despite some students having a stable internet connection, they were prone to disruptions whenever it rained or when internet data was shared with other family members, and having to bear higher costs to purchase internet data plans for academic activities.

The following sub-sections explain the points of transitions from before to during COVID-19 lockdown including students' environments at home and learning materials available to them while they manage university's tasks, as well as instructors' settings during the pandemic.

7.1.1   Students' Family Homes

In the pandemic context, students prioritised their home responsibilities during the daytime even though the only available time to rest or revise study materials was also during the day. The night-time was then reserved to do their university tasks. Putri added that she and her close friends who lived separately at own family homes had to do their household chores including caring for younger family members. Didi also disclosed that he could neither refuse nor reject his mother's request for help because it was not appropriate to do so,

> Putri   : There are many things to do during the day, cooking, cleaning the house and sometimes the daytime was the only time to rest, look at study materials, night-time is only to do (university) work. It's the same for Orked, she has to do household chores. Suri is staying with her aunt, so she helps taking care of her younger cousins.
> ……………..
> Didi   : Being at home isn't the same as in university, … like mom asking for help and I can't possibly say that I'm busy working.

In these extracts, there is a tension probably felt by these young adult students who were transitioning into adulthood at the university when they had the autonomy to make decisions about their time, priorities and use of space but now having to comply with the norms set by their cultural settings and other older adults at home. Next is related to the culturally assigned gender roles. In this instance, the female students were expected to carry out specific domestic chores (i.e cooking and cleaning the house and taking care of young children) while a male student, Didi did not specify having any home tasks to do. This potentially affirms that indeed tasks such as cooking and cleaning the house may be culturally reserved for female students.

Some students worked during the pandemic lockdown to assist their family's financial situation. Orked helped her sister at the shop during the daytime. She started studying and

working on university assignments only in the evenings. Fasha too was helping with her family's business and insisted that she could not work on university tasks during the day. Both Orked and Fasha used the Malay term 'berniaga', which could be translated as 'to do business' in English. The Malay term is normally used to describe buying and selling activities within a small-scale business enterprise.

Orked   : During the day I help my sister at the shop and so during the day I don't do any work (studies). If I want to do work (studies/assignments), it'd be only at night.

....

Fasha   : I am busy helping my family with business, so cannot be disturbed during the day.

The analysis of context in this section suggests that a home context changes students' priorities as learning and living were happening in the same physical space. The examples provided a glimpse into how every student faced a unique living situation during the pandemic, yet have to perform both family and academic responsibilities in the same space and within the limited hours available. The nature of cultural priorities takes precedence as students utilize their space and time to perform their domestic work or to offer financial help prior to completing academic tasks. In this regard, culture is interwoven with students' primary concerns because of the context that they are in, for example being at home suggests that home priorities such as offering help, cooking, and cleaning are actually the norm in the environment.

7.1.2   Learning Materials Availability

Many of the students' belongings including learning materials were probably left at their university's accommodation or at their rented houses due to the sudden announcement of the COVID lockdown. Therefore, Bayu provided some screenshots and photos of some textbook pages whenever she used them in her online teaching. The use of this textbook was noticeably less frequent because Bayu no longer assigned students to classroom activities from the textbook pages. Awan continued relying on online materials and encouraged students to do the

same, consequently he did not face the constraint that Bayu faced. Similar to before the pandemic context, both instructors had own teaching notes as well as Power Point slides that they uploaded on their chosen online platforms.

As for students, when there were synchronous online sessions such as at the beginning of the online learning, Didi in Class A confided that he was worried about switching on his web camera during online lessons, "I am sharing the room with my older brother so I'm afraid that if he needed to enter the room and change clothes or something, it'll be captured on the camera". Switching on the web camera during an online lesson suggests a certain convention about participating in class. The web camera may impose the expectations for students to behave in a certain manner because they can be seen by the instructor despite the physical separation, such as sitting up properly and looking up to the screen which can be likened to the norms in a front-facing face-to-face classroom. At the same time, the extract elicits the norms and priorities of a domestic environment (i.e brother enters the room and changes clothes). Switching on the web camera is also akin to inviting people into their homes. Hence, it may require a level of confidence from these young adult students to show their personal space to colleagues and instructors, who may or may not be sharing close relationships with them.

There were numerous other issues which often interrupted students from working. For example, Orked was working on an individual formative assessment of a Mock Job Interview video recording that needed to be uploaded on Padlet. Her university task was interrupted by her niece outside of the room. At other times, her older sister would call for her, consequently distracting her from ongoing lessons or tasks, while she simultaneously had to cope with disturbances and noise from outside of the house that impacted the quality of tasks. She added that these incidents disrupted the video recordings and caused her to have to re-do the task several times.

Orked   : the other day my niece heard me talking alone in the room, … maybe she felt it was odd then she knocked on the door. So, I had to re-do many times. If at night my sister frequently asks, like calling for me from outside the room, suddenly I became distracted. … When lorries drive by, the noise would enter the mock job practice video.

In the above extract, there is an idea about the conventions in using a certain space. Here, the student faced the expectations of what is considered as the norm at home. The examples are, 1) the niece felt it was odd to hear someone talking to herself in the room, and 2) the sister's actions that suggest an expectation to see the student in common areas of the house during normal hours instead of in bedroom. Therefore, the transition to the pandemic context here can be seen as a highly disruptive influence because family members were not used to the idea of people working at home. Moreover, the students previously were able to concentrate on family needs when they returned home during the semester breaks and had no academic requirements during this period. In consequence, it may not occur to families that students could be spending time in their rooms because of their university tasks and lessons during the lockdown.

Maya shared that friends and colleagues' background noises during synchronous sessions hindered the lessons because she was unable to listen to the lecturer and noted the difficulty to control such issue because there were many attendees. Putri commented that the noise disruptions would impact her learning because it required the speaker to repeat what was said from its beginning to end.

Maya   : Sometimes the background is too noisy, I can't hear what the lecturer is saying. There are many people in there, difficult to control.
…………….
Putri   : When it's noisy online even a little bit, there's nothing we could hear, need to repeat, everything.

The extracts imply a situation whereby users may lack the technological skills to manage their online lessons. During this period, both students and instructors needed to adapt quickly to the changes in order to conduct their sessions online. Therefore, they may have struggled to become accustomed to the online environment and features which are offered by the tools, such

as using the mute button on all attendees except the speaker. Furthermore, 'difficult to control' elicits the idea of a classroom culture where a lesson is supposed to be structured and conducted in a 'controlled' environment, potentially by the instructors. This situation also suggests students' discomfort about learning in a new space because they were familiar with primarily the face-to-face settings. The findings thus far indicate that the issue concerning the unavailability of a dedicated space for work at home, as succinctly asserted by Zain, "There is no study space".

Other aspects including internet connectivity, bandwidth, quota, and cost, as well as digital devices influenced students' educational activities (refer Table 11). Ramli changed his telecommunications provider as he hoped that another telecommunication company would provide better internet services yet ended up facing the same issue. "I changed the telephone line (due to it having a bad reception). Expensive, but the situation is still the same". Fasha shared that she had to allocate funds exclusively to purchase internet data whereas previously, she had relied on the university hostel's Wifi. She added that the costs for internet data purchases are probably not much to others but can be overwhelming to her.

> Fasha : I don't buy internet when living in the hostel. Sometimes we use the university's WiFi. Compared to when staying at home, sometimes we top-up RM20-30 (approximately UKP4-UKP5), for those with money for example, it's easy. But for normal people like myself, I think this is hard. Especially if there are presentations, or need to do video calls at times.

The extracts above showed the resource gap between students that are now coming to light as the issue did not emerge prior to the pandemic, such as Fasha who was previously able to use the university's Wifi that relieved the costs to secure internet access. The change from classroom to fully online learning suggests a frequent uptake of digital devices during the pandemic. The examples below could be isolated incidences, however, they showcased the drawbacks of reliance on digital tools for educational purposes during the lockdown. Zain reported that in one of his classes for the course, he was 'kicked out' of the synchronous

meeting because his phone had overheated. Meanwhile, Nurin discovered that her telephone was unresponsive after she allowed tethering for internet sharing. Due to a technical malfunction, she missed an online lesson.

> Zain : There was a live class the other day, I was kicked out of the meeting because the phone overheated.
>
> ………………..
>
> Nurin : The other day my younger brother connected to my hotspot on the phone, then I missed an online class for the 1st time because the phone became hang.

Digitally mediated tools, then, are clearly prone to technical difficulties, as seen in the extracts above. The situation elicits a perception that access to education during the pandemic is permitted only if students had certain resources. This is in contrast to attending a physical lesson where students can enter a classroom and not get 'kicked out' for technical issues. The condition also highlights the possibility of having a limited level of agency because the situation is beyond students' means and control. However, the transitions to the pandemic lockdown also displayed students' commitments and their determination when they were searching for alternatives to secure access to lessons.

7.1.3 Instructors' Home and Resources

The instructors lived with their families in the same township where the university is located. This means that there were not many changes in terms of the home location for the instructors, other than having to work from home. Interviews with Awan from Class A did not find any issues related to workspace or home priorities during the pandemic. However, interviews with Bayu disclosed issues in coping with work-life balance. Bayu is a mother of three young children who are each at primary schools. Due to the lockdown, schools and nursery centres were closed. Hence, Bayu found herself having to care for her children's well-being at home and their schools' online education, while also managing her university's teaching tasks.

In terms of digital resources, it is worth noting that Awan had a reliable internet connection at home and was equipped with necessary digital devices. Meanwhile, Bayu did not subscribe to any internet packages which left her dependent on her mobile phone's internet data. Her computer was broken at the time of the research and therefore she used a tablet for her teaching activities. The tablet was shared with her children who also needed a digital device to conduct their schools' learning activities.

7.2 One-Way Lessons Delivery

The focus of this theme is on lesson delivery during the COVID-19 lockdown. Most teaching activities during the pandemic were asynchronously conducted, therefore I was unable to capture interactions between teachers and students. Both instructors, Awan and Bayu curated their teaching materials especially for the course and then uploaded them on online platforms, Google Classroom and Padlet, respectively. Contents of their teaching materials from both classes may vary but they were mainly instructors' video recordings of task instructions, slide show presentations, external links, notes, and task documents.

The findings below consisted of some extracts from one asynchronous video of Awan's Mock Job Interview lecture embedded in Power Point slides for Class A. The material is chosen because it integrated the subject's contents and the instructor's video recording into just one slide show presentation. The added visual in this chosen material allowed for more analysis of the asynchronous teaching activity. The analysis focuses on attempted interactions or ways to encourage students' interactions in the video. There is a total of 32 slides in Awan's Power Point presentation where every slide has the topic's contents in point form. Within the 32 slides, Awan inserted his video recordings from slide 4 onwards. The recordings are positioned at the bottom right of every slide while the contents of the slide in point form take up most of the

frame. The analysis below included images from the selected online platforms for the course, as well as interview extracts.

In the first video (i.e slide 4), Awan informed students that they are encouraged to approach him for a tutorial slot if they can organise a group of five people or more.

> Awan   : I'm *gonna* prepare for you a slot in my time where people can congregate … if you get more than 5 people to join in a session then we can do a Q&A, quick session with me.

The above extract indicates a change of autonomy from teacher to the students whereby the students were expected to get groups together and seek help if they required extra sessions with their instructor. The opportunity presented by Awan can be seen as an invitation to enact students' active actions.

In the next slide, Awan read aloud, "So what influences/determine an interviewee to be hired/rejected?". The question posed here is rhetorical because there is no sense of wanting feedback, particularly because the instructor answered this question in the following slides. Nevertheless, the technique can also be interpreted as being an introduction and a prompt that implores students to think about the topic from the outset, as well as providing a cue as to what the following slides may entail.

In the next few slides, Awan read aloud the contents in the slides before providing further elaborations on them. This way of teaching avoids repetition as the elaboration of contents could help retain students' attention. While expanding the main ideas in the slides, Awan's eye gaze was visibly not fixated at the camera as he seemed to be looking elsewhere or glancing at the slides. His non-fixated eye gaze suggests that he is thinking as he elaborated on the contents of the slides. This action may also be caused by the absence of an audience because or else, he could be looking directly at people to interact with as he speaks. This action points to the norm

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of interactions in a classroom where instructors could see students and gauge direct feedback in real-time from them.

In the middle of the slideshow presentation, Awan paused and spoke directly to the camera. He invited students to relax and wished that everybody was doing well and safe at home.

> Awan   : I'm *gonna* take a breather for a minute … I hope you have a good day and taking care of yourself and your family.

Nicety here can be noted as a way to engage with students while they listen to the video recording asynchronously. Although Bayu in Class B did not teach synchronously online or upload materials that had both the slideshow presentation and her video recording, but her in terms of nicety, it could be seen in their WhatsApp group where she asked about students' conditions, as shown below.
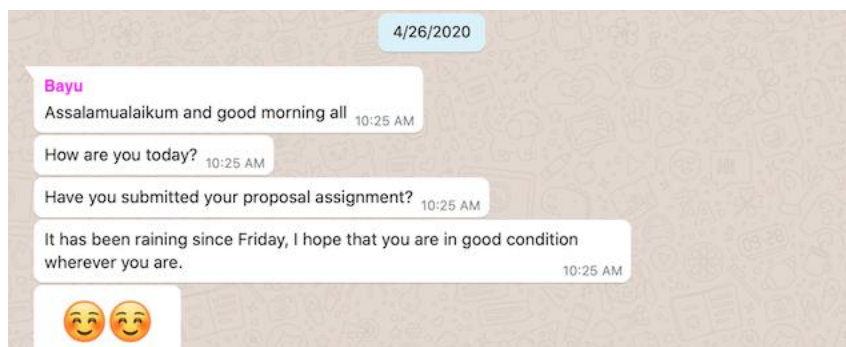
Figure 8: Instructors' nicety on WhatsApp Group Chat

Even though both methods differed in terms of delivery and form, the underlying interaction is to evoke a sense of connection between teachers and students. Seen from a cultural and institutional perspective, teachers were expected to be caring for students' well-being and were regarded as persons whom students looked up to, therefore, instructors' behaviours in the above extracts can be interrelated to these cultural expectations that demonstrate the teacher-student relationship.

At some video intervals, Awan provided examples related to the topic while gesturing with his hands, "let's just create a hypothetical situation … listen to them attentively (gesture with hands)" while at other times he shared personal experiences "sometimes I've had a lot of experiences with people who …". The hand gestures are noted here because in other parts of the lecture as seen in the recording, his hands and elbows were placed on the table. These two gesture instances convey different attempts to interact with the audience by making the content relatable to them, and also inviting contemplation about the potential situations that may take place in relation to the topic. Therefore, the gestures suggest an emphasis on the main points and contents that the instructor was trying to make. There was also an instance of recalling past classroom lessons earlier in the semester, "you know I already discussed this with you in resume classes … Think ahead of the difficult question (for an interview)". This action is done to relate the previous lessons with the current lesson to help students make the connection and continuation of topics in the course.

Towards the end of the slide show, Awan was caught being self-aware that he is recording a video where no feedback could be gathered from the activity. He said that he will not read the contents because the audience was absent in his environment. The video ended abruptly shortly after.

> Awan   : I'm not *gonna* read them …. I don't actually have an audience to interact with right now. I'm only interacting with camera.

The above action made it obvious to students, as the listeners, that they are not following a synchronous lecture, which could make them feel self-aware as well. This may be due to the physical environment taking precedence over what happens inside a virtual space, both synchronous and asynchronous. A case in point is in separate interviews with Nurin and Puteri, who admitted to 'participating' in online lectures but being absent from the tools that connected them to the virtual environment, "when Dr is teaching, Dr doesn't know what we're doing…

sometimes ..., I'd leave the phone in the room", and "okay I do open Google Meet but then I go to sleep". These situations imply that learning in a non-sharing environment may consist of more potential distractions and possible detachment from the lessons. The analysis highlights the interaction constraints when a certain online feature is not in use (i.e web camera) and if the learning activity is asynchronously conducted. Both instructors and students are not able to gauge feedback and know what anybody is doing in their home space.

The analysis of the video recording lecture indicated two main aspects. The first aspect concerns the use of signals for interacting with audiences in the recording. Examples in question are, 1) the instructor's eye gazes as he looked directly into the camera which conveyed a form of interaction with students, and when he looked elsewhere which suggested thinking as he elaborated on the contents, and 2) the instructor's gestures that were captured in the video which helped to articulate his points as he explained the subject. The second aspect involves the use of digital tools as a mediational means which both encouraged and constrained learning possibilities. The use of artefacts in the lessons delivery amidst sudden pandemic lockdown can be described to encourage learning activities despite the physical separation. However, learning was also constrained by the same mediational means when the artefacts made users (both speaker and listeners) more aware of their physical settings and therefore may not be as engaged when they are in the virtual context. Additionally, it is pertinent to note that despite having the university's endorsed virtual learning space, instructors appropriated a range of other tools that were deemed useful for their teaching activities.

Awan remarked that his synchronous lessons lacked participation because students did not ask questions and were quiet, "the Q&A session just now was very brief, because I keep asking students to come out with questions to ask and they were really silent, the majority of them….".

But, I found that in response to the lack of participation, students asserted that synchronous sessions provided limited opportunities for interactions with instructors.

> Fasha : I do have many questions to ask but I don't know how to ask, what's more with time pressure.
> ....
> Didi : Times like these, ..., there must be many other students who'd like to ask questions.

These limited opportunities presumed that the students needed to come prepared to the sessions with questions ready to ask. Such a situation contributed to the lack of spontaneity and increased the pressure about the time restrictions that potentially deterred students' participation in the first place. The synchronous online session ends once the instructor closed the session, which effectively restricts students from the opportunities to ask questions after lessons. Moreover, students may not have the confidence to ask because lack of support from friends that may otherwise prompt them to speak. In the virtual context, students had no sense of who else was in the session, especially when some students turned off their cameras. Hence, students may feel less motivated to speak in the online space. Furthermore, students admitted to feeling timid about asking questions to instructors.

> Orked : Like, scared to ask more questions. (sometimes) I don't have any question to be asked because I don't understand what the Dr is teaching and saying in there.
> ....
> Suri : On WhatsApp when Dr writes 'do you understand what I'm saying', we don't know if she is actually angry or not.

The extracts showed that students did not seek assistance from instructors despite the opportunities presented; both when slots were allocated and when they were invited to approach the instructor. The lack of proactive actions to seek support and the lack of comprehension of the subject could be plausible explanations for the absence of interactions between teachers and students. However, at the same time, the situation elicited the cultural and institutionalized power gap between instructors and students because of students fear of getting reprimanded.

Therefore, students were involved in lessons primarily to ensure that they pass the course in the remaining semester. Ramli admitted that he passively accepted the information as long as he passes the course while Orked said that even though she did not comprehend what was taught in her online lessons, she would pretend as if she understood.

> Ramli   : Just accept information. As long as I pass.
>
> ………………
>
> Orked   : I don't understand….don't understand actually but…pretend to understand.

The pattern in students' attitudes as seen above is a manifestation of their lack of self-confidence and agency to be proactive due to a lack of understanding of the subject taught during the lockdown period. Regardless of this, both instructors were not aware of students' situations and experiences as they continued to provide materials over online platforms and hoped that students would be able to successfully complete the tasks assigned. Bayu added that she hoped students would contact her for guidance should they require assistance at any stage of their learning.

> Awan   : I'll just use the slides and give the instructions, give the task. I really hope that students manage to understand from there and manage to do the tasks.
>
> ………………..
>
> Bayu   : Every semester what we do is that we just give them the notes, they are to read, and to try to do the task and if they cannot understand, they can always come back to us to ask.

In the above statements, there is an idea of normalizing online learning activities during the pandemic even though the COVID-19 situation was an unprecedented phenomenon. Instructors expected students to attain a certain level of understanding and also to actively seek help, such as, 'Every semester …. give them notes", and 'they can always come back to us to ask' and 'hope that students manage to understand'. Linking the above extracts to the previous one about Awan inviting students to gather more than five people to secure a private tutorial with him, there is an implicit claim about the change of autonomy from teacher-centred lessons to students being expected to organise and request a tutorial, independently learn the study materials, and be able to complete group tasks successfully even though students were isolated

and dispersed around the country during the lockdown. Hence, the pandemic may have brought about an idea of change and the need for students' autonomy to increase in their learning. However, contrary to these expectations, learning during the pandemic entailed a range of different experiences compared to past lessons. An example can be seen in the image below where Awan gave a large mass of learning materials on the Mock Job Interview topic to the students in a single post.
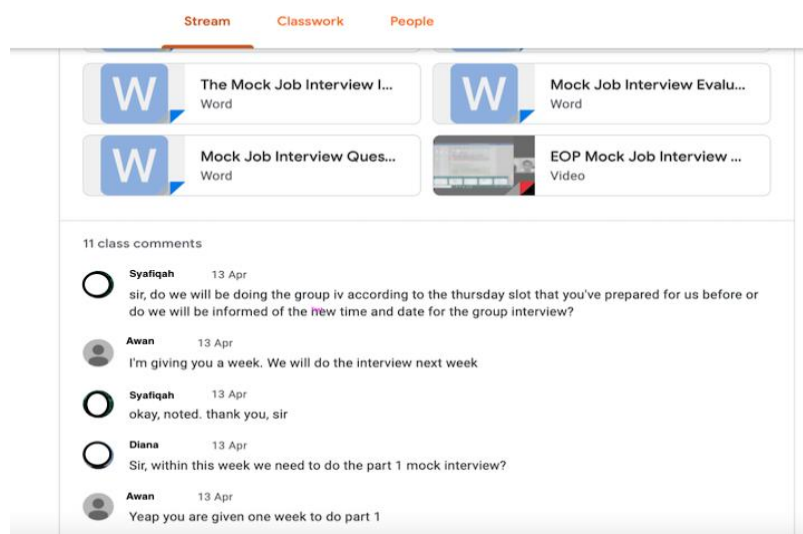
Figure 9: Awan's learning materials to students

The above image highlights two important aspects. Firstly, it is related to how information becomes less structured during the pandemic. This is because students are given a compressed chunk of information in a single online post. These materials make up the entire topic that was supposedly spread out into a few previously planned face-to-face lessons. Secondly, as there were no follow-up lessons or tutorials organised or requested by both instructors and students, this suggests that students were expected to peruse the provided materials at their own leisure and then produce a certain level of expected understanding of the subject from studying the materials.

