University College London
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Translanguaging in Hong Kong English Medium Instruction Classrooms: An Ethnomethodologically Informed Study of Classroom Interaction and Teachers’ Reflection

A Thesis in Applied Linguistics by

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Doctor of Philosophy

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Declaration

I, Kevin Wai Hin Tai, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Translanguaging in Hong Kong English Medium Instruction Classrooms: An Ethnomethodologically Informed Study of Classroom Interaction and Teachers’ Reflection

Abstract

Recent research on English-Medium-Instruction (EMI) classroom interaction, where students learn the subject matter through L2 English, has examined the role of translanguaging in supporting classroom participants to exploit multilingual and multimodal resources to facilitate content teaching and learning. Nevertheless, there is a lack of research to date that examines the details of how translanguaging is practised in content learning classrooms. This study focuses on the sequential organisation of translanguaging practices in content classrooms and illuminates how EMI teachers create different translanguaging spaces through mobilising multiple languages and modalities in EMI mathematics and history classrooms in two secondary schools in Hong Kong.

The data of this study consists of classroom observations with fieldnotes, ethnographic interviews with teachers and other stakeholders, classroom video recordings and video-stimulated-recall-interviews. Multimodal Conversation Analysis is carried out on the classroom interactional data, looking at not only different named languages but also spatial repertoire, the use of objects and other facilities in the classroom space. The analyses of the classroom interactional data are triangulated with the video-stimulated-recall-interview data which are analysed using Interpretative Phenomenological Analysis in order to analyse the teacher’s reflections on his pedagogical and interactional strategies.

Findings reveal different translanguaging spaces that being created by the EMI teachers. These translanguaging spaces are constructed through 1) engaging in playful talk, 2) integrating the students’ everyday life knowledge into the learning space, 3) deploying the affordances of a technological device, 4) increasing student engagement for responding to diverse students’ needs and 5) engaging in co-learning between teacher and students. The construction of these translanguaging spaces requires the EMI teachers to utilise various linguistic, multimodal, spatial resources and their sociocultural and pedagogical knowledge. It is argued that an EMI classroom is an integrated translanguaging space which entails multiple translanguaging sub-spaces that afford teachers to draw on available resources in a coordinated performance in order to engage students in the learning process and promote equitable knowledge construction processes. The findings of this research reveal important implications for adopting a translanguaging perspective to studying classroom discourse and implications for EMI education and policymaking.
Impact Statement

English-Medium-Instruction (EMI) is being challenged by applied linguists who argue that the knowledge of other languages that the learners already have plays a crucial role in learning. It is suggested that translanguaging can facilitate content learning. Yet there is limited research on translanguaging as a pedagogy in EMI classrooms, as well as research on EMI teachers’ reflections on their translanguaging practices. This study fills in the research gap by exploring how various translanguaging spaces can be constructed in EMI classrooms for teachers to achieve their pedagogical goals, promote content learning and facilitate meaningful communication in the classrooms.

Methodologically, this study is the first to combine Multimodal Conversation Analysis with an ethnographic approach in order to illuminate the potential of translanguaging in creating various translanguaging spaces in EMI classrooms. This study is also the first that utilises Interpretative Phenomenological Analysis to reveal the EMI teachers’ interpretations of their translanguaging practices at particular classroom moments. Such methodological innovation can encourage future researchers to adopt these methods for studying the role of translanguaging in creating new configurations of pedagogical practices in multilingual classrooms.

This study addresses an important pedagogical issue of EMI teaching and it has significant implications for policy and practice. The translanguaging approach challenges much of the received wisdom regarding EMI in bi/multilingual educational contexts. The findings offer information about how translanguaging can be used to scaffold the students’ content and language learning according to the pedagogical goals in each translanguaging spaces, and how EMI teachers can create an inclusive environment for students to celebrate their diverse language abilities. EMI teachers and teachers in culturally and linguistically diverse classrooms will benefit from this study because they can use the findings and their implications to inform their own pedagogical practices. This study also offers an empirical basis for developing a translanguaging pedagogical approach to EMI teaching and discovering the classroom conditions required for these translanguaging practices to succeed. This allows teachers to use translanguaging strategically to fulfil the pedagogical functions specific to the different translanguaging spaces in EMI classrooms in order to maximise the effectiveness of EMI in both content and language learning. Moreover, as EMI teachers will have various pedagogical assumptions due to their varying experiences, the findings can encourage teacher educators and policymakers to find ways to resolve the different pedagogical assumptions held by the teachers regarding the use of translanguaging in EMI.
classrooms. Through raising teachers’ awareness of differences in their thinking and practices, this can enrich their repertoires for learning and professional development.

Some parts of its findings have been published in leading international peer-reviewed journals: *System*, *Applied Linguistics* and *Language and Education*. Upon the completion of this thesis, the remaining parts of its findings will be submitted to two international peer-reviewed journals, including *Language Teaching Research* and *Modern Language Journal*. Additionally, I aim to carry out studies collaboratively with researchers who are interested in multilingualism and classroom discourse. This will further contribute to advancing discussions on translanguaging as a pedagogical resource for multilingual education.
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List of Abbreviations

CA             Conversation Analysis
CBI            Content Based Immersion
CLIL           Content and Language Integrated Learning
CMI            Chinese Medium Instruction
COVID-19       Coronavirus Disease
DA             Discourse Analysis
DIU            Designedly Incomplete Utterance
EAP            English as the Academic Purpose
EMI            English Medium Instruction
ESOL           English for Speakers of Other Languages
ESP            English as the Specific Purpose
HK             Hong Kong
IPA            Interpretative Phenomenological Analysis
L1             First Language
L2             Second Language
LOL            League of Legends
MARG           Multimodal Analysis Research Group
MCA            Multimodal Conversation Analysis
RQ             Research Question
SA             South Asian
SEN            Special Educational Needs
SLA            Second Language Acquisition
T              Teacher
Chapter 1: Introduction

1.1 Statement of the Problem

Adopting English as a second or foreign language other than the home language as the medium-of-instruction in academic subjects is common around the world today (Lo, 2014; Lo and Lin, 2019a; Duran et al., 2019; Xie and Curle, 2020). Known as English-Medium-Instruction (EMI), EMI is ‘the use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language (L1) of the majority of the population is not English’ (Macaro 2018: 19). Due to the recent trends towards internationalisation, especially in higher education, EMI has become a major commodity in the education market (Macaro, 2018; Sah, 2020). Several scholars have argued that using L1 to teach and learn content knowledge is more effective than using students’ second language (L2) (e.g. Bruton, 2013; Ho and Ho, 2014). Several empirical studies on students’ processing in L1 and L2 have demonstrated that multilinguals tend to achieve better higher-order thinking skills, such as critical thinking, in their L1 (e.g. Cohen, 1994) and using L1 can better assess students’ content knowledge (e.g. Gablasova, 2014). However, policymakers, educators and other stakeholders have decided to go against L1 as the medium-of-instruction because they wish to promote students’ English acquisition. Along the lines of comprehensible input, interaction and output hypotheses (Krashen, 1982; Long, 1996), it is hypothesised that using English to teach the subject content offers authentic and meaningful contexts for L2 learning and acquisition to occur (Snow et al., 1989) as students receive intensive exposure to the L2 in the classrooms.

More importantly, implementing EMI entails political and socio-economic reasons. In particular places with a colonial history (e.g. Africa, Malaysia and Hong Kong), the colonial language was employed as the medium-of-instruction and such a practice was persisted until post-colonial era which has resulted in the unresolved tension between L1 and L2 medium-of-instruction in the language policy. Additionally, in some places (e.g. in India and Pakistan), many students are not taught in their L1s in any case because their L1s are indigenous languages rather than the dominant national language. For example, in a recent translanguaging study by Sah and Li (2020), the authors illustrate that translanguaging practices are switched between the dominant national languages (Hindi in India and Urdu in Pakistan) and English, although these students come from other L1s, such as Panjabi in Pakistan. It is also the case for some countries with various ethnic groups speaking multiple languages (e.g. Singapore and many African countries), English is often implemented as the medium-of-instruction to promote English acquisition and enhance the
competitiveness of the labour force in the current age of globalisation (Crystal, 2003; Probyn, 2009). As argued by Pennycook (1998), many medium-of-instruction policies are the legacy of colonial education and globalisation plays a role in revitalising such a legacy. In some places (e.g. Wales and New Zealand), indigenous languages (e.g. Welsh in Wales) are used as the medium-of-instruction to preserve the indigenous language and culture and promote linguistic diversity.

Owing to a combination of historical, socio-economic and political factors, Hong Kong (HK) has a long history of practising EMI education (Poon, 2010; Lo and Lin, 2019a). HK is a uniquely suitable context for this study because English, being the official language in the colonial era and current international language, is economically valued in HK society, and there is a strong preference for EMI among parents and students (Choi, 2003). Thus, over 25% of the HK secondary schools adopt EMI for teaching content subjects (Lo, 2014). A persistent challenge in implementing EMI in HK has been how to balance content and language learning particularly when the academic knowledge is often abstract and cognitively more difficult, and students are still developing their academic literacies as well as their English proficiency (Lo, 2015). It is therefore particularly challenging for low-English proficiency students to acquire the required threshold level of English proficiency while learning the academic content in English concurrently.

Recently, such an educational model in HK is being challenged by applied linguists who argue that the knowledge of other languages that the students already have played a crucial role in learning. Researchers (e.g. Lin, 2019) have recently observed that teachers draw on students' familiar linguistic resources including L1, L2 and both everyday and academic language simultaneously in EMI classrooms to express their meanings and facilitate the learning of the content knowledge (e.g. Lin and Wu, 2015; Lin and Lo, 2017). This language practice is generally identified as ‘translanguaging’ (e.g. García and Li, 2014; Li, 2018). Translanguaging is a developing term and is broadly defined as the exploitation of a full range of languages and semiotic resources in the multilinguals’ repertoires to create meaning (Li, 2018). Research into translanguaging in bi/multilingual classrooms (including EMI classrooms) aims to achieve a more nuanced understanding of the role of the students’ as well as the teachers’ complex multilingual and multimodal repertoires in knowledge construction. Translanguaging challenges the monolingual pedagogical principle (i.e. English-only) in EMI and encourages the students, and the teacher, to draw on their familiar and available linguistic, semiotic, and multimodal resources to facilitate the processes of meaning-making in the classroom. Hence, engaging in translanguaging practices involves the EMI teachers to integrate the diverse linguistic and multimodal practices of students in the classrooms to create more equitable learning opportunities (Garcia and Li, 2014).
Although translanguaging has been researched widely in the literature on content and language teaching in the past few years, Garcia and Li (2014) suggest that translanguaging has rarely been recognised as a legitimate pedagogical practice. Moreover, there is limited research on translanguaging as a pedagogy in EMI classrooms, as well as research on EMI teachers’ reflections on their translanguaging practices (Tai and Li, 2020; 2021a; 2021b; 2021c). In particular, there is a lack of research that has illuminated how different translanguaging spaces are constructed through EMI teachers’ practices and what pedagogical goals do translanguaging accomplish in situ. Additionally, translanguaging entails speakers to draw on different sociocultural factors, such as personal history, life experience and beliefs, which can possibly affect the speakers’ use of meaning-making resources in the process of knowledge construction. Hence, it is important to uncover how EMI teachers understand their own translanguaging practices at particular moments in the classroom interaction and how the classroom interactions are shaped by various sociocultural factors. This can offer insights into EMI teachers’ moment-by-moment decision-making during classroom practice. To address these research gaps, this study aims to investigate the role of teachers’ translanguaging in constructing multiple translanguaging spaces in EMI classrooms and how EMI teacher makes sense of their own translanguaging practices. Specifically, this thesis is adopting translanguaging as an analytical perspective to explore the specific interactional phenomenon in content and language teaching, such as engaging in playful talk, co-learning and technology-mediated interactions and interactions for promoting student engagement and bringing outside knowledge into the classroom. By doing so, it allows me to illuminate how translanguaging can afford opportunities for the EMI teachers to bring not only their multilingual and multimodal resources but also their general sociocultural knowledge and experience of the social world and their beliefs in the meaning-making processes. The findings of this study can allow researchers and teachers to understand translanguaging as a pedagogical resource for enabling classroom participants to engage in diverse multiple meaning-making systems and subjectivities and create different translanguaging spaces in the EMI classrooms that promote student engagement and content learning.

1.2 Aims of the Study and Research Questions

Using HK as the research setting, this study aims to examine naturally occurring EMI secondary classroom interactions with the aim of describing and interpreting how teachers employ multilingual and multimodal resources in their repertoires to construct various translanguaging spaces in EMI classrooms. This study will also explore teachers’ reflection on their translanguaging practices in the classrooms for achieving their pedagogical goals. Hence, my study aims to answer the following research questions:
(1) What are the roles of the EMI teachers’ use of translanguaging in creating different translanguaging spaces for achieving their pedagogical goals in Hong Kong EMI classrooms?

(2) How do the HK EMI teachers make sense of their use of translanguaging during the lessons?