As a synthesis, the theme indicated two aspects which duly contributed to one-way lesson delivery taking root during the pandemic lockdown. Firstly, the analysis suggested a mismatch of expectations from both instructors and students. The evidence can be identified when instructors expected students to, 1) approach instructors when in need of assistance with the subject, 2) materials provided were sufficient for learning, 3) achieve a certain level of understanding on the topics delivered and provided during the lockdown, and 4) participative and interactive in lessons (e.g Question and Answer session). In contrast, students' behaviour suggested that they participated in lessons primarily to pass the course and relied on instructors to provide study materials and to offer tutorial sessions. The second aspect involves unstructured learning in a virtual context which influenced teacher-student interactions. An example is that lessons were delivered through a large mass of information in a single online post. Another instance is detachment from the virtual lessons because of the possibilities of the physical setting (e.g Awan's non-fixated eye gaze in a lesson delivery, and a student seen to be attending the online lesson but were absent from watching the lecture), which were a contrast to previous experiences of structured lessons in physical shared spaces.

7.3 Structured Social Space

During the pandemic, students appropriated certain digital tools in order to interact with colleagues, particularly using the WhatsApp tool, to complete course tasks. Structured Social Space is a theme that conveys students' processes to carry out group tasks primarily in the WhatsApp virtual environment. As will be seen throughout this chapter, students' uptake of available artefacts and features in their environments suggests appropriation of tools' affordances and enacted agency to act with mediational means to carry out their learning activities. This situation also highlights the constraints of the university's VLE that may not be able to supplement students' online education needs.

Although much of the learning processes below were potentially more complex and covert than portrayed, the following sub-sections presume visible interactions of how students worked among themselves to complete tasks in a COVID context. I linked students' recollections to two main topics which were taught during the pandemic, firstly a Mock Job Interview and secondly, Proposal Writing. I drew on these topics' group assignments as the focus of discussion, in order to make sense of students' learning activities.

7.3.1 First-Come-First-Served Delegation

After group assignments were announced by the instructor, Ramli started by identifying and adding group members into a newly created group chat before sending prompts to kick-start the assignment. According to Ramli, the prompt is phrased like an invite to work on the task.

> Ramli: When we have identified members… we'll create one small WhatsApp group. Then, for example, I'll say 'Assalamualaikum (Islamic greeting), let's go, when are we going to start moving?'. Something like that.

In the above recollection, identifying members to be grouped into the same chat implies that students had not select teammates but rather were assigned to be in groups by the instructor. The next activity in the chat was Ramli giving a cultural Islamic greeting. The action suggests that members of the group shared similar religious and cultural backgrounds. The greeting in Arabic means 'Peace be upon you', is commonly met with the same prayer by a receiver(s) of the greeting, both verbally and in text form. To include the greeting in Ramli's sentence suggests that he anticipates the text message to be met with a response by members of his group. The message may also act as an ice breaker into the subject rather than a sudden approach to demand teammates to start working on the assignment. He then invites his members by saying "let's go" whilst asking when they are going to start on the assignment. Curating a sentence such as above can be seen as the creation of a social context in a virtual space that summons responses to both prompts, the cultural greeting and work invites.

Furthermore, the structure emphasised the need for members' participation because otherwise, the group would not be able to progress or get off the ground.

Suri, whose group needed to find a topic before delegation for the assignment can be done, shared her observation about the collaborative efforts demonstrated by her teammates and said that suggestions for the topic usually came from the same people in the group while others would merely agree when asked for their opinions.

> Suri : It's the same people who made suggestions for issues. Then we would ask (other members) …. the rest will just be waiting. When asked, 'is this okay'? (they'll answer) 'Okay, I'll just follow'.

The above extract demonstrated how a few members became active participants whilst others were mainly followers. However, she did not specify whether "the same people" are the same active students in the face-to-face classroom before the pandemic. The phrase "I'll just follow" as recollected by Suri, implies that some students were not proactive in the virtual group efforts as they waited for other members' input. This situation could be driven by a sense of expectation that someone or others in the group would probably do the task. Nevertheless, it may also point to the lack of motivation or confidence to be actively involved in the virtual learning activity, also due to the absence of a co-sharing space that would normally influence students' urgency to do a task. Consequently, students might feel isolated and alone, where some members follow the group's majority without much hesitation before proceeding to do their part for the group, individually.

Moving on to the issue of task delegation, I found two commonly adopted methods. Firstly, Didi shared that he or other group members will list things to do for the group assignment in point form and post them in the WhatsApp group chat. Next to the point form would be brackets to write names for students to take up any point or topic that they would like to work on. Secondly, Maya said that as all members are aware of the assignment's requirements prior to delegation, hence members would have to self-nominate to take on chosen parts of the

assignment, then post it in their group chat for all members to see. As for the latecomers, she added that they will simply fill up any empty and untaken tasks at that point.

> Didi : I or someone from the group will list points that have to be in the group assignment and then we will put brackets next to the points. Okay for example, who wants to do it, just put their names in (brackets), and so points 1 and 2, this person has taken it, and then others will take the other points.
> ………………
> Maya : When dividing tasks, basically first we already have every aspect that has to be done, (so) we will volunteer, who wants to do this, who wants to do that. Whoever is late, empty parts will be fulfilled by them. So everyone gets own title (parts).

The delegation methods above demonstrated a virtual set-up where it compels a structure such as listing the available tasks and posting tasks that the students had chosen. In both methods, the aim can be considered as communicating to all members about the available options and the gaps that needed to be filled for the group assignment. The activities also indicated that prior to delegation, some students did work individually on the group assignment's requirements before coming together as a group in the chat. However, the process may also be disadvantageous to students who did not get to negotiate because the structure is on a first-come-first-served basis. An example to corroborate analysis can be found in the following extract. In this, Orked reportedly believes that some teammates may have delegated tasks among some of them prior to announcing it in the group chat, thus leaving her with limited options.

> Orked : It's like they have decided amongst themselves, like okay this part you'll do it. It's like who's faster/earlier, he/she will get it. For example, when I opened my messages, they (other members) have already written it all. They want which part and whatnot, so I had to choose whatever that's available".

The extract above demonstrated constraints in the virtual delegation system. On the one hand, offering to take on any available parts in the group assignment could be efficient during the pandemic as students were forced to work separately on their group assignments. Therefore, the system in place allows students to choose whichever tasks they feel they are confident completing in isolation. On the other hand, there are reports of students feeling dissatisfied with the delegation method due to its inherent lack of negotiation, transparency, late entry into

the group chat, and inadequate information about how the assignments will be handled. Furthermore, the first-come-first-served method may be disadvantageous to students who have priorities for commitments at home as the system carries the assumption that students would always check their phones and are expected to be engaged in their learning.

In summary, the analysis disclosed a structure essentially on a first-come-first-served delegation system with two sociocultural aspects. The first aspect concerns students' agency because the virtual structure on WhatsApp relies on active team members prompting the group for actions and acting with tools to carry out their objectives for the tasks. Secondly, the arrangements on WhatsApp suggested the necessity of creating a structured virtual space. The structure allows opportunities for team members to be on the same page about the assignment because students may not have a way of knowing whether all members have done revision prior to the discussion. Students also did not know whether any member had missed the lecture related to the assignment's topic, and whether members understand or do not understand any parts in the assignment. Therefore, the virtually created social context is appropriated in this manner because there is no way of knowing the above information other than if they asked each other, and they are unable to see or hear what their group members have been doing for the group unless told. Subsequently, students are more aware of members' responsibilities and contributions to complete tasks assigned in the COVID-19 context.

7.3.2 Synchronized Timing

Putri narrated her learning experiences for a Mock Job Interview group assignment tasked by Bayu, in Class B. She recalled having to work at night because that would be the only time when everybody in her group was available to do the assignment work. The topic had a few earlier formative assessments, however, Putri referred to the final practice carried out in a group of three. Students were instructed to take turns asking each other job interview questions and

later exchanged the interviewer to interviewee roles, and vice versa. Due to the lockdown, the assignment was adapted into a video recording of the group's practice. The video recording had to be submitted on Padlet before or on the deadline stipulated.

> Putri   : For this mock interview, in the morning we set the time when everybody would be free in the day to review videos and notes on Padlet. …. (while) the night is reserved for recording only. We looked for a time at midnight, when everybody was free.

In the above extract, Putri shared how the group members spent the morning deciding time allocation where all of them would be free on the same day to review shared videos and materials on Padlet, while the nighttime was reserved for executing the group's task. This situation also weaves the context into the activity because the group work could not be carried out without first prioritizing both the home commitments to do and the best use of available space.

In another example, Nurin from Class A reportedly was unprepared to be assessed a day after the time slots for a Mock Job Interview were announced by the instructor. The summative assessment would take place on Google Meet where the instructor, Awan, would be the interviewer. To mitigate the situation, Nurin got in touch with her colleagues, Datul and Fasha, to organise a group practice. According to her, Datul played the role of an organiser who suggested time and a platform for the discussion. All of them searched for tips on how to answer interview questions before attending the group session. The practice took place on the evening of the announcement after students had collected information and prepared for the group meeting.

> Nurin   : Last week we had to do a mock interview, and we were surprised, that night Sir (Awan) gave it and then the next day everybody would be assessed. So what can we do, like we didn't practice much. Datul said it's fine, we can discuss this here and what not. After that, all of us looked for tips on how to answer job interview (questions) before the meeting. Then we discussed (practiced) that very night.

Similarly, students in the above extract conformed to the conventions of being at home which potentially made them prioritize home commitments and were left with only a certain period

at night to work on their academic requirements. In both extracts, students displayed commitment and support for each other's education through the agentic action of self-organizing a support group and prioritizing the assessments due to the urgency of the matter, deciding on an intervention to prepare for the assessment, delegating roles, and searching for information all within a short timeframe. However, it can also be noted in Nurin's recollection that students may not have much autonomy during the pandemic due to the lack of space and opportunities to ask questions directly and immediately to the instructor, for example, to negotiate time slots and groups, or to postpone the assessment due to last-minute announcements. To support this analysis, we refer to image 2 in the Teacher-Students Passive Communications section where two students sought clarifications about the task, yet negotiations did not occur even though students were given only a week to practice.

The findings above show how students synchronized their timing to manage group work while eliciting two aspects of interactions. Firstly, it concerns students' interactions that happened twice in the process, individually and with peers. The former refers to interactions with tools available in students' context, for instance, the learning materials on Padlet, and tips on answering job interviews. These mediated artefacts presumably assisted students in processing information individually before presenting it to other members. Group interactions happened when students came together to discuss their findings with all members prior to reaching a group consensus. Based on these recollections, students' interactions with digital tools and online materials were heightened and became inseparable from the learning activities.

The second aspect concerns students' interactions with their environments. For example, working at night because the environment is more conducive, highlights the interplay of people's relationships with the home contexts that cannot be separated from learning activities. In other words, the entry to the virtual world is somewhat a different context altogether but at

the same time dependent upon the physical environment to secure students' presence and commitment to learning activities. The inextricable link between physical and virtual contexts implies that they were dependent upon each other, which may encourage learning endeavours, as students in isolation must also interact with online resources in order to gather materials and to meet colleagues virtually.

7.3.3   Submission Priority

The majority of students explained that at the end of group work, a member of the group would voluntarily compile the assignments and share the document for all members' perusal. Members who received comments were expected to amend their work before resubmitting.

> Didi: There will be someone who compiles the assignment from all of our points (parts) to form a complete assignment. … we will check which parts are incorrect because sometimes there are mistakes such as wrongly copy-pasted, errors in terms of grammar, something like that.
> ……………
> Lana: We send our parts in the group, and then one of my friends will compile and send it back to the group after everybody says it's okay, only then he/she will submit.

The above extracts showed a structured pattern in the virtual context which requires a volunteer compiler to collect and compile all of the members' individual parts. Following this, the compiled assignment is shared and is expected to be perused by all of the group members. After corrections have been made and all members agreed on the final outcome, the compiler would submit the assignment. This workflow among students suggests a sense of shared accountability among them because all of the members needed to agree on the final outcome prior to final submission. In addition to this, the feedback offered or given which can be seen by all members added another layer of cross-checking to students' work.

However, I noticed that students mainly aimed for submission because the checking activity in their sharing indicated that both compiler and group members had not scrutinized the contents of the assignment fully. The checks that students focused on were ranging from formatting to

grammar errors. The analysis that students were invested to compile for submission can be corroborated by Lana's interview, "Most of the time we will only compile", and Suri who sometimes becomes the compiler for her group said that despite reviewing all output, she normally does not thoroughly check on each member's work as the aim is to have the group task submitted, "But usually when compiling, I'll look at all of the parts but I won't go through in detail one by one. I will just skim through. After that, submit".

The situation lies in stark contrast with an opinion shared by Maya who believes that checking all members' work is an important step because they may be evaluated collectively as a group, therefore the final outcome must be satisfactory to all.

> Maya: It's called a group assignment. So we don't want anybody to give a so-so work, because we will also be affected.

Hence, the analysis showed a discrepancy between what students thought was an ideal group activity for the assignment (i.e checking contents) versus how students interacted to complete the task (i.e checking technical errors such as grammar and formatting). This situation highlights the priority underlying students' interactions with each other during the pandemic, which was to submit work for the course. To support this claim, I have presented how students checked their group work for its formatting and other minor errors as opposed to scrutinizing its contents. The system that supported the activity is through the role of a volunteer compiler who compiled, shared the document for approval, and submitted the assignment to instructors.

As a larger synthesis, the workflow embedded in the first-come-first-served delegation, synchronized timing, and submission priority, illustrated how students interacted among them to establish a structured social space to complete group tasks. The theme disclosed two main aspects. The first aspect elicited students' learning trajectory throughout the workflow consisted of the interactions between people, with tools and environments. As seen in the three sub-categories under this theme, students began with a dispersed group into a unified one to

discuss tasks delegation, they then worked on the tasks individually or self-organised groups at an agreed time, and finally shifted the dynamic into coming together again in the assigned groups for submission despite the mismatch of expectations (i.e submission priority versus contents checking).

Secondly, the theme disclosed the covert structures which are embedded in the virtual context for learning activities., I have presented how the virtual space necessitates a sequence of processes throughout students' interactions to be clearly defined – who is the prompter, initiator for self-organised groups, and compiler, what needs to be done, and what are the next processes. A specific example includes the creation of a social space where at the beginning of an activity, students sent greetings and invitation prompts where other members were expected to be present and to be participative by responding to the prompts. As a result, collaborating during the pandemic lockdown necessitated students to structurally create a virtual social space afforded by technologies. Students communicated and supported each other mainly via online platforms, particularly on WhatsApp. This suggests that not only did WhatsApp group become the primary medium of communications, but it also acted as the mediator that students appropriate to support a variety of learning activities beyond its uses as a social chatting platform as intended by the developers. Embedded in students' interplay with these non-university's tools is the idea of people's autonomy while acting with mediational means that allow them to complete learning tasks because the tools' features and use made sense to them.

7.4 Personalized Checks

During the lockdown, I discerned two main methods of checking among students – private or open. Private checking refers to direct communications between students. Both Maya and Nurin were from Class A where students' work output was not submitted on Google Classroom. Therefore, whenever Maya needed help with a topic, she would contact her

colleagues and check with them, and vice versa. She would screenshot her answers and send them through a personal chat room if her friends did not understand the subject discussed. Likewise, Nurin would inquire to see her friends' answers, and this request was met with pictures of their work shared via WhatsApp personal chat.

> Maya : If I still didn't understand, I would personally ask my friends. Like, so how, did you understand these things? Then I will ask them to explain. Or they will do the same. If they (still) didn't understand, I will screenshot my answer and then will share it and send it through personal chat.
>
> …………..
>
> Nurin : I ask my friends. For instance, I'll say "can I have a look at your answers". It's easier that way, he/she will snap the photo and send it to me.

These learning experiences indicated a strong sense of trust among students as they shared their individual tasks and answers with each other while believing that their work will not be plagiarized but used merely as an example to check and assist their friends. The extracts also suggest that due to the unavailability of colleagues' outputs to be reviewed online, it may prompt students to approach their colleagues directly. More importantly is how the situation highlights the lack of reference and guidance to assist students in completing a task or understanding a subject during the pandemic lockdown.

Although students are willing to extend help to each other, there are limitations to the interactions. Didi found himself having to choose between focusing on his learning or providing support to a friend. He said that during an online lesson, a friend texted about a subject discussed in an ongoing lecture because of slow internet bandwidth to stream the lecture. Didi shared that he felt trapped between having to respond or continuing to focus on the ongoing lecture. He was concerned about missing out on important information.

> Didi : One friend asked 'weh Didi where is it (the lecture) now, my phone line is suddenly slow'. Oh is it, …. How can I respond to him … I'm afraid that as I'm typing, I may miss something from what the lecturer is teaching, I'll be the one losing out too.

This dilemma disclosed by Didi indicates that support between students could be constrained by various factors, including wanting to concentrate on an online lecture. In this case, as the interaction took place via a text messaging platform, the situation exposed both encouragement and constraint, whereby one individual could choose to respond later while the other person could continue to be missing out on his learning due to the lack of support available. Extrapolating on this issue, I found that the time gap between when help is requested and received may also encourage or constraint students' output and the quality of their work. Putri like many other students, kept matters related to her learning until later in the evening when she and her friends, Suri and Orked, could communicate online. Fasha who faced a similar situation said that the time gap sometimes caused initial ideas that she had regarding the assignment to be forgotten as she did other tasks or put the assignment aside while waiting for feedback.

> Putri : The question will have to wait until at night.
>
> Fasha : Do other subjects or sometimes just close the work first…then the initial ideas that I had become somewhat lost.

The two extracts here emphasised the importance of feedback and also of spontaneity because the delayed interactions as seen above may also thwart students' learning. However, there is a sense of reliance on other people to progress in their course because students would wait until later instead of attempting to work on the task themselves. Though group work may require collaborative efforts and consensus, students could have worked with other alternatives such as jotting ideas down or seeking information elsewhere before the group meeting.

Another distinction in terms of Personalized Checks is open checking, which refers to studying colleagues' work available on the online platform for the classroom or inquiring publicly in the classroom's group chat. The majority of the Class B students asserted that Padlet, the online platform for their class where students' formative assessments must be submitted, had allowed

them to study colleagues' work prior to submission. Suri added that after checking colleagues' work on Padlet, she would contact Orked and Putri to inform them of her findings and explain what needed to be done for their assignments.

> Putri : So I'd wait to see others submit their work (on Padlet), and then I'll look at their output then will improve mine.
>
> ………………….
>
> Zain : I did scroll (Padlet), read other friends' work. There are things that I didn't include (but) others did, so I added in mine.
>
> ………………….
>
> Suri : I will look at others' work submitted on Padlet, then I will brief each part to Orked and Putri, do like this and that. Then we will submit. Because I need to have a look at how it is done by other people, only then I can do it.

Padlet's vertical layout affords convenience for students to scroll down and check colleagues' work because the instructor had organised each column according to topics, as can be referred to in the image below.
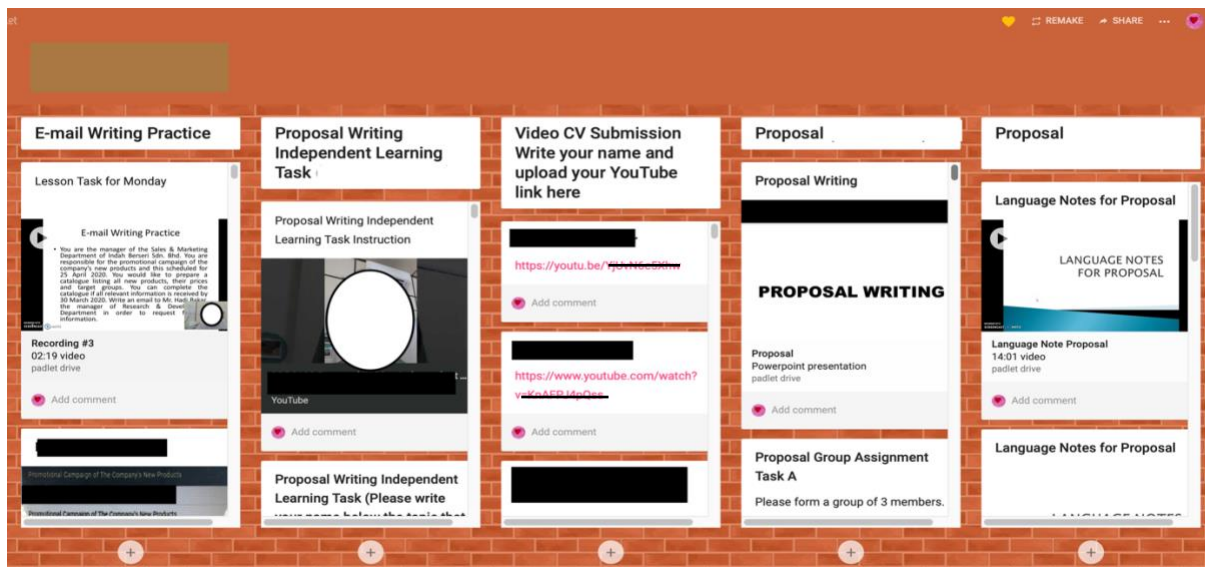
Figure 10: Activities on Padlet during the Lockdown

The interview extracts suggest there was a pattern where students did assignment checking through Padlet. The tool afforded a pool of information where students could compare and contrast others' task output with their own assignments for improvements before submission. Furthermore, students were able to have an idea of what the outcome of the assignment ought

to look like as opposed to producing the assignment from scratch individually at home. However, it may not be possible for students to always wait until colleagues submitted their work to begin working on the assignments because the situation may cause students to miss their one-day deadline due to preparations and execution of tasks. Hence, a checking activity can be described as seeking any available references and validation from others' work that can be related to theirs.

Some students opted to ask a number of colleagues, in the cases when checking on Padlet was insufficient. However, Ramli added that by doing so, he found himself having dissimilar responses presumably due to different opinions and interpretations of the assignment.

> Ramli   : I will open … Padlet, look for info there. But in a recent task, …. I mainly asked in the group chat. …. but I had many crossed answers. Meaning, different opinion, different answers, so it became a problem.