Everyone has their repertoire that is unique to the speaker. These repertoires consist of various sets of resources (see chapter 3 for further details). In this thesis, several translanguaging spaces are identified in the data analysis and that includes translanguaging spaces for playful talk and bringing the outside world in, technological affordance for creating a technology-mediated translanguaging space, translanguaging spaces for deepening student engagement and for co-learning of linguistic and everyday life knowledge. In the data analysis, I focus on the linguistic, semiotic, spatial and technological resources that teachers can draw on during the construction of these translanguaging spaces in the EMI classrooms. In order to understand what resources teachers can deploy during the teaching process, I ask the following sub-questions:

(1.1) How do HK EMI teachers employ resources in their repertoires to construct playful talk?

(1.2) How do HK EMI teachers employ resources in their repertoires to bring outside knowledge into the classrooms?

(1.3) How do HK EMI teachers employ resources in their repertoires to create a technology-mediated space in the classrooms?

(1.4) How do HK EMI teachers employ resources in their repertoires to deepen student engagement?

(1.5) How do HK EMI teachers employ resources in their repertoires to engage in co-learning of linguistic and everyday life knowledge in the classrooms?

In order to achieve these aims, this study adopts translanguaging as an analytical perspective to examine data comprising approximately 25.5 hours of video recordings of EMI mathematics and history classroom interactions in two HK EMI secondary schools and carefully identifies translanguaging instances that contribute to the creations of various translanguaging spaces in EMI classrooms (see section 4.7.1, chapter 4 for further information). Classroom observations with fieldnotes, ethnographic interviews with teachers and other stakeholders, video-recordings and video-stimulated-recall-interviews form the main database of this study.

The classroom interactional data are analysed using Multimodal Conversation Analysis (MCA). MCA has the analytical power for exhibiting the detailed and complex process of how translanguaging practices are realised in multiple translanguaging spaces. Moreover, the analyses
of the classroom interactional data are triangulated with the video-stimulated-recall-interview data, which are analysed using Interpretative Phenomenological Analysis (IPA) in order to analyse the teachers’ reflections on their pedagogical and interactional strategies and the analytical focus will place on the teachers’ interpretation and understanding of their translinguaging practices in achieving the pedagogical foci of the different translinguaging spaces in the classroom. Gaining the teachers’ own interpretations of their translinguaging practices allow me to consider the rich sociocultural and contextual factors, such as the teacher’s beliefs, the teachers’ sociocultural and pedagogical knowledge, linguistic knowledge and skills, personal histories, that shape the teachers’ translinguaging practices, which may not be available through MCA analysis only and to reveal multiple realities related to each translinguaging instance from each teacher’s perspective. Here, multiple realities reveal the EMI teachers’ and the analyst’s (re)interpretations in terms of how teachers’ translinguaging practices are perceived.

1.3 Significance of the Study

The present study contributes to the field of applied linguistics in terms of pedagogy and research. At the theoretical level, this study is one of the few studies which adopts translinguaging as an analytical perspective in describing and analysing how translinguaging practices are used by teachers through the orchestration of their various linguistic, semiotic, spatial and technological resources (see section 3.2.2, chapter 3 for further discussion). Specifically, this study reconceptualises Li’s (2011) notion of translinguaging space and I argue that the EMI classroom consists of multiple translinguaging spaces which include: translinguaging space for playful talk, translinguaging space for bringing the outside in, technology-mediated space, translinguaging space for student engagement and translinguaging space for co-learning. By understanding the nuanced and distinct features of these translinguaging spaces, researchers can better understand the affordances of each translinguaging space, thus enabling them to focus on different aspects of translinguaging practices as they collect and engage with the classroom data. On the other hand, EMI teachers can design teaching materials in a more engaging way by building in multiple translinguaging spaces to interact with students, and to allow students to demonstrate their various kinds of knowledge (e.g. content knowledge and sociocultural knowledge).

Deploying the translinguaging perspective helps us to shift our attention from using different linguistic codes for promoting meaning-making in the classrooms to the way that teachers can create diverse multilingual, multimodal and multisensory sign-making practices for making learning accessible for all in a multilingual EMI classroom. To date, there is still a lack of comprehensive understanding of the nuanced ways of translinguaging use in EMI settings.
Moreover, linguists traditionally focus on conventionalised speech and writing and pay little attention to other semiotic cues that construct the meanings in real-life social interaction (Kress, 2015; Li, 2020). Particularly, a considerable amount of research on translanguaging in EMI classroom interaction (e.g. Doiz and Lasgabaster, 2017; Chang, 2019; Sahan and Rose, 2021) only conceptualise translanguaging as a practice which indicates the movement among linguistic repertoires. The translanguaging perspective emphasises the significance of transcending boundaries between linguistic and other multimodal means which creates opportunities for EMI teachers to convey aspects of the relevant content knowledge for their students. Therefore, adopting a translanguaging perspective in analysing the classroom data enables us to illuminate that EMI classroom can be transformed into multiple translanguaging spaces, which in turn affords opportunities for teachers and students to leverage the full affordances of translanguaging and create new configurations of pedagogical practices.

Methodologically, this study has helped advance the field by demonstrating how using MCA can shed light on the roles of translanguaging in achieving different pedagogical goals across different translanguaging spaces in EMI classrooms. MCA provides a participant’s perspective to the data by revealing how each turn is verbally and non-verbally produced and how participants achieve mutual understanding in interaction (Brouwer and Wagner, 2004; Mondada, 2018). This enables the possibility to analyse EMI classroom interactions in a multimodal way. This study is also the first study which employs the analytic focus of IPA to illuminate the ‘insider’ accounts (Smith et al., 2013) of the teachers’ interpretation of their translanguaging practices in the EMI lessons. Although MCA offers detailed analyses into the moment-by-moment construction of social spaces for students to translanguage, it cannot reveal how teachers bring ‘different dimensions of their personal history, experience and environment, their attitudes, beliefs and performance’ (Li, 2011: 1223) to create different translanguaging spaces in EMI classrooms. Conducting interviews can help researchers to develop a broader analysis of why participants co-construct the interaction in particular ways (Waring et al., 2012). Although there are several scholars (e.g. Antaki, 2012; Ford, 2012) have provided some arguments for the problems inherent in combining MCA with ethnographic information, they argue that it is possible to conduct interviews to explain and clarify the unfamiliar terms and references known only to the participants. Triangulating the MCA analysis of the classroom interactions with IPA analysis of teachers’ video-stimulated-recall-interviews can allow me to gather additional contextual information to inform the interpretations of my MCA analysis.

At the pedagogical level, this study addresses an important pedagogical issue of EMI teaching and it has significant implications for policy and practice. The translanguaging approach challenges
much of the received wisdom regarding EMI in bi/multilingual educational contexts. The study offers information about how translanguaging can be used as a pedagogical practice to achieve various pedagogical goals, including scaffolding students’ content and language learning, building student rapport, promoting meaningful communication with students, and how teachers can create a multilingual environment for students to celebrate their diverse language abilities. EMI teachers and teachers in culturally and linguistically diverse classrooms will benefit from this study because they can use the findings and their implications to inform their own pedagogical practices. This study also offers an empirical basis for developing a translanguaging pedagogical approach to EMI teaching and discovering the classroom conditions required for these translanguaging practices to succeed. This allows teachers to use translanguaging strategically to fulfil the pedagogical goals of the classroom interaction specific to their EMI classroom contexts in order to maximise the effectiveness of EMI in both content and language learning. Moreover, as EMI teachers will have various pedagogical assumptions due to their varying experiences, the findings can encourage teacher educators and policymakers to find ways to resolve the different pedagogical assumptions held by the teachers regarding the use of translanguaging in EMI classrooms. Through raising teachers’ awareness of the differences in their thinking and practices, this can help teachers in recognising the pedagogical value of translanguaging and motivating teachers to plan and facilitate activities that create opportunities for students to engage in translanguaging. Furthermore, the findings can be used to inform the EMI policy by encouraging policymakers to implement translanguaging as scaffolding resources into pedagogical practices. There is a need for policymakers and educators to envision plurality in EMI policy which is more responsive to language equity and educational access (i.e. teaching students through their familiar named language and multimodal resources) and students’ learning outcomes. This can be advantageous for resolving the conflict between empowering linguistically and culturally diverse students with the target L2 (English) and empowering them with their familiar named languages and multimodal cues.

1.4 Organisation of the Thesis

This thesis consists of ten chapters. The first chapter provides an introduction to the study and describes the aims of the study and research questions guiding the project. I have also explained the significance of the study and outlined the contributions that this study makes to EMI pedagogy and research on applied linguistics.

Chapter 2 (Context) provides an overview of several important concepts in the thesis. This includes EMI, medium-of-instruction policy, multilingual practices in EMI classrooms and teacher beliefs.
The chapter first introduces the definition of EMI and the different types of immersion programmes. It will then introduce how medium-of-instruction policy can promote educational access and equity. In the following part of the chapter, I present an overview of the political and socio-economical reasons for implementing EMI in HK. This is followed by a review of empirical studies on the multilingual practices in HK EMI classrooms and teacher beliefs about their language choices in EMI classroom interactions.

Chapter 3 (Conceptual Framework) presents the three uses of translanguaging: translanguaging as a theory of language, as a pedagogical practice and as an analytical perspective. This chapter first explains the concept of translanguaging from the view of bi/multilingual pedagogy and reviews relevant literature on translanguaging as a pedagogical resource in multilingual classrooms. The chapter then presents how the notion of translanguaging as a theory of language is informed by the concepts, including the sociocultural and ecological psychology perspectives of languaging, multimodality and multilingualism. This chapter finally turns to the notion of translanguaging as an analytical perspective which directs our analytical focus on the speaker’s orchestration of various multilingual, multimodal, multi-semiotic and multi-sensory resources for meaning-making. I conclude this chapter by presenting translanguaging as the theoretical framework of this study which ties together translanguaging as both a pedagogical resource and as an analytical perspective for informing the data analysis.

Chapter 4 (Methodology) describes the case study approach for the study, drawing on Multimodal Conversation Analysis (MCA) and Interpretative Phenomenological Analysis (IPA) to analyse the data. Particularly, I have explicated why MCA is employed along with IPA to analyse EMI teachers’ translanguaging practices. I have also offered contextual information regarding my research sites and participants in my study and explained the data collection and analysis procedures. I have briefly presented the ethical issues that are associated with the study.

Chapters 5 to 9 form the major analytic portions of this thesis. Chapter 5 (Analysis: Constructing Playful Talk through Translanguaging) explores how the EMI teacher constructs a translanguaging space for playful talk in order to achieve different pedagogical goals, including building rapport, facilitating content explanation and promoting meaningful communication with students. Chapter 6 (Analysis: Connecting Students’ Out-of-School Knowledge and Experience through Translanguaging) illuminates how the EMI teacher creates a translanguaging space through bringing outside knowledge into the classroom for scaffolding students’ content knowledge. By doing so, the teacher is integrating the everyday life space into the EMI institutional learning space which transforms the EMI classroom into a lived experience. Chapter 7 (Analysis: Creating a
Technological Mediated Space through Translanguaging) illuminates how the affordances of iPad facilitate the creation of a technology-mediated space for an EMI teacher to extend his semiotic and spatial repertoires for enabling students’ learning of content knowledge and creating a humorous classroom environment. Chapter 8 (Analysis: Promoting Student’s Engagement in the EMI Lessons through Translanguaging) demonstrates how the teacher’s pedagogical practices create a translanguaging space for student engagement in the EMI classroom at both whole-class and individual levels. Finally, chapter 9 (Analysis: Creating a Space for Co-Learning in EMI Classrooms through Translanguaging) reveals how EMI teachers and students co-learn new knowledge from each other. Specifically, this chapter emphasises that the EMI teachers create a translanguaging space for both themselves and students to engage in the learning process which promotes equitable knowledge construction.

Chapter 10 (Conclusion and Implications) summarises the main findings in terms of the research questions and the analytical foci for each data analysis chapters. I conclude the thesis by outlining the contributions and implications of the study and addressing the limitations and future directions for research.
Chapter 2: Context

2.1 Introduction

This chapter aims to provide a thorough understanding of several significant themes in the thesis: EMI, medium of instruction policy, multilingual practices in EMI classrooms and teacher beliefs. The first section will begin with problematic definitions of EMI and how EMI differs from other immersion programmes including Content and Language Integrated Learning (CLIL) and Content-based Immersion (CBI). The section will then explore other themes that are related to EMI, which includes the consequences of promoting EMI for affecting equality and educational access, especially in light of the growing importance of EMI in schools for promoting English acquisition and enhancing the competitiveness of the labour force in the current age of globalisation. The second section will provide an overview of the implementation of EMI policy in HK and explain how the EMI policy in HK affects educational access and equity. This is followed by the third section which provides a review of empirical studies on multilingual practices in EMI classrooms in order to shed light on the reality of the implementation of the EMI policy at the classroom level. The chapter will end with section four which focuses on a discussion of research on teacher beliefs regarding their language choices in EMI classroom practices. This section can offer useful insight into the relationship between the EMI teachers' classroom practices and their beliefs.