The above recollection implies that while students took the initiative to check with different sources such as Padlet and with colleagues, the feedback or input may also contribute to confusion and uncertainties. Putri said that she will accept any outcome of her assignment. Fasha shared that she would not be more proactive to further her understanding if she had sought help for her assignment but was unable to understand the subject. Reasons as to why she did not continue her efforts to seek support were not provided.

> Putri   : Back then, I could go to a friend and see the work on her/his laptop, but now I will *be content* of whatever comes out of the assignment (laughs).
> ………………
> Fasha   : Even after asking but (I) still don't understand. I wouldn't do anything, I'll just let it be like that.

Putri used the term 'redha' in her sharing which can be translated to 'be content' in English while Fasha stated that she would not pursue the matter further. Seeing this from a cultural perspective, 'redha' implies accepting whatever situations and outcomes in a person's life. Therefore, being content with upcoming academic outcomes for the semester while not trying

to seek alternatives prior to finishing the course may also suggest a certain sense of giving up. Here, the term 'redha' is used potentially to cover any negative emotions because the current situation can now be seen in a positive light. Additionally, the comparison made in Putri's extract between learning experiences in the past versus presently elicited a feeling of being demotivated by learning that can further support the analysis made. Both recollections suggested that learning activities were done mainly to complete the remaining course's requirements as opposed to learning for any particular personal objectives.

In summary, students personalized their checking for task completion by choosing, comparing, and disregarding the input that they deem either useful or not useful for their work. The theme can be synthesized as being one main aspect, which is a dependency on people for affirmation about their work. Throughout the activities under this theme, students can be described as seeking and offering assistance and validation for their work, including understanding a subject and completing tasks assigned. Nevertheless, offering support has its limitations particularly when students' own learning activity is at risk where students are likely to place a priority on their learning on top of others. Therefore, even though artefacts connect students during the pandemic isolation, the tool is merely a mediator that affords certain communication qualities but is unable to gather enough attention from users to prompt an action. These checking activities predominantly signify the importance of reference and affirmation on students' progress and work. However, due to the lack of guidance, students found themselves in a demotivating situation where they would accept whatever outcomes awaited them at the end of the course.

7.5 Speech-Based Communications

Maya shared that communications to discuss assignments occurred via text messages primarily on WhatsApp, but it lacked a communicative element that she was unable to precisely point out.

> Maya : To say there's a lack of communication, we do communicate (chat) a lot in the WhatsApp group but I don't know, feels like what's typed isn't well-received, we had a lot of (chat) conversations, but the idea feels like it's not conveyed perfectly …. It's like there is a lack of something.

A closer inspection of Maya's comment, "the idea feels like it's not conveyed perfectly", indicates that the issue is potentially associated with filtered communications via text messages where the intended idea is constantly reduced to a simpler and condensed output. This is because longer explanations using more words to describe a subject may be more useful in this case where students could only communicate via online mediums.

Suri shared that at times, her ideas were lost because of her slow typing skills, "the ideas that were flowing could be lost because (I was) too slow to type". She contrasted her experience with writing on a physical notebook where she could write her ideas with less delay, "if writing on a notebook, the ideas that we write can flow and immediately be written". However, she did not explain further why she was not writing in a notebook alongside other physical tools. This recollection highlights the transition period into the pandemic lockdown context where students were potentially not used to the idea of employing digital artefacts as tools to work with for learning purposes. Moreover, students may not have yet developed the familiarity and technological skills needed to operate these devices, as well as the familiarity to communicate via text messages with their colleagues whom they may not share friendships with. In relation to the institutionalised practices from schooling until university days, students were not required or trained to use digital devices in the classrooms on a regular basis. Therefore,

students may have experienced the tension and may struggle being adept at using digital tools during the sudden change of context.

To cope with the many limitations in the above extracts including instances where recipients did not understand text messages, students would deploy methods where they could verbalize their ideas, such as voice notes. Maya believes ideas are easier to be communicated verbally while Fasha thinks that voice notes entail intonations and further details that would help the message's delivery.

> Maya : The idea that we want to convey, feels like, 'eh do they understand what I am saying?'. To make her/him understand better, I will use voice notes. When we speak, maybe the idea gets better delivered compared to when we write (type).
>
> ....
>
> Fasha : If I texted to ask something, and the person doesn't understand, I may use voice notes. Through verbal explanations, the person will understand compared to when we text. Because we have our own intonation. For example, 'ehh I don't understand' (rise pitch). … (Also) Through voice notes, we can explain clearly. Like with details, whereas in text it's more general

The assertions above conveyed the sense that a message verbally mediated through artefacts (i.e telephone, WhatsApp, voice note feature, internet, intonation, and others) could be delivered more immediately and successfully among students. Additionally, verbal communication also afforded opportunities for students to share their opinions without the pressure of composing a compact text message. The example "ehh I don't understand" was phrased in a question with a rising pitch as opposed to a monotonous statement suggesting that it is a friendly call for help. Thus, intonations helped the listener to gauge the emotions of the speaker while emitting a certain signal that assisted the recipient to understand the content of the message.

Though voice notes may encourage learning activities, it might also cause a multitude of other communication issues such as accidentally overlooking an ongoing conversation due to late entry and a difficulty keeping up due to the poor sound quality of voice notes. Thus, students utilized voice calls to further support their learning activities. Didi added that the medium

assisted in gathering everybody together for the same call and communicating clearly, conducting discussions in detail, and clarifying related matters.

> Didi   : When there's too many voice notes, …(on) WhatsApp, for example we've discussed lengthily but he didn't realise because he wasn't in the chat … it'll be difficult for him and,.…. there are unclear voice notes that he couldn't hear. … when we are in a call, it's like a platform for us to gather. When we want to ask something, just ask directly, and then write down whatever was discussed, ...
>
> ……………..
>
> Ramli   : On WhatsApp, let's say his/her phone line isn't ok, when we're discussing in the group suddenly he/she just got on WhatsApp, it'll be a hassle for him/her to scroll from the beginning and then afraid if the person missed any point or something that required him/her to understand it.

The immediacy of feedback when discussing and negotiating ideas for tasks suggest that responses are better mediated through direct verbal exchanges. This analysis elicits that even though calls are afforded by artefacts that connected people despite the physical separations, it also emphasised the structural need within the virtual context because all group members must be invited or added to the call before they could participate in the activity.

As for video calls, students appropriated its affordances in a number of ways such as Fasha who used WhatsApp video calls to guide her colleagues by demonstrating how to do a task in a step-by-step manner. Nurin asserted that video calls helped to convey the potential meaning behind the facial expressions of a colleague during a discussion. She added that the combination of facial expressions and verbal communication could enhance the quality of interactions.

> Fasha: Do a video call to settle it. Show how to do it one-by-one.
>
> ………………..
>
> Nurin: Seeing from knitted eyebrows and facial expressions, haaa the person doesn't understand something, for sure. So, facial expressions combined with what's spoken become a package that helps.

These extracts showed how video calls could support guidance from a more knowledgeable other while compensating for the lack of face-to-face interactions. In Nurin's recollections, for example, facial expressions and gestures assisted to emit signals that could help students make meanings during their interactions and immediately respond, compared to other asynchronous

mediums. Her example of "seeing from knitted eyebrows and facial expressions" to signal that her colleague(s) may not understand the subject under discussion, indicates a process of meaning-making that can also be attributed to cultural norms where individuals who knit eyebrows during a learning activity may signal the lack of comprehension or failure to follow the speaker(s) flow of discussion, as well as deep concentration in the discussion.

However, video calls may have other constraints for learning activities. Orked recalled Suri having issues staying connected in the video calls for the Mock Job Interview assignment recording because Suri's video call was lagging and thus causing the phone screen to be unresponsive at certain times. As the process had been time-consuming and extensive, the group decided to utilize the available recording even though there was an unavoidable blooper at the end of the finalized video.

> Orked   : The other day we were recording .., then suddenly Suri had her mouth opened and went quiet, so Putri and I were trying to hold our laughter in. But because we were lazy to edit the video, cut and all that using the laptop because it's difficult, …, the last part accidentally got included when her mouth was wide open and she looked funny.

The above extract shows how students working remotely with the limitations of their technological resources, skills, and knowledge managed to cope during COVID-19. Even though video recording through the video calls offers the affordance to re-do the recording, students found the option to be a constraint because of a few possible considerations such as agreeing on another day and time to do the task, hoping for reliable internet bandwidth on other days, having to edit the video, and risking delaying their group task submission. Therefore, the situation had prompted them to make use of available materials and focused on submitting the work on time.

Nevertheless, the emphasis of this theme is on how speech-based communications assisted students in their learning activities as it potentially bridged the space that exists between students. This is because despite the sense of physical separation, verbal communications is

afforded by the digital tools and it encourages students' progress towards task completion. While a medium such as text messages assisted learning, it lacks signals such as body language, voice intonation, and eye contact, which deprived students of the meaning-making process. Hence, verbal communications among students took place via video or voice calls and voice notes during the lockdown because students believe that ideas can be better conveyed and negotiated. This analysis disclosed that the digital tools alleviated some of the issues faced by students, such as lack of signals from facial expressions and immediate feedback to and from each other although the physical cues can only be seen to a certain extent via video calls. The digital tools also have some constraints on students' interactions where it necessitated all participating members to have sufficient resources (e.g internet bandwidth) and knowledge (e.g video editing skills and uptake of features on WhatsApp) in order for them to successfully operate the sessions and complete tasks.

7.6 Outsiders Support

The students in Class A were tasked to practice a Mock Job Interview with an assigned partner from the same class. Lana who did not share a close relationship with her partner did the required interview but also contacted her close friend from a different university as she felt more comfortable practising with him. Zain checked with a friend from a different classroom taught by a different instructor at the university because he assumed that the friend who took the same course would know how to do the assignment.

> Lana : Yea, I'm not close to her (assigned partner), I feel comfortable with someone I am close with. He's one of my friends so I feel more … okay talking to him and discussing about my assignment.
> ……………
> Zain : I'd just ask people from other classes even though we have different instructors because he had done the video, so he helped by sharing what contents needed to be in it.

These extracts suggest the emotional support of friends outside of their course can make students feel comfortable to study with and learn from. Moreover, the extracts suggest a sense

of togetherness and shared struggle where students can do tasks with other people while in lockdown. Students may also resort to seeking support from family members to assist with tasks completion. Nurin compared the immediacy of responses she would obtain when asking for help from her older sister at home to waiting for online support from her colleagues. She added that her sister is proficient in English which made support in aspects such as spelling and others, relatively easy.

> Nurin : Now as we live at home, so when we want to work and ask friends, it'll take time so I'll just ask my older sister. Because my sister is good at English so if I want to ask anything about English, spelling or anything, it's peanuts for her (laughs). So just ask her.

From a cultural perspective, an older sister is looked up to by the younger ones in the family. Consequently, seeking guidance and help from a perceived knowledgeable and older other can also be seen in the above activity. Most importantly, the activity showed the use of space where students turned to people in their vicinity to secure direct and prompt feedback.

When support from colleagues online and family at home was insufficient, Nurin breached the COVID-19 lockdown standard operating procedure. Initially, she sought online support from colleagues on the Video Resume assignment. However, she found herself needing direct guidance on how to use the online applications. She visited a friend who resides in the same village. Despite not attending the same university, she assumed that the friend would know how to edit videos because she had seen her/him posting videos on social media. However, it turned out that the friend had never used the downloaded applications on Nurin's phone and thus was unable to offer assistance.

> Nurin : I did WhatsApp text and asked my friends, what applications are they using for editing. After downloading the two (suggested) apps, I went to a friend's house to ask how to edit videos. My friend is from the same village but isn't from the same university, but I saw him/her always post videos, I assumed he/she is good at video editing, then I asked has he/she used these apps, and he/she said, never.

The student was the only interviewee who shared her experiences of breaching the pandemic regulations to complete a university task. However, the extract demonstrates amply students'

urgency and agency to seek direct and immediate assistance in their environment. The action taken by the student is a prime example of what students would do to ensure the successful completion of tasks in a disruptive context.

The analysis in this section suggests that some students turn to people beyond their classroom circle in order to secure support. An interlinked aspect in all the above extracts is that seeking help from outsiders required students to gauge the potential competency that the 'expert' can offer based on shared experiences, information, or knowledge about them, such as, "For (the English) subject, she's helpful… but for others…. she doesn't know" and "he had done the video…sharing…contents needed". Nevertheless, the assumptions made may also be incorrect, as seen in the example where Nurin visited a friend, but the person could not offer help.

At the same time, seeking help from outsiders may also involve a common university subject such as a language course to increase the likelihood of receiving assistance. Students' interactions here emphasised the idea of securing support to complete tasks remains to be more important than who the individuals they are seeking help from. Seeking assistance from alternative sources also demonstrates the idea of distributed resources to support a learning activity that cannot be concentrated on just a single mediator.

7.7 Summary

In this chapter, participants demonstrated agency in their interactions with people and tools, thereby enabling successful completion of tasks via online learning amidst the pandemic. However, several identified issues were found to have negatively impacted the interactions. These issues encompassed mismatched expectations between instructors and students, unstructured learning within a structured virtual space, and filtered communications due to the absence or limited signals transmitted through online mediational tools. Additionally, cultural priorities influencing the use of time and space in individuals' physical settings contributed to

a sense of detachment from the virtual context. These aspects that are embedded in people-people and people-tools interactions during the pandemic imply that while fully online learning allows for the completion of university tasks, it also presents numerous constraints and challenges to fostering meaningful interactions. For example, students delegated group tasks among colleagues via online mediums, but the supposedly collaborative group work was ultimately completed in isolation (see Section 7.3). The following chapter will further explore and make sense of the findings from before and during the COVID-19 contexts.

Chapter 8: Discussion

8.0 Introduction

This discussion chapter highlights the distinct similarities and shifts observed in interactions for teaching and learning occurring in the face-to-face and fully online contexts. The apparent similarities in interactions between the two settings are the reliance on other people to complete tasks, and the use of tools to support learning activities. However, there are notable shifts that transpired when transitioning from face-to-face to the fully online context. The teachers' expectations evolved from teacher-centred approach to placing a considerable emphasis on students' autonomy in their learning. Meanwhile, students perceived a lack of support from their teachers and colleagues in the online context. Subsequently, students' focus tended to shift towards task submission. Online learning introduced a more structured process of interactions, which is partly influenced by people-tools interactions including challenges and limitations in home settings. In summary of these discussions, the most fundamental contribution of the research lies in the recognition of the profound significance of direct interactions, particularly in the face-to-face context, to foster a sense of togetherness and presence. Direct interactions in a shared physical space would assist people in the interactions to meaningfully engage and complete their learning activities effectively. Although online learning facilitates task completion, it falls short in offering and affording rich and meaningful interactions comparable to the face-to-face context. The subsequent sections in this chapter will delve into greater detail regarding the above points.

8.1 Mapping Before and During COVID-19 Lockdown Interactions

Within before and during COVID-19 settings, the mediated actions for learning activities in the physical and virtual spaces may differ. However, the majority of interactions across both

contexts revealed similar patterns in the ways students interacted to carry out their course tasks. The first identified similarity in the two contexts suggests a reliance on people, mainly to check work and exchange ideas among students, and also to receive relevant feedback and affirmation from instructors about students' work. The second similarity in before and during the pandemic contexts is regarding the appropriation of tools to complete course tasks. Each of these aspects about similar interactions in both contexts will be discussed separately in the following two sub-sections.

8.1.1 Dependency on People to Complete Tasks

Students' interactions with colleagues from the same classrooms in both contexts were primarily to check their work and to exchange ideas. I presented findings on students' progress as they moved from broad topic discussions to checking details in their assignment (e.g see Section 6.3). In a similar study, Knain et al (2021) employed comparable analysis, observed the trajectory of students' group discourse. The manner in which the learning activity occurred in Knain et al was similar mainly to this study's pre-pandemic settings potentially because of the face-to-face space, yet, the underlying reason for interactions among students remained the same, which was to check on their work.

Exchanging ideas among students during learning activities in both settings includes learning about other people's ideas and also acquiring further opinions about a given topic (see Section 6.3.2). These helped them to jointly make sense of a topic, share thoughts, and decide on an action for the task (Mercer et al, 2007). Other than the needs for interactions to help students progress in learning activities, students' collective efforts in both settings can also be linked to the cultural aspect of being in a collective society that has a notable preference for group tasks (Park, 2000). For example, if a task is done in a group setting, there is a high chance that the

answers being right or wrong together with others because many people are working on it. Simultaneously, students could boost their confidence and find comfort in their work output.

Learning activities in the before and during COVID lockdown also showed that affirmation and feedback are equally needed from a person of authority, particularly instructors (Rasmussen et al, 2003), but may also include an institutionalized tool such as the course's textbook (Warwick et al, 2010). The study's findings about needing affirmation and feedback from teachers highlighted the importance of their support to bridge the conceptual gap between a task and students' understanding (see Section 6.3.3) (Furberg, 2016), to confirm that students' performance was indeed correct or contextually appropriate (Aljaafreh & Lantolf, 1994), and to alleviate challenges in tasks (see Section 6.2) (Ingulfsen et al, 2018).

Embedded in the classroom and online learning interactions of before and during COVID contexts is a need for physical cues during these interactions. The physical cues assisted students in negotiating ideas and making meanings between them, similar to the suggestions made by Hudson (2011) about the thumbs-up gesture for indicating understanding and thumbs-down to show a lack of understanding. Although video calls in COVID settings were infrequent among students, there was an instance when Nurin gauged her colleague's 'knitted eyebrows' as representing a lack of understanding about the topic discussed (see Section 7.5). Had she communicated with her colleague via audio calls or text messages, she may not have been able to gauge any signals that would prompt her to provide more assistance (Crook, 2012). Nevertheless, visual cues from expressions, gazes and gestures may be culturally interpreted and therefore meanings are ascribed based on the persons involved in these interactions (Mercer, 2007; Crook, 2002). There is no precise way of knowing whether Nurin gauged correctly, but she did not say that her assistance during the interaction was rejected by her colleague either.

In a summary of a similarities in the before and during COVID-19 lockdown settings, students interacted with colleagues and instructors because they rely on them to progress in learning activities. Students checked and exchanged ideas with their colleagues to complete tasks. Students needed the instructors' support and feedback to move forward in their learning activities, which at times includes the use of institutionalized tools such as the course's textbook. Interrelated within the interactions are visual cues and signals that were significant to help students negotiate their ideas and make meanings in both settings.

8.1.2 Appropriation of Tools to Attain Learning Objectives

The findings in the before and during pandemic lockdown contexts demonstrated instances where the appropriation of physical tools by participants to complete learning activities was crucial. In a classroom activity before the pandemic (see Section 6.3.2), Putri and Bashira appropriated the computer screen to convey and negotiate ideas between them. In the pandemic lockdown context, WhatsApp group chats were also employed as the mediated-tool-to-act-with for students' collaborative efforts to create a virtual space for task delegation and for the submission of tasks (see Section 7.3), as well as using video calls to teach someone (see Section 7.5). These examples show how the features available on digital devices (e.g computer, monitor, telephone, and WhatsApp) can be appropriated for learning activities.

At the same time, these qualities extended the artifacts' physicality and the affordances because they could conceivably either encourage or constrain learning (Wertsch, 1998; Norman, 1988). In this study, not only WhatsApp became the main tool to connect people, but more importantly, it also became the mediator that encouraged and facilitated students' thinking as they discuss a subject using voice notes that can be replayed, a group voice call to gather all members, and video calls to see and gauge facial expressions (see Section 7.5). In another example, students invoked the use of a textbook to gain authority in their group discussions

(see Section 6.3). However, the constraints of digital tools appropriation for learning activities in the two contexts include delayed responses, technical difficulties, and unsustainable interactions over longer periods of time (see Sections 6.5.2 and 7.5) (Adalberon & Saljo, 2017). These indicate that physical tools used in this study can act as mediators that facilitated or constraint interactions between and among people (Smordal, et al, 2021, Rodnes et al, 2021).

Throughout before and during the pandemic contexts, students-acting-with-mediational-tools showed how different resources were being appropriated according to the students' perceived affordances of the resources. Hence, learning activities involved humans employing a combination of mediational means available in their environments to accomplish task objectives in both face-to-face and online settings (Saljo, 1999; Vygotsky, 1962; 1978). The interplay between people and tools as seen in this research strengthens the notion that human activities in this world may or may not be extended through the appropriation of tools (Wertsch, 1995), and that agency lies in the interplay between human action and the employment of tools (Wertsch & Rupert, 1993).

8.2 Transitions between Before to During COVID-19 Lockdown

The section discusses shifts between the period before the pandemic to that during COVID-19 pandemic lockdown settings. The first sub-heading focused on how teacher centered approach in the before pandemic context shifted to teachers' expectation of students' autonomy to complete learning activities in the during pandemic phase. The second aspect explores the fluidity of students' autonomy between the two contexts where students were actively seeking teacher assistance when in a face-to-face setting compared to a fully online setting. However later on, students were found to seek support elsewhere (e.g from online materials, colleagues, family, and friends) to complete tasks during the pandemic.

The next aspect emphasises the students' quality of interaction with one another. I draw attention to a group of students who worked closely in face-to-face settings but later faced limited access to each other in a fully online context. This change of landscape may influence their interactions and their learning activities as well. The fourth key finding highlights students' priorities from contents checking in a face-to-face setting to focusing on compiling their assignment mainly for submission when in an online setting. The fifth noticeable shift draws attention on students' collaborative work from less visible structure when in classroom to visible structure when in an online setting. The final sub-section attempts to show the interplay between tools and contexts (i.e before and during COVID) which may have influenced the ways in which learning activities were conducted. Each of these key findings about the shifts in interactions between before and during COVID contexts will be discussed separately in the following sections.

8.2.1 Teacher-Centered Approach to Expecting Students' Autonomy

Prior to the pandemic, learning activities in face-to-face lessons involved teacher-support and structure where instructors introduced the topic, gave prompt questions where necessary to recall or check students' understanding, assigned classroom or home tasks, and ended the lecture with a note on the topic (see Section 6.2) (e.g Ingulfsen et al, 2018). In these teacher-students' classroom interactions, the structure is very much akin to the Initiation-Response-Feedback (IRF) which was appropriated to reflect 'good' classroom interactions (Fisher & Larkin, 2008). Even though the IRF has had its criticisms (see Mercer et al, 2009), its use to structure classroom interactions and check students' understanding may have helped students to progress with their tasks (Rojas-Drummond & Mercer, 2003). Moreover, prompts, response, and feedback are seen as allowing other students to learn from the teacher-student exchange (Cortazzi, 1998).