2.2 English Medium Instruction

2.2.1 Definitions of EMI and Different Types of Immersion Programmes

EMI has been defined in various ways in the literature, but Macaro (2018) offers a succinct definition that reflects its specific features. He states that EMI is ‘the use of the English language to teach academic subjects (other than English itself) in countries and jurisdictions where the L1 of the majority of the population is not English’ (p.19). Although Macaro’s (2018) definition of EMI highlights the phenomenon in many educational contexts, there are other definitions that have been proposed in order to capture the complexity of the term and the diversity of such an educational approach. For instance, Taguchi (2014) suggests that English medium education is defined as ‘curricula using English as a medium of instruction for basic and advanced courses to improve students’ academic English proficiency’ (p.89). This definition of EMI explicitly states the goal for promoting English acquisition, whereas Macaro’s (2018) definition does not include English learning as a pedagogical objective. Other researchers (e.g. Jenkins, 2019; Pecorari and Malmstrom, 2018) have suggested that the definition of EMI should not only limit to educational
settings where English is not the L1 of the students. In addition to the non-Anglophone contexts, Anglophone settings, such as the US, UK, Canada and Australia, should be included in the definition. This is because there has been an increase of L2 English speakers in many Anglophone contexts because of the growth in global migration and student mobility in secondary and higher education. Jenkins (2019) argues that the increasing number of international students at universities in Anglophone countries have constructed educational contexts that are similar to many EMI settings in non-Anglophone countries. Hence, there is a need to identify EMI from other types of multilingual education programmes. Although they come from different names and different practices, such as EMI, CLIL and CBI, they do share a common feature which involves the use of the students’ L2 as the medium-of-instruction when teaching and learning content subjects.

With these different variants of multilingual education programmes, scholars have attempted to identify the similarities and differences. These educational approaches are different from each other regarding the goals, teachers’ and student’s profiles, historical and sociocultural contexts, educational policies, pedagogical practices, curriculum design and the involved named languages (Cenoz et al., 2014). For example, immersion programmes originated from the Canadian immersion programmes which aim to facilitate the process of learning French, one of the official languages in Canada, for Anglophone children (Lambert and Tucker, 1972). CLIL, a label which is typically used in Europe, is defined as ‘an educational approach in which various language-supportive methodologies are used which lead to a dual-focused form of instruction where attention is given both to the language and to the content' (Coyle et al., 2010: 3). According to Marsh (2002), CLIL programmes should have a dual focus on both language and content, even though the proportion is 90 percent versus 10 percent. Such a flexible definition can lead to a wide variation in CLIL instruction. CBI, on the other hand, refers to ‘instructional approaches that make a dual though not necessarily equal, commitment to language and content-learning objectives’ (Stoller, 2008: 59). It is also worth noting that English as the Specific Purpose (ESP) and English as the Academic Purpose (EAP) are classes where the English language is taught an individual subject itself. In theory, other variants, such as CLIL, CBI, immersion education, allow schools/teachers to select any language as the medium-of-instruction. Nevertheless, it has been observed that English is predominantly the language used, particularly in the European CLIL (Dalton-Puffer et al., 2010; Macaro, 2018). Image 1 demonstrates the continuum of content and language learning aims in different educational programmes. In the continuum, the differences lie in the fact that whether the difference is on content or language per se. Such differences can be noticed in the learning outcomes of the programme, pedagogical practices, assessment of the learning outcomes. For example, the emphasis of EAP and ESP programme is placed on the
language-oriented domain since students will learn general academic language skills and students will be assessed on their English proficiency. Alternatively, EMI programmes are placed towards the content-oriented domain since EMI has content learning as the main goal and English acquisition is secondary. Students are assessed of the content knowledge in English (i.e. L2), rather than their English proficiency.

![Image 1: Continuum of different bi/multilingual education programmes (adapted from Thompson and Mckinley, 2018)](image)

However, Cenoz’s et al. (2014: 254) review argues that CLIL is not an ‘innovative form’ of the educational model outside the European context. Based on their critical comparison of different research studies on CLIL and other variants, such as CBI and immersion, they argue that attempts to define CLIL by differentiating it from other variants are often ‘misguided’ (p. 243) since the core features of CLIL have been understood in different ways, including the balance between content and language integration, the nature of the target languages involved, features of the teachers and students, pedagogical goals and the instructional approaches to integrate language and content teaching.

On the other hand, EMI treats L2 learning as a by-product of content learning. In other words, EMI education has content learning as a priority and English acquisition is typically incidental or implicit (Lo, 2020). EMI may entail features that resemble CLIL since these classroom settings hypothesised that using L2 to teach the subject content offers authentic and meaningful contexts for L2 learning and acquisition to occur (Snow et al., 1989) as students receive intensive exposure to the L2 in the classrooms. Nevertheless, as shown through the definitions of EMI and CLIL, both terminologies do share differences and they should not be considered synonymous. As notes, there is a considerable amount of studies that have employed the terms CLIL and EMI inconsistently since different researchers have different conceptualisations of various bi/multilingual education programmes. Moreover, Macaro (2018) argues that there is a possible reason for causing such a confusion regarding the terminology. It might be that the authors aim to reach out to readers in different contexts ‘in order to give their papers greater external validity’. For example, in Lo and Macaro’s (2015) paper about EMI in HK, they use the label CLIL, instead of EMI, and clarify in
the paper that ‘CLIL is referred to as EMI’ (p.239). Therefore, although there seems to be a certain geographical preference for employing particular terminologies, Macaro (2018: 19) argues that ‘they are by no means adhered to uniformly’. Similarly, Lin and Lo (2018) argue that they choose to use CLIL as an umbrella term to include different variants of bi/multilingual programmes which employ L2 as the medium of instruction for content subjects. By doing so, it can allow researchers and educators to learn from the empirical evidence from various educational settings. Nevertheless, their differences in sociocultural contexts, pedagogical approaches and teachers’ and learners’ profiles must be recognised in order to allow the others to understand the limits of generalisability of the research findings (Cenoz et al., 2014).

In this thesis, I use the label ‘EMI’ and adopt the most commonly cited definition of EMI proposed by Macaro (2018) (referred above). This is because Macaro’s definition of EMI captures the phenomenon in the context of HK (see section 2.3). The cited research studies focus on EMI classroom settings where the L2, English, is not spoken locally and English is predominantly used in these classrooms (see sections 2.3 and 2.4).

2.2.2 Medium-of-Instruction Policy for Educational Access and Equity

In many other countries, the language of the classroom has been acknowledged as a central factor in educational access and equity. It is vital to note that the issues of educational equity and access are conceptualized differently and have different implications in different parts of the world (Tollefson and Tsui, 2014). The discourse related to language policies entails phrase including ‘respecting linguistic diversity’, ‘rights to L1 education’, ‘promoting multiculturalism and multilingualism’ and so forth. Many international agreements and declarations encourage governments to deploy students’ home languages as medium-of-instruction. For instance, the European Charter for Regional and Minority Languages produces a statement which encourages governments to ‘make available primary education in the relevant regional or minority languages’ and the Union Nations Universal Declaration on Indigenous Rights states that indigenous people should have ‘the right to all forms of education, including in particular the right of children to have access to education in their own languages’. However, these declarations entail vague statements that except the educational authorities from legally binding the commitments. For instance, the European Charter encourages but does not enforce L1 medium-of-instruction and it limits its application to ‘the territory in which such languages are used, according to the situation of each of these languages’ only when the number of students ‘is considered sufficient’ (Council of Europe, 1992). Such a statement is vague in their requirement and it may not enforce educational authorities to adopt L1 as the medium-of-instruction for promoting students’ learning.
Nonetheless, several governments have recognised the role of school language policies, particularly medium-of-instruction policies, on access and equity. Tanzania and Ethiopia, for instance, have expanded the use of African languages in education in order to allow students who have been prevented from education when colonial languages were deployed as the medium-of-instruction (Alidou, 2004). Moreover, Wales has implemented Welsh-medium education at all levels of education in order to revitalise the Welsh language in the society and resist Anglicization (Jones and Martin-Jones, 2004). In New Zealand, Maori medium-of-instruction has been introduced from primary to secondary education in order to counter the dominance of English that is prevalent in society and promote linguistic and cultural plurality (May, 2004). In these contexts, the educational authorities provide opportunities for mother-tongue education which aligns with the commitment to reduce barriers to educational access and equity. However, in contexts where students are forced to learn a new language through using L2 as the medium-of-instruction in content-based classrooms, efforts to achieve access and equity, as prioritised by Education for All (UNESCO, 2000), present a crucial challenge to governments: ‘can quality education for all be achieved when it is packaged in a language that some learners neither speak nor understand?’ (UNESCO Bangkok, 2007: 1).

The gap between the expectations of L2 medium-of-instruction policy and the reality of its implementation has been extensively discussed in the field of language education (e.g. Tsui and Tollefson, 2004). In HK, for instance, the government implemented the mandatory mother-tongue policy in 1998 which mandated the use of Chinese (L1) as the medium-of-instruction from primary one to secondary three (grade 1-9). Most of the schools changed their medium-of-instruction from EMI to Chinese as medium-of-instruction (see section 2.3.3 for further discussions). After the implementation of the policy, surveys are conducted by The University of Hong Kong to investigate the outcome of the policy on students’ learning (Tsui, 2007). The findings have revealed that graduates of Chinese-medium schools significantly improve their results on standardised exams at the end of secondary school. Students also feel more motivated and confident in participating in class discussions. Similarly, a study of primary schools in Ethiopia has demonstrated that mother-tongue medium-of-instruction can better facilitate students’ academic learning in comparison to EMI during the primary years. As the final report on Ethiopia comments: “classroom observation and assessment data demonstrate that EMI does not necessarily result in better English learning […] these findings are fully supported by international literature on language learning and cognitive development, which show clearly that investment in learning through L1 has short, medium and especially long term benefits for overall school performance and for the learning of additional languages’ (Heugh et al., 2007: 6). Alternatively, Lo and Lo’s (2014) meta-analysis of the effectiveness of EMI education in HK has concluded that students in
EMI schools have acquired a higher level of English proficiency than students attending Chinese-medium schools. Yet, they suffer in learning content subjects, particularly history, geography and science. This study illustrates that EMI can potentially hinder students’ content knowledge development, which implies that EMI may not be effective in achieving the dual goal of learning content and English as the L2.

There are several reasons which concern the underlying difficulties of implementing EMI. Although it is hypothesized that using L2 as the medium-of-instruction can allow students to acquire the target L2 through exposure to the L2 input and output (i.e. comprehensible input and output hypothesis), it is also argued that the academic language entailed in learning academic subjects is different from everyday language. This is reflected in Cummins’s proposal of two-dimensions of language proficiency (Basic Interpersonal Communication Skills and Cognitive Academic Language Proficiency), perceiving them as different regarding the cognitive demand and available contextual support (see Cummins, 2001). Hence, different registers of different academic subjects can offer different kinds of L2 input for learners (e.g. Martin, 1991; O’Halloran, 2000; Schleppegrell, 2007; Chan, 2015). Hence, if teachers simply adopt the immersion approach without providing explicit L2 support to students, students will not be able to handle learning the content and academic language concurrently. This leads to the second problem which relates to the readiness of students for using EMI to learn content subjects. It has been argued that students need to possess a sufficient level of English proficiency before they are admitted to EMI classes in order to benefit from bi/multilingual education (Cummins, 2001). However, students’ level of English proficiency is often measured in regard to their everyday language (Lo and Lin, 2019a). As argued before, everyday language is considerably different from the subject-specific registers and students need to acquire the different subject-specific registers in order to understand the content knowledge that is taught in EMI classes. Therefore, it is not adequate to claim that the students are prepared to learn both content and language concurrently because they have achieved satisfactory performance in general English examinations. Additionally, it is typical that teachers will need to deal with the great diversity of students in the classrooms with different English proficiency. This imposes pressure on schools and teachers in terms of the support that they need to offer for students. Although EMI teachers bear dual responsibilities for helping students to master both content and English academic literacies, not all teachers have received adequate training in using EMI for teaching content subjects. In many other EMI contexts, content-based classes are usually taught by content subject teachers who are trained as subject specialists (Wolff, 2012). Without training in EMI teaching, content teachers typically lack linguistic awareness and they are not equipped with pedagogical strategies to help their students to learn the content subjects through English. Thus, these underlying difficulties of implementing EMI has a direct impact on students’ content
and language learning.

Although an ample research evidence has shown that mother-tongue medium-of-instruction can better promote content teaching and learning in content-based classrooms, policymakers often go against this approach due to political reasons. When mother-tongue medium-of-instruction can offer greater educational access to excluded groups, it may potentially reduce the social, political and economic advantages that are enjoyed by the privileged groups which have access to quality education. Hence, policymakers may provide economic or pedagogical reasons for preserving policies that benefit some groups over others. Section 2.3 will discuss how socio-economical and political reasons can determine the nature of medium-of-instruction in HK schools.

2.3 Medium-of-Instruction Policy in Hong Kong

2.3.1 Language Profile of Hong Kong

HK is a former British colony and spent 155 years under the British rule. In 1997, HK was returned to China and is now a Special Administrative Region of China, which is in many ways self-governing but is subject to the central people's government in Beijing. The majority of the population in HK is ethnic Chinese, with Cantonese as their language for everyday communication and standard written Chinese as their written language. Putonghua (also known as Mandarin), the national language of China, is also spoken by the majority of the Chinese inhabitants in HK, with some level of proficiency. According to the 2016 population by-census, the population aged 5 and over can speak Cantonese is 90.8% and Putonghua is 40.2%. Both Chinese (in the context of HK referring to written Modern Standard Chinese and spoken Cantonese) and English are official languages in HK.