In contrast to the COVID-19 lockdown situation, instructors and students transitioned from having experienced and conducted learning activities face-to-face to fully online learning (United Nations Educational Scientific and Cultural Organization: UNESCO, 2020). During the pandemic, instructors provided information including lecture notes, slide show presentations, video recordings, and assignment instructions in a single online post (see Section 7.2). Subsequently, online learning during the lockdown also suggests online platform's use was as a repository for course documents and resources in large chunks, similar to the findings before the arrival of the pandemic (see Ajis et al, 2017; Timmis et al, 2010).

This study's findings showed that instructors assumed that learning materials would be sufficient for students to develop their own autonomy and to peruse and understand the materials and complete tasks (see Section 7.2). However, these expectations for students to be autonomous were not explicitly stated in instructors' lectures or task instructions, except for open invitations to be approached and get help. For example, as Awan, who asked students to self-form a group of more than five people for a tutorial with him (see Section 7.2). In turn, Bayu, in her interview, asserted that students could approach instructors if they needed help although the medium of communication, preferred time to be contacted, and other details were not provided (see Section 7.2). In this case, it seemed as if students were not encouraged to ask individual questions and did not receive clear instructions on how they can contact instructors during this fully online learning mode.

The tension for students to become more self-autonomous could be due to previous learning experiences which had a sense of structure and gradual learning such as attending a few lessons in the classroom to learn a topic (see Section 6.2) (Poehner, 2008). As the participants in the study are young adult learners, they were exposed to structured academic experiences since their schooling years where face-to-face lessons were primary, and teachers dictate students'

learning activities (Loh & Teo, 2017; Wursten & Jacobs, 2013; Hofstede, 1980). Therefore, students' educational background which was rooted in institutionalized practice and the unprecedented shift from face-to-face to fully online learning that expects more students' autonomy can be seen as exhibiting conflicting forces. The former entails a teacher-centered practice where students follow the lessons prepared, while the latter assumes students' active actions for their learning. The reliance for teachers' presence and support for successful education experiences are not unique to a Malaysian context because similarities can be found across different contexts and cultures where students do require teacher support, affirmation, and emotional encouragement (see Ingulfsen et al, 2018; Furberg, 2016).

Furthermore, the expectations for students to be self-autonomous in their learning activities assumed that students would 'reach out' for help during the COVID lockdown. The assumption is potentially reasonable because the students in this study involved young adult learners who presumably should be able to navigate their own learning (Merriam, 2001). Moreover, learning materials were provided by instructors, and the internet 'should have' the necessary information needed. Nevertheless, these young adult learners also culturally belong to a society with high power distance (Loh & Teo, 2017; Hofstede, 1986). Therefore, it should also be expected that these students exhibit expectations for teacher-centered lessons. Contrary to Major et al (2018) who proposed that online learning affords inclusion such as for more silent students to find a 'voice', I found the shift to be constraining for students to seek support from instructors or to ask questions during online lectures (see Section 7.2).

Another possible reason for the shift of teacher-centered to expecting students' independent learning during the pandemic could be due to technological constraints. Instructors employed external applications, namely Padlet, Google Classroom, and WhatsApp group chat to deliver lessons and communicate with students (Bahar et al, 2020). This can be due to universities'

multi-layered gate keepers on the university's platforms. For instance, in order to participate in an online class through some Malaysian universities' and other similar platforms elsewhere, users have to search for their respective university's website on a search engine, log in using the university's details that were given as opposed to using personalized email details, as well as having to manually find links to the correct classroom and course to join the online session.

In some cases, the university's own video conferencing platform requires users to install the conferencing platform's software and its plug-in tools, which is in contrast to using external platforms such as Zoom and Google Meet that support web browser participation. It is also presumed here that users would have digital devices with sufficient capacity and features to download and operate the university's own software together with the extra plug-in tools. Given the abrupt shift to fully online learning, it may not be reasonable to assume instructors and students to be equipped with necessary and sufficient equipment and applications. In this case, it means that online learning and its connected digital tools determine whether they can be an enabler or constraint to learning activities that happen to take place online (Wertsch, 1998; Norman, 1988).

Instructors also faced difficulties on the external applications as well in terms of ease of use, internet, compatibility, and students' participation (see Sections 7.1.3 and 7.2) (Bahar et al, 2020). The situation suggests two explanations. Firstly, although universities have invested much resources in developing own platforms and technologies (see Roslina, et al, 2013), it needs more research and upgrades in their existing system to support greater convenience for online learning. Secondly, the continued difficulties in adapting to online learning was due to the chosen external platforms for the courses at the beginning of the semester without an inkling of the upcoming pandemic outbreak (see Sections 6.1.2 and 7.1). The platforms were intended to support face-to-face lessons as opposed to be used fully for teaching and learning activities.

In summary, this sub-section highlights the abrupt change from a notably teacher-centered approach before the pandemic to suddenly expecting students' autonomy for their learning activities during COVID settings. As a result, teacher interactions during the pandemic were one-way with no sense of being able to gauge each other's expectations, students' topic understanding, and need for assistance. Much of the changes and issues discussed here were primarily because related to the shift from face-to-face to online interactions. The sudden change to fully online modality, and absence of signals such as students' knitted eyebrows, and raise hands to ask questions added to teachers' challenges to notice the tension arising during the shift between face-to-face to online teaching.

8.2.2 Fluidity of Students' Autonomy

Previously I have discussed how instructors expected students to become more autonomous for their learning activities during the lockdown. On the contrary, students may have expected more support from instructors in online learning during the disruptive period of COVID but showed reluctance and hesitancy (see Section 7.2). Students' actions suggest uncertainty and a lack of confidence to approach their instructors online maybe because of fear of the possible reprimands, loss of face or negative responses from their instructors (Loh & Teo, 2017; Mercer et al, 2009; Hofstede, 1986). This situation is also a contrast to students' willingness to approach and interact with their instructors in classroom prior to the pandemic (see Sections 6.2 and 6.3), which had assisted students' progress and understanding of a subject (Stromme & Furberg, 2015).

Moreover, many of the online lessons took place asynchronously and only a few synchronous sessions were conducted during the lockdown period. Hence, students' participation online was limited by the number of synchronous sessions available and the presupposed expectations for them to be prepared with materials or topics to have a conversation about with their instructors.

Students also have to be confident asking 'in front' of all colleagues who attended the online lectures. Meanwhile, the asynchronous sessions entailed the need for students to enact agentic action to approach their instructors at an undesignated time.

The online learning experiences are in stark contrast with the face-to-face situations where students could wait until the end of a lesson to ask questions directly and privately to an instructor at his or her desk (Loh & Teo, 2017; Cortazzi & Jin, 1996). Asking questions directly and privately may be related to the cultural aspects where students may not want to take up the classroom time and may also show respect to other colleagues who are present in classroom (Loh & Teo, 2017; Cortazzi & Jin, 1996). Additionally, both students and teachers were able to see each other face-to-face and simultaneously gauge whether further explanations, prompts, questions, validation, or support were needed (Sime, 2008). Although Warwick et al (2010) found that the teacher's presence can be mediated via digital tools, I note that Warwick et al's use of the online platform entailed teacher questioning and engagement with students, unlike in this study where teacher presence was mainly during online instructions and lessons delivery.

At the same time, teacher support during the pandemic was not especially visible except during lessons delivery and assessments, although their support after lessons was offered (i.e students need to request for tutorial or contact on WhatsApp). The situation reveals a significant breach between the need for teacher support and the students' perceived lack of it. Consequently, students asked for help from anyone in their vicinity such as their colleagues, family members and friends outside of the course (see Sections 7.5 and 7.6).

Students nevertheless required teachers' support to affirm their work or understanding. Otherwise, students may not have been able to make a proper link between the task and subject's underlying principles (Furberg, 2016). In consequence, students were mainly

accepting information and did not attempt to further their understanding about a topic during the pandemic (see Section 7.2). Online interactions and the lack of it thereof may have discouraged interactions between teacher-students (Crook & Cluley, 2009). Therefore, both instructors and students appeared to be making assumptions about the kind of support expected and needed about learning activities during the lockdown, yet, did not communicate it to each other.

Even though Loh and Teo (2017) reported students' enthusiasm for the student-centered approach for more autonomy in their learning, this study, on the contrary, found students wanting teacher guidance and support both in and outside of the classroom. The difference in our findings may be due to the methods used where Loh and Teo adopted students' self-reported questionnaire as opposed to this study that relied on observations and interviews data. Therefore, the perceived efficacy about wanting autonomy may differ from actual actions and recollections of needing teacher support.

Nevertheless, as online lessons progressed during lockdown, students took a number of actions to attain their learning objectives by seeking support from available resources in their context. This indicates that students can be more self-directing and become more independent in their learning activities as they gradually become familiar and practice using auxiliary means (e.g use digital devices to discuss and search information and micro-delegate group task) (Merriam, 2001). A trajectory of this development can be seen when we compare students' actions in the two distinct contexts. Before the pandemic, students were instructed on how tasks would be done and what tools would be used in the classroom (see Sections 6.2 and 6.3). However, during the pandemic, students were told to complete tasks and to figure it out for themselves while in isolation. From then on, students managed and completed remaining university tasks on their own (see Chapter 7). This shows how students took actions to develop a way of doing

tasks rather than being in face-to-face lessons where they were explicitly or implicitly told how they should do it.

In this regard, Awang and Sinnadurai (2011) and Zubir (1988) postulated that students such as Malaysians have the ability to undertake independent learning, given the right learning environment and guidance. Awang and Sinnadurai experimented using online learning environment while Zubir's study adopted self-reported questionnaire and interviews of students' recollections about their learning activities. In spite of our methods of data collection that may differ, there is a strong similarity between the findings of this work and theirs where students were able to demonstrate independent learning activities when needed despite significant complications along the process.

The findings in this research imply that before students may become self-directing, they may first face tensions in adjusting to these shifts and having to manage the arising issues during the adaptation period (see Section 7.3). I agree with Awang and Sinnadurai (2011) and Zubir (1988) that when the environment facilitates agentic actions and independent alternatives other than those seeking teacher support, students may have the capability to do so. However, students' agency, as seen in the discussion, entail ups and down where in some instances, they could be more independent but, in some others, they were reliant on teacher's and other people's support. Hence, students' agency in before and during COVID settings is a complex and fluid aspect that is difficult to draw a conclusion on.

8.2.3   Support from Colleagues according to Availability

The main discussion in this sub-section is about how support for students' learning activities may have shifted between the before and during COVID settings based on colleagues' availability. Before the pandemic, Putri, Suri and Orked worked at the university's study space past midnight (see Section 6.5.2) and would divide up their revision topics and each produce

their own study notes to discuss together before examinations took place (see Section 6.4). During the pandemic, these students met online at nighttime. As a result, the three students were unable to do more of their tasks, they kept matters to discuss until they met online which may have caused some ideas for their tasks to be forgotten or diluted (see Section 7.4), and mainly focused on submitting their work (see Section 7.5).

By taking this group of students as a primary example, we can observe that learning activities before the pandemic elicited students' efforts to collaboratively complete and manage tasks workload while receiving emotional support from each other. Their interactions here were potentially influenced by their previous historical and dynamic aspects which had assisted in providing the sense of togetherness needed to aid in their learning activities (Mercer, 2007). However, as students moved towards fully online learning during the pandemic, the academic and emotional support could be seen as lesser than in the before pandemic context.

In their study, Petkova & Ignatov (2021) reported students spending less time on their studies during the pandemic. On the contrary to their findings, students did communicate online and frequently at night, with their colleagues to complete tasks (see Chapter 6). Indeed, I cannot ascertain that students in this study did spend more hours online for their studies because I did not collect data that could confirm this. However, my point is that students did communicate online although there were constraints. Nonetheless, the comparison of the two contexts as seen above suggest a declining quality of interactions among students and their learning experiences.

I offer two possible explanations for this issue. Firstly that, although students may have experience with technology that would allow them to do work independently, they may not be equipped with the knowledge on how to judge the reliability of online information (Major et al 2018), and secondly, students were unfamiliar with the online platform (Petkova & Ignatov,

2021). These situations may cause an overload of undifferentiated information (Knight & Mercer, 2015) which necessitated discussions with colleagues. The needs are not fulfilled because maybe students were not interacting with their colleagues as often as they did previously, or were unable to discuss and resolve matters during their online meetings for reasons that were beyond the scope of this study.

It is clearly important to discuss the differences between face-to-face and online interactions among students. For instance, students who communicated with their friends and colleagues via texts will certainly have a different experience of that interaction compared to when they communicate directly face-to-face (see Sections 6.5 and 7.5). Texts have a permanence that speech does not have, therefore students may contemplate more what they type rather than what to say (Crook, 2012). Through the latter, students can repeat, clarify, and use body gestures to convey their intended message during those face-to-face interactions. Conversely, digital devices as mediational means are changing the dynamics of how students interact because they influence human interpersonal behaviour conducted through the use of technology (Joinson & Littleton, 2002). Circling back to the group of students being discussed in this section, it seems that they are communicating less than in the face-to-face context and thus having a different interactional experience, all of which may also influence their group relationship, learning activities and task output.

I note that the quality of interactions among students amidst the contextual shifts are difficult to be ascertained because mediation with tools and people are inherently complex as I have found and presented in the findings' chapters (Lantolf & Thorne, 2006). However, the aim in this sub-section remains, to show how a particular group of students' interactions have also shifted because of the change from face-to-face and online learning to fully online learning.

8.2.4 Contents Checking to Submission Priority

This sub-section discusses a noticeable shift concerning students' priorities when completing tasks between the before and during COVID-19 lockdown settings. Prior to the pandemic, students collectively checked the contents of their group work during task execution and also before submission (see Section 6.3). In doing so, students learned how to summarize, argue, and check their work to ensure the contents and objectives of the task are met prior to submission (Mercer et al, 2017; Perfetti et al, 2008). Also, students participated to contribute and share ideas because their input was deemed as worthy of collective exploration (Clarke et al, 2016).

Even though Mercer et al's (2017) study involved children, the focus of the discussion here is regarding the similarities in terms of how negotiation and exchange of opinions seemed to be influencing the quality of interactions and the task outcomes. The flow of group work in the email writing task of this study demonstrated the trajectory of learning developments from broad instructions to focused activities of creating, composing, and sending formal emails. This shows that the quality of students' interactions and having the time to collectively work on a task may yield some encouraging learning outcomes (Knain, et al., 2021; Kuhn, 2015).

On the contrary, during the pandemic lockdown, students compiled and submitted their work without much scrutiny of the process. These findings are similar to the literature that found some online interactions were reserved for quick communications (see Timmis et al, 2010; Crook & Cluley, 2009). Other research suggested support of group work, discussions, and shared understanding on their platforms (i.e Talkwall and WhatsApp) (see Smordal, et al, 2021; Rasmussen, 2016). The differences in findings may be due to the features and the objectives of postings in the platforms used, as the latter was aimed at fostering discussions between students

under the posts' threads while in this study, students mainly received information and would later have to self-organise group discussions between themselves.

In Bahar et al (2020), they assumed the students' lack of participation during COVID was because of the one-way online communications as opposed to the face-to-face lessons where students supposedly could ask questions and communicate directly. Even though their study conducted interviews only during the pandemic, I can confirm that the face-to-face findings in this study indicated that students participated in group work because they were previously engaged in direct communications which were supported by physical signals. The situation implies a change of students' relationship between them in the pandemic context where they interact mainly to develop and manage their tasks.

During the lockdown, students would work in isolation at home which could make discussions face-to-face and online difficult. Therefore, each student would have to process information about the tasks separately. It is possible to suggest that every member in a group might be making own assumptions and constructing own understanding prior to their collaborative efforts (Rasmussen et al, 2003). As a consequence, this study found that students (i.e Didi, Suri and Ramli) took the initiatives to prompt and organise group work, as well as contribute and decide a topic for the assigned task while the other members reportedly did not contribute as much (see Section 7.3.1). Subsequently, the quality of interactions among students in this study may have been influenced by the unbalanced participation or not contributing to the discussion (Cheng, et al, 2014).

Even though students might have liked to conduct further discussions about their work, there could be other potential constraints for their learning activities. The constraints involved colleagues' availability, coordinated time to do joint work, home commitments, and availability of internet data and bandwidth (see Section 7.1). These issues may have deterred

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students from discussing work with their group members because Mercer and Littleton (2007) found that collaboration required participants to engage in a coordinated and continuous attempt to work out a given problem. As a result of the physical space-gap between students (Adalberon & Saljo, 2017; Crook, 2012), they potentially needed to focus on the practical work of compiling the group's assignment for submission as opposed to checking the contents in detail before submission.

In a similar study, Schult et al (2022) found school students' reading and mathematics competencies to be lower during the early outbreak of COVID-19 and school closure but did not offer potential reasons as to why that was the case. This study's findings can be considered as an extension to Schult et al in terms of the possible reasons for students' lower academic performance, which were motivation, feedback, and support during the pandemic (see Irgatoglu et al, 2022). Hence, the changing of landscape between before to during COVID-19 lockdown disclosed a shift in the way students collaborated with each other where formerly they engaged in contents checking but later focused on compiling and submitting their group work without scrutinizing the contents.

8.2.5 Making the Invisible, Visible in Virtual Spaces

The transitions from invisible to visible steps and processes in group tasks among students between the before and during the COVID setting are discussed in this sub-section. Even though the pre-pandemic context disclosed teacher-structured lessons, students' group task activities were not evidently noticeable. Students did not purposely mention and allocate their time for group activities such as delegating and taking on leadership roles (see Section 6.3). I argue that the process seemed to take place in a smooth and a natural manner owing to the immediacy of interactions between students (Perfetti et al, 2008). Moreover, face-to-face lessons entailed time pressures where many activities happen simultaneously and quickly (i.e

discussing, delegating, listening, and executing tasks), therefore specific actions can be difficult to discerned (e.g Knain et al, 2021).

The COVID lockdown settings elicited structured group activities among students. This means that the virtual context necessitated a framework and plans in order for interactions to occur. Some of the examples mean the creation of a social space (i.e greetings and invites to do work), concerted effort to attain learning objectives, and systematic collaborative methods from delegation to submission among students to ensure tasks completion (see Section 7.3). Therefore, there are steps and processes in online learning activities which may become more visible to the researcher and others during the lockdown (Rasmussen, 2016). These collaborative online activities also entailed an enacted agency for leadership roles to alleviate a problem because some students took the initiative to prompt the group to start the assignment (Lund et al, 2019).

Both settings involved significant mediation in terms of the learning activities. However, the main difference is embedded in the types of mediation that were involved and the aspects embedded in these activities (Vygotsky, 1962; 1978). Task delegation and taking leadership roles in a face-to-face setting entailed people interacting while being in a shared physical space. Face-to-face meetings afforded interaction qualities such as people listening and responding to each other in real-time (see Crook, 2002). Additionally, interactions in classroom supported signals from gestures, facial expressions, and eye gaze, which helped students to negotiate and understand potential nuanced meanings between them as well as quick collective decisions (Adalberon & Saljo, 2017). Therefore, the combination of verbal and visual cues in classroom interactions went together to assist students' learning (Smotrova & Lantolf, 2013).

During the lockdown, interactions between students were afforded through digital devices and were supported by social messaging applications such as WhatsApp in order to conduct their

learning activities (i.e delegation and enacting leadership roles). Thus, students might have been unable to gauge what their colleagues were thinking or wanting to do in a given moment. On the contrary to the face-to-face settings, digital devices have some constraints such as the incapacity to show a person's whole body which may carry signals other than what can be conveyed through facial expressions via video calls. In text-based mediums for example, students tend to use different and fewer words, as well as triggers from physical cues for continued interaction are not made available (Adalberon & Saljo, 2017). These reasons may have prompted students to introduce certain structures in order to ensure that everybody has a similar understanding of the task.

Furthermore, as students work asynchronously on their delegated group tasks, there is no time limit to complete tasks during the pandemic. As a result, students could afford delayed responses by allocating time whenever they are able to and also have the flexibility to stretch their discussions for longer. In the cases where students synchronously work together, although they need to adhere to time constraints because of their colleagues' availability at home, more importantly, they must also take turns to speak in order to ensure everybody is heard. This is because digital technologies cannot yet afford multiple people the opportunity to speak at the same time as the overlapping voices may cause inaudible conversations, hence the mediums are not conducive to negotiation of knowledge (Crook, 2012). These structures of who is typing, organizing, and speaking in the virtual space subsequently became visibly evident.

In summary, the explanations behind students' interactions in before and during COVID could be due to the forms and types of mediation which may have influenced how some processes in the learning activities can be more visibly seen that the other. The interactions prior to the pandemic took place in classrooms had afforded verbal and physical cues. Meanwhile, online interactions during the lockdown potentially lacked the two aforementioned aspects.

8.2.6 Context-Tools Interplay

The physical settings at the university or at home and the available digital tools within these contexts were interwoven in the way students carried out their learning activities in before and during COVID-19 settings. Other than the use of digital tools by instructors, Flanigan and Babchuk (2022) asserted that students' digital use is a distraction in classrooms that hinders their learning. However, I would like to argue otherwise. I found that students recollected feeling sleepy and thus appropriated their mobile phones to stay awake in the classroom (see Section 6.5.2) and browsed for YouTube songs, for example, as a form of entertainment or suchlike only after the task with their partner was completed (see Section 6.3.2).

Moreover, being caught sleeping in a classroom may bring negative repercussions as instructors might be expecting students to appear attentive in their lectures because instructors commonly have a sense of control and authority in their lessons (Toma & Wertsch, 1985; Mehan, 1979). Furthermore, Flanigan and Babchuk (2022) examined instructors' perceptions about students' use of digital devices in the classroom and found that instructors did not favour its use but were also unable to impose any consistent or effective restrictions on this. Thus, their findings may carry biases from observers (i.e instructors) of the activity.

However, this study's findings concerning the use of digital tools in classrooms before the pandemic showed that the intended use of technology by the instructor in the email writing task and by students (i.e browsed YouTube and mobile phone to be awake) may not be constraining students' learning at all. Rather, I contend that students were not disengaged from the lecture or off task as they remain able to physically hear and follow the lecture. For instance, students could ask their colleagues who sit next to them in classroom if they missed out something from the lecture and would receive a quick and effective response (see Section 6.5). The sense of

being present in the same room with the instructor and colleagues may help students to refocus on learning activities and also to have a mutual knowledge of the experiences (Mercer, 2007).

Transitioning into the COVID lockdown settings meant that students were in a home setting. In the pandemic context, students may have employed digital tools more frequently in order to participate in their lessons. However, more use of digital tools does not necessarily equate to the quality of interactions necessary for learning activities. Some students logged into the online lessons using their digital devices but did not stay watching the lectures (see Section 7.2), as they could not focus because of the noises from other people's microphones, technical malfunctions (see Section 7.1.2), and being unable to offer help to a colleague because a synchronous lecture was ongoing (see Section 7.4). However, the issue at hand is bigger than merely having to be adept at using technology for academic purposes. Online interactions also changed the relationship between teacher-students and students-students.

Lessons were mediated virtually during the pandemic suggesting that participation and entry into the online space relied on the stability of one's physical context. In a classroom, students would be more likely to stay throughout a lecture. However, in the online space, it would be difficult to ascertain students' attendance using the online sessions. Interactions through tools suggests a world of contrasts – learning activities during the pandemic seems to offer liberty for students to conduct own learning but at the same time retains the cultural and institutionalised conventions such as the power-gap between teacher-students and students-family, and norms in participating in lesson although it takes place online (Loh & Teo, 2017; Hofstede, 1986).

The difficulties also suggest that students' technological skills may also influence their adaptability and in turn their participation in online learning. This is because there is less tension, worries and overload reported when students possessed higher digital skills (Handel

et al, 2020). Hence, being adept at using technological tools suggests a need for individuals to know how to operate those tools and how to use them purposefully in the activity (Lund et al, 2019), because otherwise, students would face a multitude of issues such as being unable to concentrate properly due to noises from other people's environments in online learning.

Included in the context-tools interplay is the presence of home and family influences during the pandemic. Students were found to have prioritized home responsibilities before focusing on academic requirements (see Section 7.1), potentially because of the expectations to take care and to be responsible for fellow family members (Loh & Teo, 2017; Hofstede, 1980). Returning to parents' homes potentially reduced students' autonomy because of the hierarchal order in society as they find older adults in their home setting (Loh & Teo, 2017). The physical settings are important to be considered because of their dialectical relationship and fluid boundaries between human learning development and their social context (Vygotsky, 1978; Rogoff, 1995), which implies that learning activities cannot be separated from students' contextual settings at all.

Despite the change of settings from classroom to fully online learning, students were exposed to classroom conventions when participating in their online lectures (see Sections 7.1.2 and 7.2). These conventions when participating in lessons, though the change of settings from classroom to online, revealed cultural and institutionalised classroom practice where students were expected to adhere to some norms of politeness (Mercer et al, 2009; Fisher and Larkin, 2008). Therefore, it is less about whether students attended face-to-face or online lessons, but about how certain norms transcend the boundaries of physical and virtual spaces. Even though the pandemic lockdown had unexpectedly conjoined learning and living activities in the home environment altogether, learning activities remained attached to the social, cultural, and historical contexts in which they take place (Chapelle, 2009).

Interactions through tools including digital devices are just as social as human-human interactions (Saljo, 1999), and digital tools from the findings in this study showed that it has the capacity to afford online learning activities when employed with clear objectives and rationales (Mercer et al, 2017). However, here the primary discussion is about how people interact through tools and use them in before and COVID settings that may have influenced their learning activities. The use of digital tools in classrooms before the pandemic was not found to be constraining the learning activities at all, unlike in the pandemic lockdown settings.

8.3 Making Sense of Interactions in Learning Contexts

Throughout the discussion in this chapter, all syntheses discussed above are key but there are three fundamental threads of argument concerning human interactions for learning activities in the before and during COVID settings. All three of the fundamental aspects are interlinked. Firstly, students' physical context takes precedence in learning activities (Vygotsky, 1978; Rogoff, 1995). Before the pandemic, a physical space such as the classroom and its design encouraged interactions because students could pay attention to the instructor in the middle of the room as they sat at the front facing the classroom, and students would collaboratively work in pairs in a computer lab which purposely placed every two computers next to each other (see Section 6.3 and Figure 6). During the pandemic, activities happening in their physical environment at home were prioritized and could not be dismissed. The conflicting conventions between home versus online lessons showed how the use of space and one's physical being l influenced their learning experiences (Kim & Padilla, 2020).

Physical context is the central aspect of how in-depth interactions can occur between people. It implies that face-to-face interactions are needed for learning activities to happen in an engaging and dynamic manner where people can guide and help one another, instructors can give feedback and affirmation where necessary, and also body cues can be communicated

clearly. Meanwhile, online learning constraints during the pandemic suggest that although people can become more adept at appropriating technological tools and they may change the way they work to assist and attain objectives for the uptake of tools (Van Lier, 2010; 2008), yet, interactions other than in a face-to-face context cannot be completely replaced or replicated by other forms of communications. The key idea here is how technology has transformed the manner in which students learn and experience education (Saljo, 2004). This suggests that the aspects embedded in the interactions may change but online learning remain unable to offer a similar or the same quality as a direct face-to-face interaction.

Secondly, online learning filters interactions between people but able to support completion of tasks. A sociocultural perspective posits that human face-to-face interactions are mediated by both physical and psychological tools (Vygotsky, 1987; 1978). However, when interactions between people take place remotely and online, it adds another layer of mediation through physical tools such as a laptop, a telephone, or WhatsApp, among many others. The online interaction may also be with or without visual on the screen, seamless connection, and distinct voice during the call. Therefore, the interaction may become more multi-layered, which has potentially contributed to tension and issues in the process of communicating with each other.

Nevertheless, online learning afforded multiple mediums and ways for students to develop and manage tasks even though it was unable to carry certain cues (e.g body signals) that would allow students to negotiate and make meaning. Interrelated in this topic of online learning affordances is the use of certain digital tools deployed for academic purposes. Universities normally prescribe their own online platforms for online learning (Ajis et al, 2017; Cluley, 2009). However, this study and literature found teachers using other tools which were deemed more fitting for their lessons (see Bahar et al, 2020; Sun et al, 2017). For example, Bayu did not have adequate internet and digital tools to conduct synchronous online lessons (see Section

7.1.3). This suggests that online learning is a constraint for Bayu's teaching activities as well as limiting her use of psychological tools because she could not record videos due to the size of the file. To cope with the constraints, Bayu used Padlet and conducted asynchronous lessons (see Section 7.2). Hence, it is evident that people employ tools that make sense to them and their tasks.

The usage of technologies during the pandemic can be seen as trying to recreate a sense of consciousness and presence to make up for the absence of face-to-face interactions. For instance, university's VLE does not support student-student live interactions, therefore students appropriated features offered by WhatsApp on their digital phone to be able to video call and see each other in real time (see Section 7.5). As a result of other appropriated tools by instructors and students, this study similarly found that the university's VLE was used mainly for administrative purposes (see Bahar et al, 2020; Ajis et al, 2017; Timmis et al, 2010).

The third key aspect is related to people's mediated agency. The situations above where people chose to interact-with-mediational-means imply that while an institution may impose rules to its members, people including teachers and students tend to retain and exercise agentic actions in the best ways to attain their objectives (Lund & Rasmussen, 2008). However, mediated agency is clearly a fluid aspect, which means people and tools also rely on each other to make an impact in teaching and learning activities.

A lack of physical tools including sufficient internet, digital devices and conducive study spaces may influence online learning and their mediated agency. These resource inequalities were not apparent prior to the pandemic although they were also not a recent development by any means (see Kim & Padilla, 2020; Osman & Hamzah, 2016; Ab Ghani et al, 2016). The gap was merely amplified by the pandemic that inevitably placed students in a home environment where the resources were not sufficiently available. In such a case, even though universities

carry institutionalized conventions including a teacher-centered approach and classroom rules (Mercer, 2004), the educational institutions may also help to minimize the resources gap that have been found to constrain online and at home learning activities (Lantolf, 2010).

Implicated in online interactions during the pandemic is how students feel about their learning experiences. On the contrary to happiness and satisfaction in learning during the pandemic as revealed by Polujanski et al (2020) through presumably different participants in the two contexts, this study's findings revealed that the same students in before and during the pandemic were feeling demotivated with their learning activities during the COVID-19 period. Other probable impacts from these complex and shifting human interactions on learning activities can be seen in instances where students reported feeling not confident to approach instructors, having a sense of isolation when doing academic tasks, and merely accepting information without trying to further their understanding about a topic. These can be described as a sign of frustration and demotivation in their learning experiences during the pandemic (Irgatoglu et al, 2022; Handel et al, 2020).

In summary, interactions as seen in the before and during the pandemic period are complex and entail interrelated aspects related to context, cultural and historical backgrounds, and people-acting-with-mediational-means of physical and psychological tools. The discussion of both settings suggests that face-to-face interactions are comprised of more in-depth interactions which embeds a complex interplay of physical and psychological tools, as well as cultural and historical background compared to fully online learning.

8.4 Summary

The key findings discussed in this chapter underscore the significance and inevitability of the interplay between environments and learning activities. Recognizing the importance of one's environments translates to acknowledging a face-to-face context as conducive and ideal for

educational activities. The ability to engage in direct interactions within a shared physical space greatly enhances the learning experience. This encompasses various aspects such as quick non-verbal exchanges, physical gestures to gain attention, immediate support, and uninterrupted direct communication despite having other noises and voices in the physical background. These insights paved the way for interactions in learning activities to be understood and valued, for both face-to-face and fully online settings. They have also provided a foundation for recognizing and comprehending the transitions that occurred during the unprecedented shift from before to during COVID-19 pandemic contexts. In essence, the insights offered in this research provide a deeper understanding of interactions, emphasizing the important role of a sense of presence and togetherness in a shared physical space to facilitate meaningful and dynamic interactions in education landscapes.

Chapter 9: Conclusion

9.0 Introduction

This two-phase case study started with the aim of understanding students and teachers' interactions for learning activities in face-to-face and fully online contexts, situated in the before and during COVID-19 settings, respectively. The study delivered its findings from Chapters 5 to 7 and a discussion in Chapter 8. This chapter serves as the culmination of reflection and contemplation about the study's intricate findings and methodologies. At the core of this study, lies a remarkable revelation: the inevitable interplay between physical contexts and learning activities, which help to give rise to dynamic, meaningful, and profound interactions between people-people and people-tools. Amidst the global pandemic, I successfully maintained participants' engagement, resulting in a wealth of data encompassing their interactions in both settings. Yet, the study's limitations, particularly concerning the lack of face-to-face data during the pandemic surprisingly bolstered the study's purpose.

This research is novel through its application of sociocultural theory, distinct methodology, and unique contextual settings, which allow for actionable recommendations to nurture interactions for face-to-face, fully online, and Blended Learning contexts. Future research is recommended to focus on post-pandemic education landscapes to unearth further insights into interactions. In closing this thesis, I shared personal reflections on the journey undertaken amidst disruptive times. Each of the aforementioned points will be thoroughly elaborated in the upcoming sections of this chapter to provide a greater understanding of their significance.

9.1 Strengths

Over a few months of data collection, one of the key strengths of the study is to have been able to retain the same participants and to complete the fieldwork despite the disruptive arrival of

COVID-19. This provided a richness of data concerning face-to-face and fully online learning interactions within the educational contexts of before and during COVID-19.

9.1.1 Retaining participants and completing fieldwork

The issue during the pandemic was ensuring that participants remained interested and willing to be involved in this study. During this period, participants were going through a tumultuous time where they had to return to their family homes, and faced massive disruption to their lives in university (i.e having to adjust to online learning, abruptly leave friends and colleagues, and unable to finish remaining academic term at university). The outbreak was also at a time of uncertainties as to whether vaccines would be available (for all, and in a timely manner), and therefore, everybody including the participants were potentially living in a constant fear of contracting the virus while also having to cope with the logistics of day-to-day life and finishing the rest of the university term.

Through the rapport that was established during face-to-face meetings at the beginning of fieldwork, I was able to secure their continued commitments to this study in an easier way than if this had not happened. The fieldwork resumed online (see Section 4.6). The challenges with data collected at a distance were related to connectivity because internet bandwidth and technology were subject to breakdowns, feasibility in terms of difficulty to track participants' online activities, and accessibility because their online activities were covertly done and therefore were often hidden from my observation. The shift to online interviews caused multiple complications because of the absence of the type of signals I discuss earlier, such as body cues, gestures and facial expressions affected data collection to a certain extent. The online interviews took place via synchronous online audio calls (see Section 4.3.2) where at times, participants and I could not promptly gauge meanings of what each other was saying.

Consequently, some of the interviews became longer and contained a number of redundant inquiries or replies.

However, this set of circumstances, it is fair to say, was also a strength in the study as it reveals the glitches, advantages, and constraints to people's interaction when in an online environment. Thus, the transition from face-to-face to online interviews provided personal insights and experiences to me as a researcher to see that the dynamics of interactions between people do change significantly when the contexts are changed. As a result, I could also relate to the socially constructed, contextual and multiple findings that were produced by this study (see Section 4.1).

Moreover, the objectives of carrying out online interviews were attained and thus the method should not be seen as secondary to the face-to-face interviews which were carried out (Weller, 2017). As I adopted open-ended interview (see Section 4.2.4), the probes proved to be useful in unearthing more information that was useful to constructing an understanding of the actions taken to complete tasks. Hence, the strength of the study lies in the measures adopted to ensure the data collection and research could be completed during the most unprecedented times.

9.1.2 Richness of data

I used a complementary data collection and analysis methods in this two-phase qualitative case study (see Section 4.2.4). The face-to-face and online observations and interviews allowed me to capture interactions, to a certain extent, through recorded audios which were transcribed verbatim. These actions were purposefully done to preserve the richness and thickness of descriptions and the details of interactions that were happening in moment-by-moment timeframes and in students' narration of their recollections about ways they interacted and executed tasks. Meanwhile, appropriation of the thematic and interaction analysis methods allowed me to take the interaction components apart including people's talk, their body cues,

their use of tools, and the historical and cultural influences at play (see Section 4.4). The processes afforded for data to be interpreted and presented with as many details and depth as possible (see Chapters 6 and 7).

The interplay of the above methods and approaches showed that they can be used together to analytically separate interactions happening within a snapshot of a timeframe and produced meaningful findings concerning human interactions (Rasmussen & Ludvigsen, 2010; Lund, 2008). Most importantly, these methods helped to document how instructors and students transitioned rapidly and necessarily from a supposedly regular face-to-face and online academic term to a fully online learning modality due to the unexpected COVID lockdown. This study also presented the ways in which people used each other with and through technology to carry on working during the pandemic. The above methodological choices were a strength that resulted in rich data and findings for this study.

9.2 Limitations

The study's limitations mainly concerned the limited access to participants during the pandemic. This situation may have contributed to some complications and complexities in data collection and analysis methods adopted for the study. However, these limitations should also be seen as strengths of the study. This is because the limitations afforded unique opportunities to explore interactions in the face-to-face and fully online education settings that took place within before and during pandemic contexts.

9.2.1 Face-to-Face Interviews and Observations During Lockdown

One of the limitations was the inability to gather face-to-face interviews and observational data due to the student participants returning to their family homes. Observations during the pandemic could have supplied further details about how participants acted with mediational means and communicated with people to attain their tasks objectives while having to cope with

the pandemic living situations. Face-to-face interviews would have allowed me to have interactions that contained body cues which could make the process much smoother and richer with students' details of actions taken to execute university tasks in the COVID situation (Vygotsky, 1987; Lantolf, 2000). However, as previously stated in Section 9.1.1, the transition from face-to-face to online interviews was also a strength that had given me a distinct opportunity to collect and analyse data from two different mediums (i.e face-to-face and fully online).

9.2.2   Focus on A Group of Students

Another limitation in this research was access to a certain group of student participants in the study. During fieldwork, I noticed that there was one group of students in Class B (i.e Putri, Orked and Suri) who were housemates, colleagues, and friends. All three students volunteered to be observed and interviewed for the study. Before the pandemic, they would often keep each other company. Examples include during my interview with one of them, but all three participants came by the office (see Section 4.3.2), and how they worked on academic tasks together although it was an individual work (see Section 6.4), as well as working on tasks together beyond midnight at the university (see Section 6.5.2).

Nonetheless, the pandemic altered the access that I had to these students and changed the way they interacted with each other as they lived separately. Lack of access and data on this group of three students may have hindered opportunities to explore ways the students coped with working with each other amidst the change of context including potential implications on their collaborative efforts, sense-making about their tasks, and influences on motivation to continue their studies. Focusing on this group of students could have deepened our understanding of what constitutes the content and processes of learning as a social activity, and the ways in which a current event is potentially linked to the past and to future events (Middleton & Brown,

2005). Nevertheless, having the three close-friend students in both before and during COVID settings also served as a strength because I did not anticipate the group's participation in the study. Therefore, the situation gave me the advantage of gathering input about their transitions, changes, and similarities between the contextual shift.

9.2.3   Students' Workspace Observations and Photographs

The study's limitations included not having access to students' work context at home during the pandemic. As I have previously stated, humans' interactions including the use of tools and communications with people hinge upon their environments (Vygotsky, 1978). For instance, students' interactions with the size of space, the design, and the arrangement of physical tools (e.g chairs, tables, bed, clothes cupboard, lighting, and digital devices) and privacy may duly influence their learning activities (see Section 6.1). Thus, this lack of observational data and visual evidence about students' physical space during the pandemic, prevented me from seeing how the home space is integrated and is embedded in students' interactions with resources available in their settings. Moreover, access and data about the context may further deepen our understanding of how students' cultural and historical influences including relationships related to family that are also interrelated with students' work-home dynamics (see Section 7.1).

9.3 Contributions

The present study offers three primary contributions to the research field concerning teachers and students' interactions for learning activities in terms of findings, methodology, and theoretical application.

9.3.1 Novelty and Significance of Findings

Most importantly, this study contributes to the paucity of research on interactions in face-to-face and fully online learning, particularly within the before and during COVID-19 settings (see Section 3.2). The present study seems to be among the earliest studies to have explored this area in-depth and contributes to our understanding about mediated actions for learning activities in the two contexts. The study also offers insights into the shifts and quality between the changing landscape of before and during the lockdown, while tracking the trajectory of the same group of participants throughout their learning experiences in the two settings.

The findings also suggest that face-to-face interactions remain fundamental to learning activities. This is because the processes within interactions are fluid, engaging and embedded within the complex interplay of language, nuanced meanings, cultural and historical background, and the appropriation of tools to assist learning, all of which happens simultaneously in a shared physical space (e.g Carson e al, 2021; Mercer, 2007; Mercer & Littleton, 2007). Fully online learning during the pandemic proved complex but was able to assist students in their completion of tasks despite the constraints on ways to interact. The research also showed how students enacted agentic actions by appropriating technologies available in their environment to complete academic tasks primarily in the pandemic context. These findings extend our understanding about how people interact for learning activities in the two completely different contexts.

This study's findings are unique and significant, especially within the contextual settings in which they occurred (i.e Malaysia) and to other similar contexts because of the cultural, historical, and institutionalized aspects that cannot be separated from the learning activities (Chapelle, 2009; Vygotsky, 1978). This also means that some aspects in the interactions can be somewhat similar and different than interactions happening elsewhere. This study paved the

way for other researchers to interpret the available data and deepen some existing findings, while opening doors to new sociocultural research about interactions in education settings such as in Malaysia.

9.3.2 Theoretical Application in Before and During COVID-19 Contexts

The second contribution lies in this study's theoretical approach embedded in its analytical process. The research question about how teachers and students interact for learning activities is primarily a question of meaning-making. In consequence, I employed a sociocultural lens which offered a multilevel and diverse type of description on process that captures what people do, how they respond to others, how they take part in learning activities and what plethora of cultural tools and artefacts they employ to attain their objectives (Wertsch, 1991). Unlike other theories, such as behaviourism which focuses on how stimuli determine behaviour, or cognitivism that focuses on mainly mental processes of individual, a sociocultural perspective does not separate individuals and contexts, because they are mutually constitutive (Lund, 2003).

Furthermore, it is important to note that the sociocultural perspective in this study was used to understand interactions in their natural settings. This methodology implies that I did not impose any intervention to studying humans mediated actions between them, and with or through tools. Although the literature was able to explain interactions from a sociocultural perspective, several of the research designs were curated as experiments which suggest that the aspects under study could be biased towards the researchers' interests (e.g Smordal et al, 2021; Rodness et al, 2021; Warwick et al, 2010 in Chapter 3). However, interventions and controlled environments may have also allowed for a more focused analysis and scrutiny of the aspects in the mediated actions in greater details.

However, in comparison to this study, the naturalistic settings afforded an entry into a fluid boundary between humans' interactions with people and tools in their settings. Hence, the sociocultural concepts of mediation, agents-acting-with-tools and the appropriation of tools were able to be extended to the before and during COVID contexts where observations and explanations of mediated activities could be offered and analysed. In short, sociocultural concepts as applied in this study had provided useful lenses to dissect complex aspects embedded within interactions for learning activities in the two landscapes.

9.3.3 Adaptability of Research Design

Thirdly, the study's methodological design was certainly the product of a highly disruptive period where adaptations and modifications to the research were necessitated. Therefore, it demonstrates a novel alternative design of how a study can be conducted to best capture the transitions of before and during a contextual change. It may be unlikely that another global pandemic on a scale like COVID-19 will occur again. However, the main contribution here is in terms of the methodology which provides a reference in the growing body of literature about adapting to and capturing interactions during contextual transitions. Most importantly, I took inspirations from Thematic Analysis and Interaction Analysis, and appropriated techniques from these two analytical methods to fit the purpose of this study. Hence, this study may be used as a reference for the research community to study changes in future, both in terms of what can be avoided and replicated. This study's methodological adaptation that emphasises the sociocultural context as interrelated moments in research contributes to the qualitative case study research design.