HK was once composed of two monolingual communities: the Chinese-speaking community, entailing people who mainly speak Cantonese, and the English-speaking community, consisting of the former colonists from Britain (Luke and Richards, 1982). The two communities had minimal contact with each other in everyday living and communication. Such a mode of communication continued until the 1960s due to the expansion of its educational system and economic advancement. More local people were able to speak English (from 29.4% in 1991 to 42.6% in 2011). Moreover, Putonghua has raised in importance due to the increase in trade with China in the 1990s and the increasing number of Mainland tourists travelling in HK since 2003. After the handover of the sovereignty of HK from Britain to China in 1997, the HK government was effortful in developing the national identity of HK citizens through the school curriculum and other co-curricular activities, the media and territory-wide exhibitions (Poon, 2010). Therefore, more local
HK citizens could speak Putonghua (from 16.9% in 1991 to 46.5% in 2011), which have transformed them into Cantonese-English-Putonghua trilinguals (Census and Statistics Department, 2011).

English was used to be the only official language in HK from the early colonial days until 1974. Chinese was made as a co-official language in 1967, as a response to the popular public opinion, as promoted in the ‘Chinese as Official Language Movement’ during the late 1960s and the early 1970s (Poon and Wong, 2004). English had a high status under the British rule, and it was considered as a colonial language by the local HK citizens, except those who need to acquire it for working for the colonial government. Research studies that were carried out in the 1970s demonstrate that since students were obligated to learn English in school and university education, students’ attitudes to English were negative (e.g. Fu, 1975). Nevertheless, the continuous economic boom and globalisation over the last two decades have further enhanced the status of HK as an international city which supports the increasing spread of English in HK as a majority language (Poon, 2010). HK people understand that acquiring English is the key in order to maintain their competitiveness in a globalised world. Therefore, schools adopting EMI are popular among students and their parents and therefore gaining a place to enter EMI schools is becoming more competitive. There are several reasons that resulted in such a choice. First, HK was a former British colony until 1997 and the use of EMI at school was a feature of the linguistic situation in HK. Second, HK has changed from a manufacturing hub to an international business and financial centre in the 1980s, with increasing international trade, finance service and tourism industry and since the 1990s, there was a demand for high English standards in HK society. Third, achieving a high English standard is a prerequisite for admitting into HK universities which deploy EMI. Graduating from a university stands a higher chance of getting a high-pay job which serves as the main vehicle for upward mobility.

Medium-of-instruction has been a heated issue in HK amid the political, economic and social concerns that happened during the past five decades (Poon, 2009). In general, the majority of primary schools in HK adopt Chinese-Medium-Instruction (CMI) for most content subjects and English is taught as a separate core subject (which typically involves six to ten 40-minute lessons per week). This is believed to develop students’ L1 learning and cognitive development while offering exposure to English (Poon, 2010). There are various reasons for universities in HK to use EMI, including the need to align with international tertiary education, attract more international students and strengthen its competitive edge (e.g. Evans, 2002). Whilst the medium-of-instruction policies are broadly set for primary and university education, medium-of-instruction policy at the secondary level has gone through immense changes (Poon, 2010). An overview will be provided
below in order to understand the different medium-of-instruction policies that were introduced by the HK government and the relevant research evidence evaluating the impact of the medium-of-instruction policies.

2.3.2 Laissez-faire Policy Prior to 1994

Before the political handover in 1997, the HK colonial government adopted a laissez-faire medium-of-instruction policy which allowed secondary schools to decide their own medium-of-instruction. With the belief that EMI could better facilitate English acquisition over 90% of the secondary schools claimed to be EMI schools in order to respond to the demand by parents and other stakeholders (Falvery, 1998). However, research studies have revealed that the use of mixed Cantonese and English was prevalent in these EMI schools since many students struggled to learn content subjects through English due to their limited English standards, and mixed-code usage (i.e. mixing English and Chinese in discourse) was used by EMI teachers to conduct their lessons. One of the influential classroom-based studies by Johnson (1983) has studied the language use of 15 teachers from five HK EMI schools. The findings, which focus on secondary 1-3 (i.e. years 7-9) (total 44 lessons), illustrate that there is ‘an enormous range of language behaviours […] in terms of the proportional distribution of the language codes, English, Cantonese and the ‘mixed’ code’ (p.282). Johnson has found that the participating teachers employed 48% Cantonese, 43% English and 9% mixed code. The amount of English that is used varied from 100% to 2%.

Several other studies (e.g. Johnson and Lee, 1987; Tung, 1990; Shek et al., 1991) have also found a steady decline in the use of English and a dramatic increase in using mixed-code in teacher’s talk in EMI classrooms. In Johnson’s (1991) paper, Johnson compares the findings which were collected in 1983 (Johnson, 1983) and in 1990 (Johnson et al., 1991). Both studies investigate the percentages of English, Cantonese and Cantonese-English mixed code that are deployed in content subjects. The comparative data reveals that the EMI teachers’ use of English in secondary 1-3 drop from 43% in 1981 to 15% in 1990, while the employment of Cantonese and mixed code increase from 48% to 65% and 9% to 20% respectively. Nevertheless, the 1990 statistical data is based on 70 secondary 1-3 EMI classes from different schools and these classes are taught by different teachers. It is not sure whether the EMI teachers who participate in the 1983 study have also participated in the 1990 study. Johnson fails to acknowledge that the confronting variables, such as the nature of the teachers’ pedagogical practices, students’ academic achievements and L2 proficiency and the school ecology, can play a role in shaping the teacher’s talk. Hence, the findings have to be interpreted with caution. Despite the limitations of the studies (Johnson et al., 1991; Johnson, 1991), these studies have illustrated that mixed codes became a phenomenon in EMI classrooms and the education department acknowledged that the prevalence of mixed code
instruction had a deleterious effect on students’ English acquisition (Education Commission, 1990, 1995), without referring to the studies which illustrate the benefits of mixed codes instruction (e.g. Luke, 1991; Lin, 1996, see section 2.4).

2.3.3 Compulsory Chinese Medium-Instruction Policy During 1998-2010 and the Limited Access to EMI Education

Shortly after the handover in 1998, the education department promoted the mandatory mother-tongue policy which mandated the use of CMI from primary one to secondary three. Exceptions were granted to schools that had fulfilled certain criteria in terms of school support measures, teacher capacity and student ability to remain as EMI schools. Although the education department recognised the importance of English in maintaining the status of HK as an international financial centre, they suggested the importance of providing quality education to students: ‘in catering for the needs of our economy, we believe that the interests of the majority of our students should not be sacrificed’ (Education Commission, 1990: 102). It can be argued that the debate about medium-of-instruction was educationally oriented rather than politically oriented. This is because the government advocated CMI for reiterating their perspective that CMI was the best medium of learning, although supporters of EMI emphasised on its practical value. On the other hand, it can also be argued that the return of HK to Mainland China sovereignty was a chance to promote CMI in all secondary schools. It is possible that the HK government favoured such a patriotic view and disregarded objections from parents and the majority of schools (Poon, 2013). As a result of the new medium-of-instruction policy, all except 114 secondary schools (~25%) became CMI schools. However, the CMI schools could decide on the medium-of-instruction from secondary 4 (year 10) onwards. The implication of such changes was that it became more competitive for students to enter EMI schools.