9.4 Recommendations for interactions in a post-pandemic education context

Throughout this thesis, I acknowledge and emphasise the importance of face-to-face interactions for academic purposes. However, realistically the current educational climate is

moving towards more remote learning (OECD, 2018). We have been introducing technologies into education and will continuously and inevitably continue to do so, from textbook, to typewriter, to radio, to television, and now to computers (Lantolf & Thorne, 2006; Sajo, 1999). Education is akin to everything else in our environment (e.g language, signs, shared meanings, and culture), it is a developmental process which continues to evolve or change. Although the methods, activities and technologies in education may differ greatly, we as humans will continue to operate-with-tools and interact with fellow humans in order to continue progressing our learning.

Having understood about the interactions in before and during the pandemic, what are the lessons learned that can help us improve education? The following recommendations emerged from this study's findings and concern alternatives and practical approaches for students, instructors and universities to potentially make the most out of online and face-to-face modality to encourage interactions for learning activities while also giving us significant considerations for the two modalities.

9.4.1 Develop Students' Autonomy and Ways to Interact in Both Mediums

The importance of developing students' autonomy and their ability to develop distinct ways of interacting in both face-to-face and online is highlighted here. The first recommendation is to assign students-centered activities in both the classroom and for online modalities. For example, students explore course topics on their own and also with colleagues, and will later come together in a whole classroom discussion either face-to-face or online where teachers act as facilitators who provide feedback. More importantly, implementing student-centered activities imply that students' interactions and relationships with colleagues and instructors may also change as well from being teacher-dependent to more self-independent and peer-collaborative. As a result, students may have more confidence to interact with their teachers in

either modality but primarily in the online context for consultation and feedback because of the reduced power-gap (see Sections 8.2.1 and 8.2.2).

Secondly, students need to develop skills on how to best work with different groups of people to broaden their communication skills and the opportunities they have. This strategy can help create a collaborative relationship beyond their circle of friends and can provide access to each other in and outside of classroom as well as online. As discussed in Section 8.2.3, online interactions change students' relationships and their access to each other. The situation was found to influence their learning experiences (e.g feeling demotivated). Therefore, students with a wider support group among them may receive assistance when needed from any available colleagues in both a face-to-face and online setting instead of waiting for support from their friends only.

9.4.2   Purposeful Blending of Face-to-Face and Online Activities

Instructors' initiatives to blend face-to-face and online learning activities in a purposeful manner to maximize interaction opportunities are emphasised in the following. Suggestions on improving the online learning modality are very relevant based on the study's findings and literature that elicited issues concerning interactions for learning activities online (see Chapters 3 and 7).

In terms of the lessons, I suggest that they are delivered primarily in face-to-face classrooms where the teacher-students' interactions will likely occur less. However, if lessons take place synchronously online, a gradual and structured process of the lessons, as opposed to a larger mass of information in a single online post is recommended (see Section 7.2). This is to be considerate to all attendees' resource availability, including internet and digital technologies (see Section 7.1.2) and an awareness of the need of students' contextual stability as they may be likely to prioritize activities in their physical environment (see Section 7.1.1). Interactions

online can appear better if all participants can see each other's body cues in real-time. This may alleviate stress and provide confidence for students to ask questions as they can see instructor's and colleagues' reactions (see Section 8.2.2). Being able to see faces and the physical cues will also add to a sense of togetherness as participants will mimic face-to-face interactions within the virtual space. Additionally, they can send a private or public texts through the chat feature during the synchronous online interactions which may support immediate and direct communications.

The online modality may also be used to provide asynchronous course and learning materials including lecture videos to allow students' perusal of the materials before or after attending the classroom lessons. Synchronous and asynchronous online lessons may benefit from an assessment such as an 'exit test' to ensure students' attendance and engagement with the lessons or learning materials.

In terms of the tasks, formative exercises that can be completed within a certain time frame could be assigned in the classroom. This is to allow a visible trajectory of a learning experience from the broad task's instructions to working on the focused task's objectives as well as completing it within the classroom period (see Section 6.3). Moreover, students can focus on content checking (see Section 6.3.3) and may provide emotional support to each other while developing some stronger working relationship before having to collaboratively work online (see Section 6.5.2) (Mercer, 2007). Meanwhile, the online modality can be appropriated for tasks that may take longer to be completed as it affords them the structure for students to process task requirements individually before coming together as a group (see Section 7.3). As students become more adept at participating in learning activities remotely, they may also discover new and innovative ways of interacting with their colleagues and appropriating technological tools for their learning purposes.

Teachers' online posts could encourage text-based discussions. I noted the limitations of text-based communications being related to the lack of visual cues (Adalberon & Saljo, 2017) and the need for more words to describe or to communicate one's ideas (Vygotsky, 1962). However, text-based communications may also encourage interactions between teacher-students and students-students which may overcome internet data and also bandwidth limitations as well as allowing open-ended discussions and students' participations at any time suitable to them. The integration of online affordances in such a situated affair may open more possibilities and advantages in the post-pandemic education panorama.

Blending face-to-face and online learning may be able to reduce issues concerning students' delegation, time and home responsibilities constraints, the lack of opportunities to speak up in an online group work and also the lack or absence of physical cues online for students to check reactions amongst themselves. However, in all of these suggestions about using online technologies, we must also think about the aspects concerning a sense of collectiveness and emotional support that can be found mainly in a face-to-face lesson context. Thereof, we need to decide whether we merely want to complete a task which can be done online, or decide on a learning objective where students will also benefit most from a face-to-face interaction.

Ultimately, purposeful blending face-to-face and online strategies rely primarily on careful dialogic orchestration organised and conducted by the teacher (see Section 3.1.5). Input in this section serves as general recommendations for blending face-to-face and online interactions.

9.4.3 Higher Education Roles and Initiatives

Universities certainly have a responsibility to alleviate some of the constraints in interactions for learning activities. The study's findings showed very few direct teacher-students' interactions and therefore, a perceived lack of student access to teachers (see Sections 8.2.1 and 8.2.3). Consequently, interactions in the online learning modality should be direct,

immediate and ought to afford some kind of signals including body cues. As a result, interactions taking place online can be engaging, in-depth and fulfilling where people are able to negotiate meanings from each other's body cues, discuss ideas to increase understanding about a topic, and collaborate effectively between them. Universities may, then, consider adopting technologies which better facilitate and encourage synchronous interactions.

The study's findings showed that instructors adopting external digital applications to conduct their lessons, and ways teacher-students and students-students' interact in face-to-face have changed when in fully online context (see Chapter 8). This implies that teachers and students' expectations about how they will be interacting in future learning contexts may have changed as well. Therefore, universities' blueprint and policies that were written in the before COVID setting may no longer retain relevance now. Universities may want to consider shifting their focus from employing certain technological tools (see Sections 1.1.2 and 1.1.3) to enhancing and encouraging teacher-students and students-students' interactions in both modalities. Universities' policies and blueprints must embody the main idea where technology is not enforced but rather is deployed purposefully to better the overall quality of education in mind.

Relationships between students which were developed face-to-face before COVID proved to be useful as they were able to maintain and manage their online group tasks during COVID despite having some complications in terms of synchronizing time to work together (see Section 8.2.3). In contrast, other students reported issues including less participation among group members in fully online learning context (see Section 8.2.4). The two situations imply that students' online learning activities would certainly benefit from interactions and relationships created in face-to-face context, and students' close proximity seems to positively influence the way they work together. It shows that students are more comfortable working with friends than strangers. Consequently, universities may consider providing more students'

accommodation to better support students living in close proximity to one another and encouraging or organizing activities outside of classroom where students can convene and develop relationships between them.

In summary of the recommendations section, the appropriation of technology is most useful when it is intended (Lantolf, 2000). This study saw ways that people try to replicate face-to-face interactions through technology as being the mediums which connect them because it is what they needed to complete tasks. Hence, we need to acknowledge that online technology is potentially not enough because learning involves much more than having tasks completed at the end of the academic term. Instead, we can focus on making face-to-face and online mediums for education to co-exist by ensuring advantages from both mediums can be maximized and its constraints can be reduced. This is to support engaging interactions between people with or through tools.

9.5 Future Research

The scope of this research could be further expanded to study the interactions for learning activities in the ever-shifting post-pandemic context. A sociocultural perspective may continue to be applied to understand and to gain further insights about people's interactions among themselves and for their appropriation of tools. I want to learn more about the following; 1) how a blend of face-to-face and online learning, and fully face-to-face and fully online learning support or do not support teacher-students and students-students interaction, 2) whether students are more self-autonomous and doing better in their online learning, and ways teachers are providing online support, and 3) ways people continue to appropriate technologies to support their online interactions after having experienced working fully online during the pandemic.

Research on the interactions in the post-pandemic setting may provide insights about aspects which encourage and constraint interactions and aspects that constitute interactions in these different modes of delivery (i.e blended face-to-face and online learning, and fully face-to-face and fully online learning). Other possible findings are about whether users' longer exposure to online learning including uptake of digital tools may influence people interactions in a positive manner. This will continue the wider conversations and debates about human learning and development (e.g can immersive and normalcy to virtual spaces replace face-to-face absence versus do people crucially need face-to-face interactions regardless of how advance technologies are). Findings for these questions will have significant implications on the future direction of our education.

Other future research studying the interactions for learning activities may also consider different methodological designs at play. One of the methods could be using video recording in classroom. It will allow the researcher to re-watch lessons, providing further details of the moment-to-moment analysis where screenshots of the scenes can be enclosed as evidence to corroborate findings (Knain, et al, 2021), and used as reference in interview prompts (Froytlog & Rasmussen, 2020). Moreover, video-recording would supply data concerning physical cues to be ascertained and attached as evidence to the findings (Ludvigsen et al, 2010).

Another method to consider is students' diaries which may elicit detailed descriptions and experiences of students' progress in completing a task outside of the classroom, reflections about which resources they interacted and benefitted most, and experiences in navigating and using online tools to seek information for their tasks. Consequently, researchers may be able to understand learning activities in different situation over time as recorded and as deemed important by the students themselves (Furberg & Ludvigsen, 2008). Moreover, diaries align with the nature of interaction research that explores participants' naturalistic settings (Cohen,

et al, 2007). Hence, diaries would allow researchers to access important insights and potentially answer the question of who is carrying out an action and the level of activities' descriptions in situ, contextual settings, content elements, and episodes, all at a time when the learning activities were done covertly (Ludvigsen, et al, 2019).

Finally, access to students' personal WhatsApp group with their group members to complete tasks may provide additional in-depth data (though it would throw up ethical issues that would need to be addressed before researching). This is because most of their communications about the tasks which took place in their own chat groups without other non-members and instructors. Such evidence could be used to corroborate students' recollections during interviews, demonstrate students' interactions with each other (Merriam & Tisdell, 2016), and observe how technologies are appropriated by students (Yin, 2011).

In short, I intend, in my future research projects, to extend this study by exploring similar aspects in interactions for learning activities, but in a post-pandemic context. Other possibilities are to adopt different methodological designs by including video-recording in classroom, students' diaries, and access to students' private WhatsApp group chats with their group members. All these potential studies about interactions in education contexts would add to our understanding about human interactions and the future course of higher education.

9.6 Conclusion

Interactions for learning activities in the face-to-face and fully online settings within the before and during COVID-19 situations, indicate that learning is always an 'activity-in-context' because our activities are largely determined by environments which afford some structure to the activity (Crook & Light, 2002). Learning is not an activity which is be readily abstracted from context. In simple words, I emphasise that people's physical context plays one of the most crucial roles in human interactions. Lessons in a shared physical space contribute to more in-

depth and dynamic engagements compared to online learning. This is because of the fluid and complex interplay of tools including the language, body cues, space, and cultural and historical background of the people involved in the interactions, all happening concurrently.

However, technologies are often ubiquitous in education, including online learning although it does not mean that higher frequency of its use is better (Lantolf & Thorne, 2006). Therefore, in this thesis, I am not suggesting that one modality (i.e face-to-face or online) is superior than the other because each has its own potentials in encouraging interactions and supporting academic activities. On the one hand, I reiterate that face-to-face interactions afford a combination of physical cues and immediate verbal communications that may assist teaching and learning activities (Smotrova & Lantolf, 2013), and support collaboration among students (Mercer & Littleton, 2007). On the other hand, the online modality can support the execution and completion of tasks because its features can be appropriated to record this and according to users' needs for their activities. Online learning encourages structures and affords records of students' group discussions through text messages and voice notes depending on the chosen applications (e.g WhatsApp). These aspects may allow students the space and time needed to conduct own learning activities while also being connected to their colleagues where they can have quick communications related to their tasks. At the same time, the online modality maintains students' autonomy as they are able to choose when they want to interact with colleagues depending on their other commitments and activities in the physical context.

In light of these prominent findings, the emphasis I am making is about how we may blend face-to-face and online learning in meaningful ways. After all, education continues to incorporate different technologies throughout different times. Consequently, what we must focus on, within our capacity, is on how possible technologies as mediational means including online learning can potentially be included and used to stimulate interactions in education

contexts. This is because encouraging interactions with the appropriate tools may lead to more favourable outcomes, and vice versa (Bartlett & Miller, 2011).

Finally, this study addresses a significant lacuna found in the existing literature by providing valuable insights into interactions within the face-to-face and fully online learning contexts. It also sheds light on the transitions that occurred between the before COVID-19 and during COVID-19 lockdown settings, highlighting how these transitions can either facilitate or hinder learning, as well as insights that we can marvel on as we revisit the changes that we have experienced between the two contexts. The lessons derived from this thesis entail the recognition that interactions in a shared physical space profoundly offer a sense of presence and togetherness.

The findings also provide a powerful challenge to prevailing notions held by students, teachers, universities, and governments concerning the effectiveness and conducive nature of online learning (see Sections 1.1.2 and 1.1.3). Instead, this study found that the online learning environment, despite its advantages, presented various obstacles including filtered communications, communication delays, cultural constraints, and the absence of certain visual and nuanced cues that otherwise are more easily negotiated in a physical context. Hence, these findings further strengthen the relevance of this research as the knowledge gained from such insights provide us with ways and tools to enhance the quality and effectiveness of both face-to-face and online interactions in educational settings.

9.7 Final Remarks

Conducting this research during the disruptive period of a global pandemic was a thought-provoking and challenging journey. I started this doctorate journey with a Blended Learning topic which I had experienced and been exposed to in detail. Consequently, the area of research was, in some sense, a familiar territory. Unexpectedly, the highly transmissive COVID-19 virus

arrived and was declared a global pandemic. This sent a shockwave through me, and everybody involved in the research. The first national lockdown in March 2020 to contain the spread of the virus had taken place when I was in the middle of data collection. Subsequently, I had to redesign and rethink the methodological design to ensure the study retained its relevance and feasibility. During this period, I had to ensure that the data collected before and during the pandemic lockdown are able to answer the new formulated questions, and vice versa (i.e pose questions that the data can answer).

The main difference between the previous and current research questions are embedded in the focus of the questions asked. The former proposed to study how the Blended Learning blueprint may link or differ from the interactions happening in a Blended Learning system (i.e students' learning activities and instructors' teaching activities), while the current research questions focus on visible interactions for learning activities in two contextual settings (i.e before and during COVID-19 lockdown). This change of research questions is of significant importance in the process of rethinking the research because different research questions may produce different findings altogether (Yin, 2011).

Mentally, this process was in the first instance daunting and ultimately to some degree draining. I remember having to multi-task; collecting data while making adaptations to the research methods, analysing data while making sense of the new research's direction, and interpreting findings while thinking about the most fitting questions for the study. However, in the end, my intellectual journey has brought me full circle to the initial focus of my research; Blended Learning (see Section 1.1.4). While the completed research did not directly examine Blended Learning delivery system, the exploration of interactions in face-to-face and fully online learning environments, both before and during the COVID-19 pandemic, has provided valuable insights into the essence of Blended Learning. This study further highlights the significance of

Blended Learning that must be approached purposefully and strategically to facilitate meaningful interactions and curb the constraints inherent in relying solely on one modality (see Section 9.4).

Physically, I was moving from one country to another; from the United Kingdom to Malaysia, and later from one state to another within Malaysia. The findings in this study where students did not have a conducive workspace, and a stable internet bandwidth, as well as facing cultural priorities at family's home, were not foreign to me as I experienced this too during my educational development. The supervision tutorials were also done in the evenings because of the time difference between the United Kingdom and Malaysia. A milestone in this research is being able to retain the same participants throughout fieldwork despite all of us fearing the impact of the pandemic on our health. We were simultaneously coping and worrying about a multitude of issues including how to move forward with our work situated in a pandemic context that no one had experienced before. These experiences were challenging yet rewarding as it acutely sharpened my skills as a flexible and resourceful researcher because plans do not always mirror the reality in fieldwork. Most significantly, the experiences enriched the research as a whole because of its findings in such unique contexts, and methodological and theoretical contributions at the end of its completion.

This intellectual journey has proved more than fulfilling. I started this PhD with strong assumptions that technologies would magically ameliorate education in various ways. However, upon deeper reflection and based on rigorous research all the processes and experiences that I went through made me question my beliefs and assumptions about human learning. I would like to think that now I am a different researcher imbued with the critical skills which I may bring to bear upon future research projects. I believe that humans are social beings who learn by engaging with the tools in their environments and that learning is a gradual

process (Vygotsky, 1981). Understanding how methods can be appropriated to afford chosen theoretical lenses also adds to my confidence as a researcher.

In my future role as a university instructor, I will greatly benefit from the findings in this study by planning the manner of how interactions can be encouraged in both face-to-face and online contexts. Through this study's findings, I feel I have contributed significantly to the research community in the education field, and I endeavour to continue these efforts mainly on exploring purposeful employment of digital tools for learning activities as we may march into a more technology-savvy future.

It is through resilience and unwavering dedication that this research took shape, and with deep gratitude, I bid farewell, knowing that these findings pave the way for brighter educational practices.

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Appendices

Appendix A:

Course's tentative assessments:

Below information provides an idea of what activities were planned for the course (e.g individual and group work):

NO	ITEMS	ALLOCATION OF MARKS & PERCENTAGES
1. CLO1	Assignment 1 (Individual work) • Choosing a relevant Job advertisement • Typing and proof-reading Resume (Typed and proof read) • Preparing a Job Application letter (*in-class practice only)* • Submitting Job Ad and Resume to instructor	5%
2. CLO2	Assignment 2 Non-Formal Learning (Individual work) • Preparing a Video CV and submitting it to Youtube and embed it to e-learning	70m -- 10%
3. CLO2	Assignment 3 (Group work: 4 people/group) • Taking part in a Mock Job Interview (pg. 89) • Interview (*in-class assessment)*	15%
4. CLO2	Assignment 4 (Group work: 3 people/group) • Writing a proposal (pg 195-6) • Using 3-page template provided in e-learning	50m -- 10%
5. CLO2	Oral Presentation @ Proposal sharing moments (Group work: 3 people/group) • Presenting a Proposal in front of an audience (pg. 267-8)	40m -- 10%
6. CLO3	Teamwork Evaluation on Proposal Preparation • Observation	50m -- 10%
7. CLO2	Written Test	30%
8. CLO2	Assignment 5 (Group work: 4-5 people/group) • Conducting a mock Meeting on Perhentian Kecil Project (pg.129-131) or a different project – instructors will inform students the topic(s) • Present mock meeting in class or in recording for evaluation.	70m – 10%

Appendix B:

Interview Protocol: Students

Interviews had included observational input from learning activities in classroom and online platforms, as well as related documents shared by students for contextual purposes and prompts.

Below were areas of questions probed:

Activities

Support received and offered (from/to colleagues)

Support expected and received/not received (from instructors)

Delegation and collaboration of tasks among colleagues in group work

Uptake of tools (digital and non-digital)

Self-organised Activities

Activities and initiatives taken to complete tasks/attain objectives

Form of support received and sought (peer and lecturer)

Formal and informal tools (digital and non-digital) – usefulness

Reflections about learning activities (example questions emerged from observations and interview dialogues)

o What are the noticeable shifts from before to during pandemic in relation to learning activities?

o How/Why specific tools were needed/used?

o How/Why support from/to colleagues/instructors are expected and sought?

o What/How does own enacted effort helped to complete learning activities?

o How/Why signs (eg gestures, eye contact, tones, etc) helpful/unhelpful in learning?

o How did you complete the task assigned? (details, resources, etcetera)

o Advantages/disadvantages of face-to-face activities

o Advantages/disadvantages of artefacts to enrich learning experience

o How did activities inside/outside classroom contribute to task completion?

o What/How did online platforms assist in task?

o What difference/similarities can be made about face-to-face and online activities?

o Access and facilities to digital technologies

Interview Protocol: Lecturer

Interviews had included observational input from instructors' teaching activities in classroom and online platforms, as well as and documents (i.e course's materials) as prompts.

Below were areas of questions probed:

First Interview at the Beginning of the course

Tasks and planned activities in before pandemic

Tools[1] selected to teach the course unit

Mediums of support extended to students

Second Interview in the Middle of the course

Changes, new tools and materials for the remaining lessons (if any) during the pandemic

Activities and tools that are useful/not useful for teaching

Feedback and support provided and expected

Methods of interacting with students

Third Interview at the End of the course

Reflections on teaching activities from before to during the pandemic

Identified weaknesses and advantages in both/either context

Other tools for future use

Concluding remarks about teaching in both contextual settings

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[1] Tools refer to both digital and non-digital artefacts

Appendix C:

Observation Focus

	Inside Classroom	**Outside Classroom**	**University's VLE**
Who	Lecturer Students	Students	Lecturer Students
Place	Classroom/computer lab/lecture hall, etcetera	Varies	Varies
What	Contextual information (description): • Task (e.g pair or group work) Tools/artefacts: • Course materials, digital and non-digital tools (formal and informal)	Contextual information (description): • Self-initiatives (e.g pair or group discussion) Tools/artefacts: • Self-gathered materials/resources, digital and non-digital tools (formal and informal)	Contextual information (description): • Interface (e.g ease of use, locus of control and functionality) • Tasks and activities (e.g quiz, Forum, assignment, webinar, chat)
How	Teaching activities: • Interactions with students (e.g support, feedback, class format such as teacher/student-centered, technologist, educationist, pragmatist) • Interactions with artefacts Students' activities: • Interactions with lecturer • Interactions with peer • Interactions with artefacts Language and actions	Students' activities: • Interactions with lecturer (e.g verbal/written – appointment, email, text/chat etc) • Interactions with peer (e.g verbal/written – chatting platform, VLE, group discussion, cognitive and emotional support, etc) • Interactions with artefacts (e.g books/course materials, search engines, websites etc) • Previous knowledge (e.g past information that help in task completion) Language and actions	Teaching activities: • Interactions with students (e.g support, feedback, online format such as teacher/student-centered) Students' activities: • As per instructed on/for VLE, interactions among students and with lecturer, sharing information and conversation exchanges. Language
Protocol	Appendix C (flexible)	Appendix C (flexible)	Open (depends on what can be observed and gathered)
Devices	Two audio recorders • One – lecturer • One – students' task	One recorder – students' task	• Laptop/computer and smartphone • Snipping tool application

Observation Protocol

The protocol serves as a flexible guide to note contextual information, activities in- and outside classroom and online, people involved, digital and non-digital artefacts, content of discussions, instructions, feedback and support.

Week and Task (Topic): Date and Time:	Instructor and Class:
Place Description:	

Open Field Notes:
(instructions, when, who, what, how – involved in activities)

Observation Notes in Classroom (Before COVID-19)

Week and Task: 5 / Email Writing	Instructor and Class:
Date and Time: 9.3.20 / 8 to 10am	Bayu / Class B

Place Description :

A language/computer lab. There are computers in this room where each computer has its own partition, so students are not seated closely to each other and cannot communicate easily with one another. The partition provides privacy for students, where they cannot peek at their friend's work on the computer and perhaps can't listen to any audio that comes out of the computer. Each computer comes with a keyboard and a set of headphones. The computers are not new as they're big and old computer versions. The room is painted in white but the barriers are a combination of dull yellow + brown colours. The room has a projector and a teacher's desk in front. All computers are forward facing. The chairs are cushioned and movable. At the back of the room, there is a technician partition where a technician lady sits and oversees the room, should any help is needed. The floor is carpeted and students leave their shoes outside of the room.

The lecturer walks into the room, greets the students and walks to her desk. She puts down her belongings and starts logging into the computer that's on the desk. The lecturer walks to the back of the room to speak/greet the technician. Students who have found their seats are turning the computer on and logging into the system. Some latecomers are entering the class as of now, finds a computer and sits there. Male students are sitting at the back and they are the latest to come into the class.

The lecturer says each row that has 8 students (1 student = 1 computer) to form two groups (4 people in one group). She then calls for a group leader to come to the front of her desk. She gives them task instructions and explains what their group task is about.

The group leader (i.e Suri) comes back to the group and relays the instructions to their groupmates. The task is to create an email account and pretend to write an email to their lecturer. Students need to come up with a step-by-step illustration and make a Power Point Presentation (PPP) out of that process, all groups are later asked to present the PPP.

Putri's group has a total 4 members (i.e Putri, Orked, Suri and Bashira), they divided the group into 2 – one pair creates the email account and takes snapshot of its one by one step, another writes an email and takes snapshot of one by one step on email writing.

Orked and Suri chose to create an email account task.
Putri and Bashira are tasked to write an email and show its steps.

The lecturer starts walking around in the class, checking and resolving questions that students have.

Orked and Suri have other tabs opened, one of it is YouTube where they are playing Asian songs, as seen on the tab and heard through the headphones.

While doing the work, Orked (a groupmate) turns to me and asks "Kak Alia duduk mana?/Where do you stay?". I responded saying "Taman Desa Seri Tanjung". Apparently they have a Final Year Project (FYP) in my neighbourhood and are using the project as an example for the email writing task. They select a new anime song on Youtube to listen to and then click on the email tab.

Orked and Suri use Google Translate to help them write. They know what they want to say in Malay, then they type it into the Malay box and wait for Google to translate to English. They copy and paste it in their work, but they edit a word or two that they may find as unsuitable or inaccurate. They then Google for scholar papers on Google Scholar to help them with the content writing of their work.

Putri opens a new tab on Youtube and searches for a anime song, because earlier she peeked at her two friends (i.e Orked and Suri) and saw that they're listening to songs on Youtube and remarks using humour on how her friends managed to listen to music while doing work, though they're supposed to be focusing only on their task.

The lecturer is walking around the class and is now talking to the technician to help her switch on the projector. The device is switched on but is not projecting anything. After receiving help, the white screen now projects university's VLE of the lecturer's work account that has been logged in. There are several tabs open on the lecturer's computer. One of the tabs shows a proposal example that is clicked from one of the hyperlinks that can be found on the main course's page of the VLE. The screen is now left idle on the main course's page that displays a number of hyperlinks titled by academic/semester weeks.

I was asked another question. The students ask which sentence structure is correct for the 'subject' section of the email. "Kak, submission of FYP, or FYP Submission". I didn't want to feed the answers and disturb the lesson so I ask them instead, "which sounds better?". They said the first one, while looking at me. I simply nodded though both can be used as a Subject of the email.

Only two persons are working at the computers. As this group of 4 people divided tasks into two pairs, it means that two students are typing while two more are referring to textbook or feeding information to the other person.

As Gmail now has predictive text when you write an email where it suggests a few continuing words as you type, Orked is seen to be using it to check her spellings but they do not follow the predictive text entirely as they know what they want to type and write in the email.

Sometime during the task, Putri no longer listens to songs on YouTube.

Putri is helped by her partner who spells the words for her while she types on the computer. She merely follows what sentences are uttered by the partner and how to spell it.

The lecturer now opens Padlet where students must submit their PPP through this platform

In the same row with Putri's group, I see another group that work together (all 4 of them) on every process/stage of the task assigned. I can see one student typing on the computer, one student holds the textbook and shows what to do to her friend who's typing, two students are seen holding their phones while looking at own textbooks.

A moment ago, Orked and Suri walk to the lecturer who's now seated at her desk, to seek confirmation abt the task that they have just completed. They came back saying "salah, salah / wrong, wrong". Orked said the subject of the email is wrong as it should be about the "Final Year Review" instead of submission. They continue working on their delegated pair's task. Putri and Bashira look at their groupmates' work and then focus on theirs.

Suri is now scrolling her Instagram and found a post about COVID-19. She reads it aloud to her friends. Then, she stands up and asks whether her two other friends (i.e Putri and Bashira) are done with the task. While seated, Orked and Suri look around and extend their necks, as the partitions are quite high, they find the lecturer's is now walking around to check students' work. Orked and Suri want to seek confirmation once again from the lecturer whether their completed task is correct or not as per instructed.

The three of them are now looking closely at what Putri is doing. They give comments about how her presentation of information in the PPP slides is a bit messy and unclear. The arrows that Putri is placing look confusing to readers, as commented by them. After she is done with shifting the arrows and boxes that illustrate steps of her email creation on the PPP, her two friends commented on how they like the arrows from previous version better as the current one is messier. Putri then makes the changes again on the PPP and revert it to the previous version/arrangement. After having done so, she now changes the font on the PPP and checks its consistency in all slides.

All four students are gathered at Putri's computer desk and seem to be discussing the contents of Putri and Bashira's work.

Suri and Orked keep peeking over around the class to spot the lecturer's whereabout so they can ask whether what they're doing is correct. There is a sense of need or eagerness from them to get feedback or confirmation about the accomplishment of the task.

When Putri and Bashira's task is done, Putri opens the Youtube tab and it's now playing Beauty and the Beast soundtrack. Both computers in this group have songs playing on the computers through Youtube platform.

Before Suri leaves to go to the toilet, she reminds her groupmates to get the lecturer to check on their work.

Orked realises the mistake in Putri and Bashira's PPP after reading the email that Putri had composed and sent to her Gmail inbox. Orked directly made changes on the pair's work at her computer.

Orked raises her hand so that the lecturer can see her and come over to check their work. While waiting for the lecturer, Putri opens her Instagram story while Orked reads aloud a funny Instagram post on her phone.

The lecturer comes over and checks the students' work. She founds grammar errors in the email and gives her comments. Students make changes as the lecturer explains the errors made. This activity happens at Orked's desk while the audio recorder is left at Putri's desk.

The two pairs are now making the corrections of their respective works at own desks.

Music can be heard blasting through the headphones as Putri listens to songs on Youtube.

When making changes on the email that Putri composed, she used Gmail predictive text as she presses 'enter' when Gmail suggests a whole sentence to finish the email. She then resend the work to Orked's Gmail inbox.

Orked now compiles and uploads the PPP on Padlet after the lecturer reminds students to do so when they're done with the task. The PPP is to be presented in their next class.

The lecturer asks for updates and progress of the video CV task. The deadline is 19th March and she then ends the class with a reminder to log out from the computer. She dismisses the class and thanks them.

Students leave the class while the lecturer stays behind to ensure all digital devices are shut down.

Appendix D:

Before COVID-19 Translation Examples (Malay to English)

<u>Teacher Feedback and Affirmation</u>

Awan: Siapa tak tahu apa tu cover letter, angkat tangan?
Who doesn't know what is a cover letter, raise your hand.

<u>Reciprocated Checks:</u>

Putri   : *Macam contohlah Google Translate cakap 'believe' untuk perkataan 'percaya', so tanya kawan, sesuai tak ayat yang nak guna dengan (perkataan) itu.*
For example, Google Translate says 'believe' means 'percaya', so I'll ask friends, whether the word is suitable to be used in the sentence.

…………………

Fasha   : *Kalau kita buat dengan kawan-kawan kita tau jugak idea dia.*
If we do the task with friends, we learn about their ideas too.

…………………

Didi   : *Member lebih kepada discuss untuk dapat pendapat lain.*
Friends or colleagues, more to discussion to get more opinions.

…………………

Putri   : *Buat sorang boleh tapi still lagi perlu tanya kawan-kawan ... kalau saya buat seorang, peluang untuk kesalahan tu makin tinggi, so better group discussion.*
I can do it myself but still need to ask friends. … If I did it alone, chances of errors will be higher, so it's better to do group discussion.

<u>Physical Co-Presence</u>

Fasha   : *Dalam kuliah tu contohnya kita bukannya dapat dengar fully pun apa Dr tu cakap, rasa nanti boleh lah tanya Su, Isha ke, so dapat lah information dari dorang.*
In lecture for example, we could not fully hear to what the Dr is saying, I feel like later I can ask Su, or Isha, so I can get information from them.

<u>Visual Cues</u>

Putri   : *Sebab face-to-face dia senang. Jumpa depan mata tanya terus, banyak mana kau nak tanya pun, tanya je.*
Because face-to-face is easy. Meet face-to-face and directly ask, no matter how many questions you want to ask, can simply ask.

During COVID-19 Translation Examples (Malay to English)

Learning Materials Availability

Maya : *kadang-kadang background tu terlalu bising, tak dengar apa lecturer cakap. Kan ramai dalam tu, susah nak control.*
Sometimes the background is too noisy, I can't hear what the lecturer is saying. There are many people in there, difficult to control.

………………

Nurin : *Hari tu adik saya connect saya punya hostpot kat phone, pastu 1st time saya tertinggal online class tu, sebab dia jadi hang.*
The other day my younger brother connected to my hotspot on the phone, then I missed an online class for the 1st time because the phone became hang.

One-way Lessons Delivery

Ramli : *Terima je maklumat. Asalkan lulus je.*
Just accept information. As long as I pass.

………………

Orked : *Saya tak faham....tak faham sebenarnya tapi...buat-buat faham.*
I don't understand….don't understand actually but…pretend to understand.

Submission Priority

Maya: *Nama pun group. Kita pun taknak la dia bagi halai-balai nnti kita pun kena tempias*
It's called a group assignment. So we don't want anybody to give a so-so work, because we will also be affected.

Speech-Based Communications

Nurin: *Tengok daripada muka berkerut haa tak paham la tu. So dengan mimik muka bercampur dengan percakapan dia tu satu set ni la membantu*
Seeing from knitted eyebrows and facial expressions, haaa the person doesn't understand something, for sure. So, facial expressions combined with what's spoken become a package that helps.

Personalized Checks:

Putri : *Biasanya kalau nak tanya apa-apa memang malam je la.*
The question will have to wait until at night.

………………..

Fasha : *Buat subject lain dulu ke tapi kadang tutup je dulu kerja tu… pastu macam idea yang asal sampai tu dah macam hilang.*
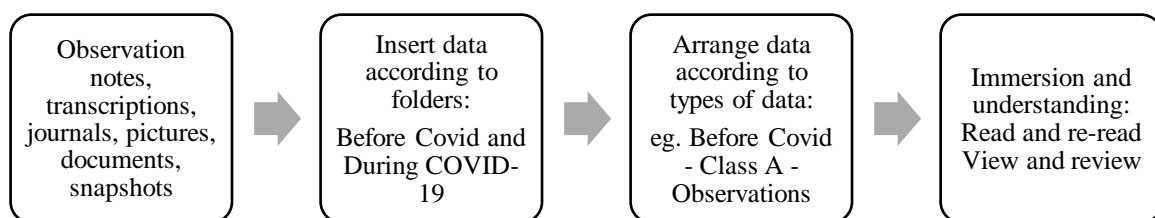Do other subjects or sometimes just close the work first…then the initial ideas that I had become somewhat lost.

Appendix E:

Phases of Thematic Analysis

Phases	Descriptions of the phases
Familiarization with the data	Immersed in the data by listening to the audio data and reading and rereading textual data, making casual notes, and noticing details
Coding	Involved deductive and inductive approach. Data were organised around similar meanings and the content reduced into collated chunks of text. Labels were generated for important and relevant features of the data to the research questions.
Constructing/ Searching for themes	There were two key ways to develop codes into candidate themes, 1) using codes as building blocks – similar codes are collated, together with their associated data, into coherent clusters of meaning that tell a story about a particular aspect of the dataset, and 2) thematic mapping – a process of visually exploring potential themes and subthemes, and connections between them. In my analysis, I chose method One.
Reviewing themes	Checked the themes to ensure its coherency in relation to coded extracts and full-data set, to combine two themes together or split a theme into two or more, or to discard some themes and re-do the theme development process. Later, I did Thematic maps – to visualize how the themes fit together and tell the overall story, and to check that themes do not overlap.
Defining and naming themes	Identified the essence of each theme and constructed an informative/clearer name for the themes that succinctly cue what readers can expect to read.
Reporting/writing up	A process of selecting vivid, compelling extract examples, final analysis of selected extracts and relating the analysis to the research questions and literature, and producing a scholarly report of the analysis.

Source : Braun, et al, 2019; Clarke & Braun, 2013; Braun & Clarke, 2012; Braun & Clarke, 2006 (author's illustration)

Data Organization and familiarization of data

Observation notes, transcriptions, journals, pictures, documents, snapshots → Insert data according to folders: Before Covid and During COVID-19 → Arrange data according to types of data: eg. Before Covid - Class A - Observations → Immersion and understanding: Read and re-read View and review

Appendix F:

Interaction analysis (example):

<u>Data from Classroom Audio-Recording in before COVID-19 Context</u>

After receiving task instructions from the instructor, students redirected their focus to colleagues. The four students were sitting in a semi-circle at the round table. The group I was observing consisted of an interviewed volunteer participant (Fasha) and three other group members. Fasha is seen holding a pen and a notebook, while Ananda and Abu are scrolling their phones as I could see them looking at the lecture notes that were projected earlier, and Aqila is not holding any digital or non-digital artefacts but may or may not be ready for the task. Initially, Fasha and Aqila said they were not clear with the instruction given. This prompted Ananda to reiterate what the instructor had said while scrolling her phone's screen. Following the explanation given is an extract that illustrates an aspect of active participation where students attempted to come to a mutual understanding to complete the task.

1	Ananda :	*Tulis Bahasa Melayu dulu, lepas tu buat English*
		Write in Malay first, and then write in English [agency]
2	Aqila :	*Ko nak cakap apa dulu? (looks at Ananda)*
		What do you want to say first? *(looks at Ananda)* [cue]
3	Ananda :	*Macam mana format email.*
		What is the format of an email. [check] [cue]
4	Fasha :	Hmm, how to make the cover letter with email? *(looks at Ananda while holding a pen on top of her notebook)*
5	Ananda :	Format cover letter, with the email. [clarification]
6	Fasha :	*Beza antara dua? (looks at Ananda and Ananda nods)*
		Oh, itu soalan nya. Beza antara cover letter yang letter and dalam email?
		The difference between the two? *(looks at Ananda and Ananda nods)* [affirmation]
		Oh, that's the question. Difference between cover letter in letter form and cover letter in email?
7	Ananda :	Haaa, yes.

Excerpt 1: Negotiating Meaning

In the above excerpt, it started with Ananda's suggestion for Malay language to be used for the discussion despite being in a lesson that is part of an English course (line 1). In this instance, Ananda is enacting an agentic action where she initiated the collaborative task. Continuing from Ananda's statement, there was no objection from any group member regarding language use. Aqila then replied in Malay with, "*Ko nak cakap apa dulu?* / What do you want to say first?" (line 2) while looking directly at Ananda. Aqila's direct questioning is a prompt that made Ananda respond to the query, with a monotonous tone as the sentence was phrased like a statement compared to a question, "*Macam mana format email* / What is the format of an email" (line 3). Ananda's reply in Malay language was picked up by Fasha who responded with, "Hmm, how to make the cover letter with email?" (line 4) as she translated the reply from Malay to English and at the same time framed her utterance in a question format. By translating Ananda's answer in English, Fasha is trying to check whether she is correct in gauging Ananda's input while prompting for a response as she holds a pen on top of her notebook, which is a gesture that signals readiness or uncertainty to write what Ananda is saying. Fasha's interjection, "hmm" (line 4) suggests that she was not completely sure about whether she managed to gauge precisely what Ananda wanted to convey. Ananda who saw that Fasha still has a vague understanding of what she meant, repeated her answer but worded the response in English instead of Malay, potentially to help ease Fasha's understanding using the same language

that Fasha had used earlier. Ananda used only keywords to emphasise the main points that she wanted to relay, "Format cover letter, with the email" (line 5). Fasha who thinks she is picking up on Ananda's account, now tries to reaffirm as she looks directly at Ananda and framed her guess in a question, "*Beza antara dua? /* The difference between the two?" (line 6). Fasha also reverted to Malay as the initial agreed language for the discussion (line 1). At this instance, we learned that Ananda's idea was correctly understood by Fasha when Ananda nods as a sign of confirmation to the query. This is followed by reiteration in Malay from Fasha while again framing the sentence in question format to obtain another confirmation. This time, Ananda gave a verbal confirmation of "Haa, yes" (line 7) which finally established a common understanding for both individuals and other group members who were following the exchanges.

Analysis:

      The analysis of students' interaction in the excerpt above makes it possible for us to see how immediate responses embedded in conversation among learners within the same physical space assist in their active participation to support each other. The activity elicited language affordances in the face-to-face context predominantly concerning immediacy of what is spoken and heard by both listener and speaker when they verbally communicate. For example, a student attempted to speak her mind by utilizing mainly keywords because the objective is to ensure peers capture the main ideas (lines 3 and 5). Similarly, in the process of rewording, students retain the main ideas but deliver it in a slightly different manner (lines 4 to 6), which places emphasis on ideas that matter by eliminating 'noise' that may arise from the use of other words. Another instance is when students code switched between the two languages (lines 3 and 6) to help ease understanding because they do not have to translate from one language to another while trying to do the task, instead they can focus on getting everybody on the same page.

      Secondly, gestures from body language, eye gaze and interactions with artefacts played a crucial role in the process of immediately communicating one's thought and sending signals. For instance, Aqila's prompt by verbally asking a question while looking directly at Ananda, signaled her undivided attention and waiting for a response (line 2). The act of holding a pen on top of a notebook (line 4), signifies readiness to write in the notebook about any input coming out of the discussion, which later will become an outcome for the task. But it could also mean that she was unsure about the input. This gesture of Fasha being on task also prompted Ananda to switch to English as she tries to clarify her ideas so that it can be jotted down in the notebook (line 5). Further, being physically co-present in the face-to-face context is a tool that allows space and opportunities to members who tune in to the unfolding discussion to intervene. In line 4, a student who jumped into her peers' ongoing conversation shows that she has been following the discussion from beginning. This is because what she says connects to and continues the on-going conversation. Another significant cue was visible when the student who nodded (line 6) essentially provided a confirmation on what was discussed without having to verbally say a word.

Appendix G:

Ethics Documentation

Relevant ethical guidelines and case study methods that have been perused and referred are: University of Bristol's Data Protection (n.d), The Qualitative Research Interview (Dicicco-Bloom & Crabtree, 2006), Qualitative Research: From Start to Finish (Yin, 2011), Approaches to Data Analysis (Hamilton & Corbett-Whittier, 2014), Qualitative research: A Guide to Design and Implementation (Merriam & Tisdell, 2016) and The Art of Case Study Research (Stake, 1995).

Ethical issues discussed and decisions taken:

1. Researcher access/exit

Access will be requested from the gate keepers, namely: the Academic Office at ⬜⬜⬜⬜⬜⬜⬜⬜. A comprehensive research proposal will be accompanying the application so that the committee and persons in charge know what the research aims to accomplish, how it will be conducted and who will be invited to contribute. Upon gaining entry, I will introduce myself and the study to the lecturers before inviting them to partake in the research. Next, I will have to be introduced to the students in the classrooms involved. Exiting the fieldwork through a mutual understanding with the participants will be done by 'staying in touch' with the participants through sharing some of my later writings about the study and member-checking with the participants. Overall, I will be with the participants from the beginning until the end of the fieldwork to avoid a sudden entry or exit.

2. Power and participant relations

I am a researcher with in-betweener positionality because of my employment status at the researched university, teaching experience and graduate status. Even though I am a member of staff, I am not known to the wider community at the university. Additionally, despite having a few years of teaching experience, I am not familiar with the norms, expectations and adherence to government policies. Further, I am a graduate student who is able to empathise with another student's struggles but does not share other characteristics such as prior working experience, age, education background and others.

Due to my professional positionality, I hold little to less power that could influence teachers' and students' professional or academic life. However, I have to recognise my position of power as a researcher from the University of Bristol because the lecturer participant may have different education and research backgrounds. Nonetheless, the power relations can be reduced by acknowledging his/her (lecturer) status as a senior member/colleague of mine.

Further, my relationship with all participants will be informal as I will introduce myself as "Kak Alia" to the students, whereby the term "Kak" refers to an older sister, while "Alia" will be the name I shall introduce myself to the lecturers. As I will probe into students' blended activities outside classroom, I can reduce the power relations that I may have by conducting observations and interviews at a public space and simultaneously shift from formal settings to a more informal context.

3. Information given to participants

To guarantee the participants have adequate knowledge of what they are partaking in, I will distribute information about the research and provide them with a brief overview about the study prior to collecting any data. The

information provided is also to ensure the participants' judgement will not be influenced by what the research seeks to find/unfold.

Besides that, the lecturer may either ask face-to-face or email me any queries or concerns that he/she has about involvement in this research. Similarly, students will be given the chance to enquire during my first contact with them or through email anytime at their convenience.

Additionally, participants will be aware of the collection of online records because it is illuminated in the said research handout and informed consent. Meanwhile, any document extracts that students share will be at their discretion.

4. Participant's right of withdrawal

Participations in this research are voluntary because I seek to explore B-learning in its natural context without any coercion or superficial experimental intervention. Student participants may withdraw from the study by informing the researcher or the lecturer in the classroom, consequently their activities in both modalities (face-to-face and online) and interviews (if relevant) will not be included in the research. Meanwhile, the lecturer participant who would want to be removed are advised to inform the researcher prior to the fieldwork. This is because the research requires commitments from a lecturer who is willing to allow access from the beginning until the end of the fieldwork.

Any withdrawing participant(s) may send me an email stating their concern and intent to be removed from the study. Any participant who wants to withdraw may do so up until the data analysis stage.

5. Informed Consent

According to the Malaysian Law, individuals who are 18 years old and above are considered as adults and therefore are able to make decision and grant consent. Therefore, an informed consent will be given to the participants and their signed forms will be collected. The interviewed participants will be given a hard copy of the form while observed participants may choose to have a copy of the form sent to their respective email address.

6. Complaints procedure

If the participants have any complaints or concerns, they may channel it to the Dean [   ] [   ] (for matters related to the course selected for the research) and to my research supervisor at the School of Education, University of Bristol (for matters pertaining to my conduct as a researcher). The contact details of the mentioned persons will be provided in the research handout. This is also to ensure accountability in my conduct.

7. Safety and well-being of participants/researchers

In order to safeguard the safety and well-being of the participants, face-to-face data collection will be done within the university compound. The time and venue should also be readily convenient to each participant. Professional steps in all dealings with participants will be taken as an adherence to the Malaysian government staff's ethical code. However, if I had to conduct the interviews outside of the university, it will be done in a public space and at an appropriate time (working hours).

8. Anonymity/confidentiality

As anonymity will help reduce harm and increase protection of participants' privacy, I will assign pseudonyms to all participants who are interviewed and observed, including the names of whoever appears on activities/conversations I collect online. The assigned pseudonyms will be used throughout the reporting of the

research to ensure the importance of not identifying my participants is well taken care of so that they will be more confident to share information/views.

While it is difficult to ensure confidentiality, I must provide the participants a sufficient amount of it to safeguard their interests.

9. Data collection

The research plans to collect data involving people in the context, subsequently participants will become the centre attention of the fieldwork. Therefore, they need to be informed of what and how information will be collected, how information will be used and why the information is needed from them. Consequently, the research information handout has clarified matters pertaining to these queries. An emphasis is placed on the collection of online records because it will be done overtly as opposed to lurking and collecting information without the participants knowing. Regarding transparency of the data collection, I plan to provide interviewees with the transcriptions of the audio recordings to ensure that I have captured what they said correctly. As for the online activities, participants will be able to view their submitted work or comments on the platform.

10. Data analysis

Analysis will be done recursively to guarantee accuracy of the data's emerging themes. This can be done through reflexivity in order to keep my biases in check by taking my reflective journal into account, triangulate data from the multiple sources, conduct 'member checking' with the participants and not suppressing any contradictory findings (if any).

11. Data storage and protection

As fieldwork cannot be replicated, I will safeguard the data's security by making its duplicate and keep them separated from the original. Duplicates of audio records from the interviews and classroom observations as well as snapshots and photos of the classroom layout will be in digital copies, while duplicates of written notes during classroom observations will be in both digital and physical copies. The physical data will be kept in the locked drawer at my residential house. Meanwhile, the electronic data will be stored securely in University of Bristol's encrypted student account while a copy of it will be in my Google Cloud account, protected by passwords – on my laptop and on the cloud account itself. Additionally, I will provide a copy of the audio recordings and/or transcriptions if the participants who are involved in the requested recordings/transcriptions wished to have it.

12. Data protection (see: http://www.bristol.ac.uk/secretary/data-protection/)

Personal data collected for the study will not be shared and revealed to any third party. The participants who share any personal information will have sufficient knowledge of what and how their data will be used in the research. Besides that, no sensitive or unnecessary data will be collected because the study will only request for the participants' names, email addresses, telephone numbers and signatures. Personal information and all data obtained for this research will be stored for not more than six (6) months after the completion of the research before being discarded.

13. Feedback

Any feedback from the participants about the research can be channelled to my email address or my first supervisor at the School of Education, University of Bristol. Additionally, participants may provide feedback when I seek confirmation for the accuracy of interview transcriptions and during the 'member checking' stage to ensure I do not misinterpret their words.

Meanwhile, as a feedback to the participants, I will put forward a summary of research findings to them. I will also be providing a copy of full report should any of the participants request for it.

14. Responsibilities to colleagues/academic community

University of Bristol and [blacked out] will be provided with copies of my thesis to be placed in their respective libraries while the digital copy of the thesis can be accessed online (subjected to University of Bristol's library approval). Besides that, I plan to present the findings at conferences in and outside of Malaysia, as well as publish the writings in academic journals so that it may benefit the academic community, participants and funder of the research. Further, I will submit a policy paper outlining the findings from the research to the sponsor university so that they may re-evaluate the specifics within the B-learning system.

15. Reporting of research

Reporting of the research will be done earnestly by adhering to the criteria of goodness or quality of an inquiry. The reporting will also be sensitive to the participants and researched university by avoiding any negative remarks/reporting. The research will present dialogues from data in the original language alongside its English translation to increase validity of the study. Further, I will ensure that the extent of the data collected indeed investigated and ensured the conclusions accurately reflect and represent the life-world of the participants.

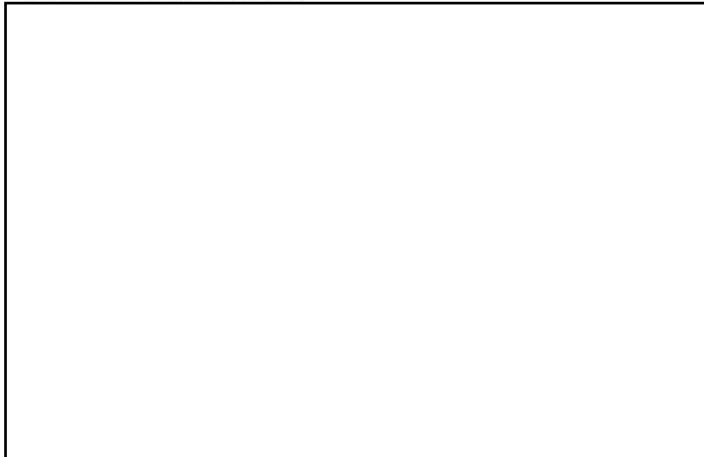Signed: [blacked out] (Researcher)   Signed: [blacked out] Jon James (Discussant)
Date: 15/8/2019

Appendix H:

Access Approval by the Head of Department

Farha Alia Binti Mokhtar,

I JANUARI 2020.

Perkara: Permohonan Menjalankan Penyelidikan dan Pengumpulan Data di Pusat Pembelajaran Bahasa Inggeris.

Dengan segala hormatnya perkara di atas adalah dirujuk.

2.   Saya Farha Alia binti Mokhtar, merupakan penerima biasiswa yang kini sedang melanjutkan pengajian di peringkat Doktor Falsafah di University of Bristol, United Kingdom.

3.   Di sini saya lampirkan cadangan penyelidikan saya yang bakal dilaksanakan di Pusat sebagai suatu konteks yang paling sesuai untuk dikaji. Oleh yang demikian, saya ingin memohon kerjasama sepenuhnya daripada pihak Pusat Pembelajaran Bahasa Inggeris untuk membenarkan saya melaksanakan kerja-kerja pengumpulan data bersama dengan pensyarah dan pelajar bagi kursus berikut:

Nama Kursus	: Dua (2) Kelas
Peringkat Pengajian	: Ijazah
Tempoh Kajian	: Februari sehingga Jun 2020
Bilangan Pensyarah diperlukan	: Dua (2) orang

4.   Bersama-sama surat ini, saya lampirkan ringkasan penyelidikan, maklumat kajian kepada peserta dan borang persetujuan peserta untuk rujukan pihak Dr. Sekiranya terdapat sebarang pertanyaan, berikut merupakan maklumat perhubungan saya:

No. Telefon	: +44 7955 393755
Email(s)	:

Segala pertimbangan dan sokongan yang diberikan oleh pihak Dr. didahului dengan ribuan terima kasih.

Yang benar,

Farha Alia Binti Mokhtar

Appendix I:

Research Information Handout

Research Information Handout

Title of Study : Exploring Blended Learning – A Case Study in a Malaysian Higher Education

Name of Researcher : Farha Alia Mokhtar

Project Funder :

Assalamualaikum w.b.t and greetings,

I am Alia, a PhD researcher at the School of Education, University of Bristol. My research is titled "Exploring Blended Learning – A Case Study in a Malaysian Higher Education". This document highlights information about the research and invites your participation in this study.

What the study is about: Blended learning refers to the teaching and learning through face-to-face and online instructions (dual modalities). The purpose of the study is to explore the blended learning delivery system at a Malaysian public university.

The context of the study involves   course at English   for approximately three months from February 2020. Data will be collected through observations in- and outside of classroom activities for the course, individual interviews with students and the volunteer lecturer, and a collection of documents, work and activities from face-to-face and online instructions as well as photos of the classroom's layout and snapshots of the online platform's interface.

Recording and Documenting: Two audio recorders will be used in the face-to-face classroom observation where one records the lecturer's instructions/lecture while another records students' verbal discussions for tasks during the lesson. Similarly, out of classroom observation will also utilize one audio recorder to capture activities enacted by students to complete tasks. All interview sessions will make use of an audio recorder so that I may give full attention in the meetings. In both methods, I will simultaneously do notetaking. Your discussions on university's e-learning portal will be recorded as well.

Anonymity and pseudonym: The records of this study will be kept private. In any sort of report I make public I will not include any information that will make it possible to identify you. Therefore, the reporting will be done with your pseudonym (all individuals) being used in the research.

Risks and benefits: I do not anticipate any risks to you participating in this study other than those encountered in day-to-day life. Any relevant information from whatever you have decided to reveal, might be used in the reporting of this study.

However, there are benefits to you such as experience in participating in a qualitative study, a closer look into your blended learning course which would otherwise be missed if it is not

discussed, contribution to Malaysia's limited literature about the topic and development of understanding in teaching and learning approach.

Data security and protection: Research records will be kept in locked files, both digital and physical forms: only the researcher will have access to the records. The consent form, any personal information and data collected will be kept by the researcher for not more than six (6) months beyond the end of the study. You may also request for a copy of the recordings and/or transcriptions that you are involved in.

Rights of withdrawal: The participation in this research is voluntary. You may inform me of your concerns and intent to withdraw through email, up until the analysis stage of my research.

Reporting of research: Kindly be informed that neither professional judgment will be made on lecturers' professional teaching practice nor anything of a critical nature written due to your participation in the research. Similarly, students who participate will not be facing any academic impacts as a result from partaking in the study. Reporting will be sensitive to the university that has been involved as the research site. These assurances are made to ensure sensitivity, protection and security to all stakeholders involved when the research findings are made public.

Compensation: There is no compensation for interviews and observations in this study. However, I will gladly share the findings of the study upon its completion, kindly leave your email if you wish to receive any updates.

If you have feedback or complaints: The researcher conducting this study is Farha Alia Mokhtar. If you have any feedback or questions, kindly ask in person during the face-to-face instructions or email me at [　　　　　　　　　　　　] Meanwhile, if you have any complaints, please channel them to the following persons:

o   Regarding matters related to my involvement in the English course for the research:

o   Regarding matters pertaining to my conduct as a researcher:
Prof. Dr. Sally Barnes
Supervisor
School of Education
University of Bristol, United Kingdom
Email   : Sally.Barnes@bristol.ac.uk   /   Tel. Num.   : +44 (0) 117 331 4339

Appendix J: Informed Consent

Observation - Class A:

294

Observation - Class B:

Informed Consent Form

Title of Study : Exploring Blended Learning – A Case Study in a Malaysian Higher Education

Name of Researcher : Farha Alia Mokhtar

Project Funder :

Statement of Consent: I, undersigned, have given my consent to voluntarily participate in this study

[✓]   I have read the research information handout and understand the implications of my participation in this study

[✓]   I consent to the activities (in and outside classroom) being digitally recorded for analysis purposes

[✓]   I consent to the face-to-face and online [   ] activities being recorded for analysis purposes

You will be given a digital copy of this form and research information handout to keep for your records.

Name	Email Address	Signature
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Interview - Students

Informed Consent Form

Title of Study   : Exploring Blended Learning – A Case Study in a Malaysian Higher Education

Name of Researcher   : Farha Alia Mokhtar

Project Funder   :

Statement of Consent: I, undersigned, have given my consent to voluntarily participate in this study

[   ]   I have read the research information handout and understand the implications of my participation in this study

[   ]   I agree to be observed and audio-recorded by the researcher

[   ]   I agree to be interviewed and audio-recorded by the researcher

[   ]   I consent to the activities (in and outside classroom) being digitally recorded for analysis purposes

[   ]   I consent to the face-to-face and online   ) activities being recorded for analysis purposes

[   ]   I agree to share extracts that are useful and relevant to my blended learning experience

Informed Consent Form

10 responses

Publish analytics

Name

10 responses

Email Address

10 responses

Telephone Num

10 responses

Instructors Consent Forms

Awan (Class A):

<u>**Informed Consent Form**</u>

Title of Study : Exploring Blended Learning – A Case Study in a Malaysian Higher Education

Name of Researcher : Farha Alia Mokhtar

Project Funder

Statement of Consent: I, undersigned, have given my consent to voluntarily participate in this study

[✓] I have read the research information handout and understand the implications of my participation in this study

[✓] I grant access to the researcher in the blended course I am teaching
[✓] I agree to be observed and audio-recorded by the researcher
[✓] I agree to be interviewed and audio-recorded by the researcher
[✓] I consent to the course's activities being digitally recorded for analysis purposes
[✓] I consent to the face-to-face and online ( ) activities being recorded for analysis purposes
[✓] I agree to share extracts that are useful and relevant to my teaching experience

Voluntary lecturer will be given a physical copy of this form and research information handout to keep for your records.

Signature :

Name :

Email Address :

Telephone Num. :

Date : 13/2/2020

Bayu (Class B):

Informed Consent Form

Title of Study : Exploring Blended Learning – A Case Study in a Malaysian Higher Education

Name of Researcher : Farha Alia Mokhtar

Project Funder

Statement of Consent: I, undersigned, have given my consent to voluntarily participate in this study

[/] I have read the research information handout and understand the implications of my participation in this study

[/] I grant access to the researcher in the blended course I am teaching

[/] I agree to be observed and audio-recorded by the researcher

[/] I agree to be interviewed and audio-recorded by the researcher

[/] I consent to the course's activities being digitally recorded for analysis purposes

[/] I consent to the face-to-face and online [   ] activities being recorded for analysis purposes

[/] I agree to share extracts that are useful and relevant to my teaching experience

Voluntary lecturer will be given a physical copy of this form and research information handout to keep for your records.
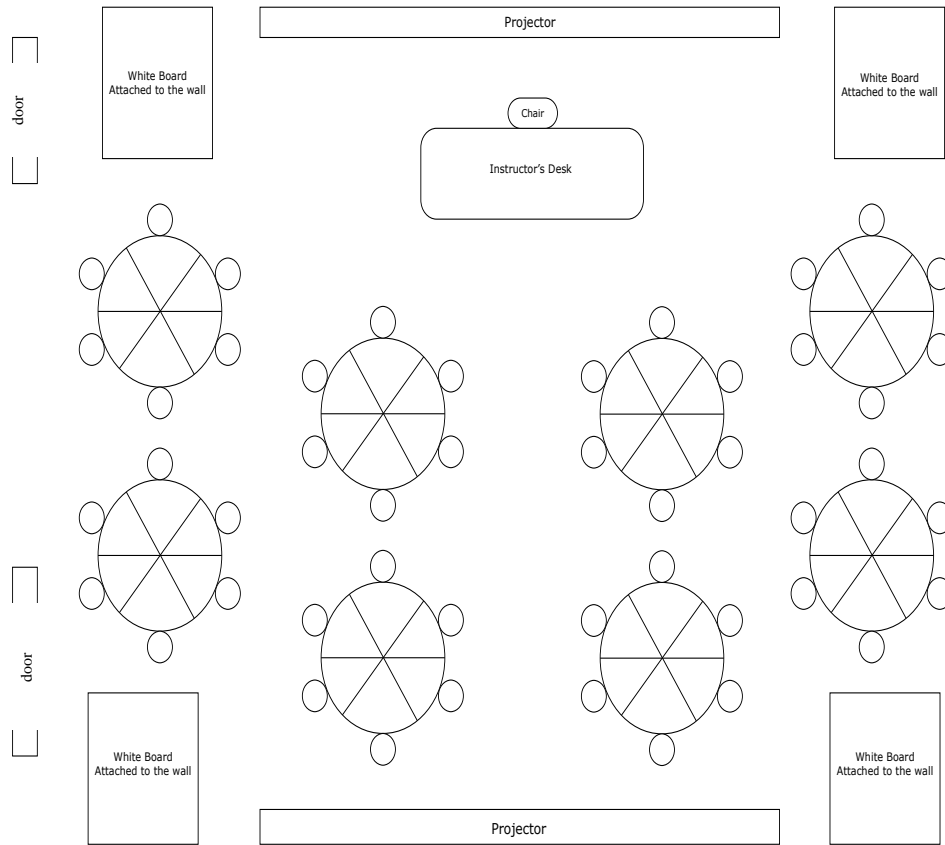
Signature :

Name :

Email Address :
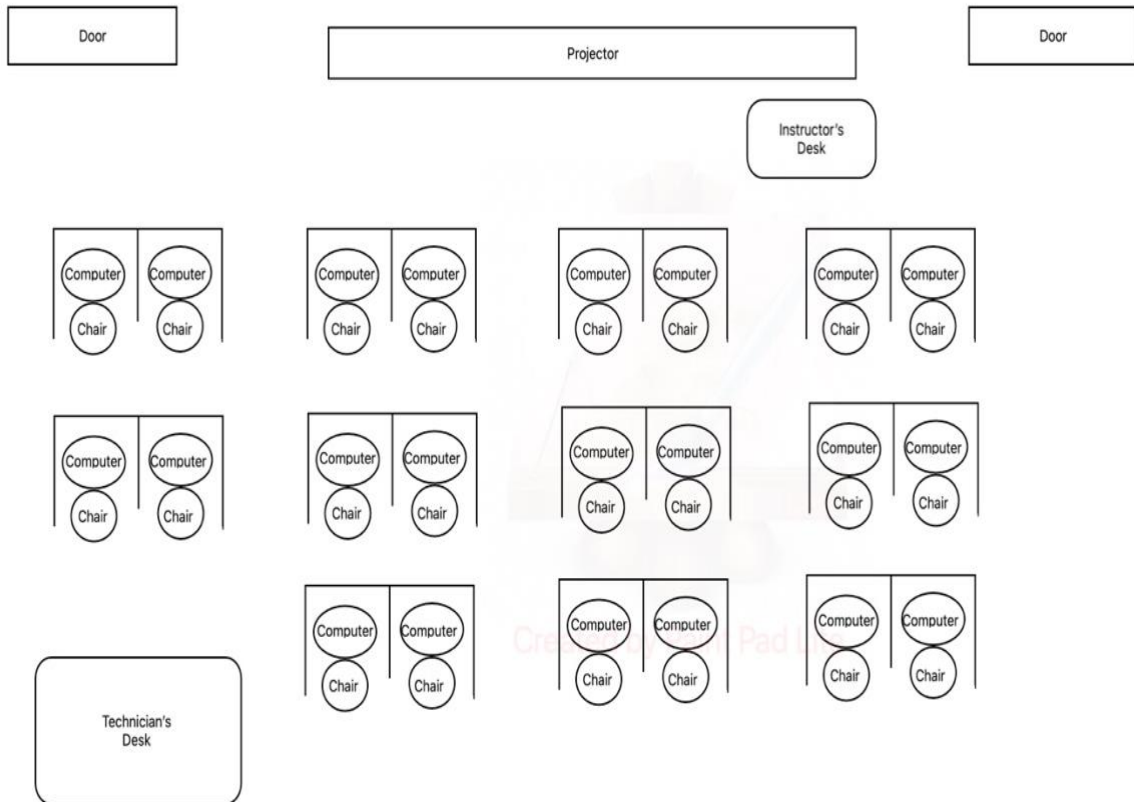
Telephone Num. :

Date : 20/2/2020

Interactive Classroom for Class B

Class B: one-hour lessons (author's illustration)

Language/Computer Room

Class B: Computer Lab for Email Writing (author's illustration)

Appendix L:

Summary of Online Platforms' Key Features

Key features	**Google Classroom**	**Padlet**
Privacy	• Comments – public and private (decided by commentators) • Post – all participants	• Comments – public • Post – public (decided by administrator)
Access	Invitation/permission from administrator	Invitation/permission from administrator
Materials Supported	Documents, links, files, videos, photos, etc	Documents, links, files, videos, photos, etc
Compatibility	Application available on most devices	Application available on most devices
Grading	Available	Not available
Discussions	Supported under comments	Supported under comments
Announcements	Supported through posts	Supported through posts
Live classes	Through Google Meet	N/A
Integration	With other Google Services	N/A
Assignments	Deadlines can be set	Deadlines cannot be set
Assessments (eg. Quizzes, tests, etc)	Can be created and assigned	Cannot be created and assigned
Members	Can view list of participants	Cannot view list of participants
Cost	Subscribed by institution	Free to a certain number of walls
Notifications	Through Email	N/A
Guardian	Email summary students' work	N/A

Key Features of Main Platforms for the Classes (author's illustration)

Appendix M:

Group Task (Email Writing): Using Google Translate