Additionally, according to the reformed secondary school admission system, students were centrally allocated to government-aided schools within their own districts, based on their primary 5 and 6 internal school examination results. Under the secondary school place allocation system in HK, all secondary schools could be generally categorised as Band 1 schools (which mainly admitted the highest 33.3% of students), Band 2 schools (which mainly admitted the middle 33.3% of students), or Band 3 schools (which mainly admitted the lowest 33.3% of students). Students’ internal assessment results at the end of primary 5, and both in mid-year and at the end of primary 6 were used for categorising students into bands. Typically, Band 1 schools (i.e. schools that catered for the territory’s brightest students) offered full EMI education to students. That is, they adopted EMI for nearly all subjects (except Chinese language and Chinese history) in all grades. On the other hand, Bands 2 and 3 schools typically used CMI to carry out the content teaching.
Some Bands 2 and 3 schools might adopt CMI in junior forms but then switched to EMI in senior forms. These schools were classified as medium-of-instruction-switching schools (Lo and Macaro, 2012). Academic performance in EMI schools was therefore generally better than CMI and medium-of-instruction-switching schools. Since only approximately 25% of the schools were Band 1 EMI schools and these schools were not evenly distributed in each district, some districts might have more Band 1 EMI schools. If the students were not allocated to Band 1 EMI schools, there were three alternatives for them to receive full EMI education: (1) direct subsidy scheme schools which can provide additional English language support to students; (2) international schools in HK, (3) overseas schools. Low socio-economic status students were not offered equal opportunities to take these alternative paths since many of them could not afford the tuition fees. According to the statistics, only approximately 0.8% of the households with monthly income less than HKD$10,000 (UK£1000) had family members studying overseas. However, this percentage reaches 9.5% for those households with a monthly income of HKD$60,000 (around UK£6000) and over (Census and Statistics Department, 2011). These statistics show that it is often difficult for low-SES students to get access to full EMI education if they are not allocated to government-aided EMI schools.

Nevertheless, the policymakers failed to recognise the other systems, other than language, that has to be attended to when implementing language policy. Many stakeholders, including parents, the business sector, viewed English as the language of international commerce and they perceived that mother-tongue education has blocked the path to a successful future for future generations (Kwok, 1998; Lai and Byram, 2003). For example, a questionnaire conducted after the implementation of the policy showcases that 89.6% of students and 90.1% of parents believe that classroom learning can enhance content learning and 96.8% of students and 93.2% of parents feel that the motivation for learning can be raised (Lai and Byram, 2003). Although HK parents and students had acknowledged the usefulness of L1 in learning content subjects, Kwok’s (1998) study on parent’s and student’s attitudes indicate that students are worried that the switch to CMI will potentially affect their chances of finding a job or getting an offer from universities in HK. The clear-cut CMI or EMI distinction constructed a labelling effect, in that only the ‘elite’ students could study in EMI schools, whereas CMI schools were perceived as second class. Parents were concerned about the negative labelling effects of CMI schools on their children. They preferred EMI schools since it was assumed that the quality of students in EMI schools was higher than that of CMI schools (Kwok, 1998). Parental worries on this matter have been confirmed by studies that reveal that EMI-school graduates tend to have an advantage in progressing their university studies (Tsang, 2008). Given that acquiring a high level of English proficiency is a prerequisite for enrolling in tertiary education and for pursuing a professional career in society, students who were admitted
into EMI schools were considered to be advantageous in life. On the other hand, those who were enrolled in CMI schools were denied access to the socially prestigious EMI education and thus the prospect of educational and career advancement.

The decline of HK students’ English standard was also one of the factors that led to a storm of controversy after the introduction of the mother-tongue policy. Prominent public figures in business, policies and the judiciary also severely criticised HK students’ low English proficiency from time to time. For example, Stephen Bradley, a former British consul general, claimed that ‘[Hong Kong] has significantly declined as a language in general use’ (Wong, 2008: 4). This public perception was supported by research findings. The declining standards of English are reflected in research studies such as by Li and Majhannovich (2010). The authors examine the results of the HK Advanced Level Examination, a pre-university public examination. Based on the findings, the results of the Chinese language show a significant improvement, with the passing rate reaching the highest ever (94.2%) in 2006. However, the results of English reveal a gradual decline after 2005. It can be argued that there are various contextual factors that lead to the decline in English proficiency, including the effect of mixed-code teaching in EMI schools. Nevertheless, the mother-tongue policy aroused vehement opposition in society and there was a strong demand from the general public for re-implementing EMI in all secondary schools in order to enhance students’ English proficiency (Falvey, 1998).

This demand persisted although statistical data has shown that the mother-tongue policy has led to better students’ content learning and better access to tertiary education for students in CMI schools. A large-scale questionnaire was carried out by The University of Hong Kong in 2006 in order to collect information on year two undergraduate students’ HK Advanced Level examination results. This specific group of students are the first cohort of students studying at The University of Hong Kong, which is a prestigious university in HK, since the introduction of the mother-tongue policy. Out of the 811 respondents, students who have taken the HK Advanced Level examination in Chinese are 12% for science, 14% for mathematics and 20% for humanities. Even though the percentages are representing a minority group of students, it nevertheless is considerably better than the previous records, when only a small number of students from CMI schools manage to achieve satisfactory scores for enrolling into this prestigious university in HK (Tollefson and Tsui, 2014). This demonstrates that the adoption of CMI does not necessarily prevent students from getting admission to a world-leading university, which was historically restricted to EMI students. Furthermore, Marsh et al. (2000) conduct a longitudinal study which involves 12784 secondary one (year 7) students attending 56 secondary schools. The study measures their language and academic development over the next three years after the implementation of the mother-tongue
policy. The key findings reveal that EMI students benefit in Chinese and English proficiency, but they are disadvantaged in learning content subjects, such as geography, science and history, with a slightly negative effect on mathematics. Yip et al. (2003) conduct a quantitative study on the effects of EMI on science learning. The study involves secondary two (year 8) students from one hundred HK schools and the findings illustrate that EMI students performed less well in science than CMI students, as measured by the tests involving multiple-choice questions and more cognitively demanding free response questions. The authors argue that students in EMI schools lack the required English proficiency to learn science effectively due to the abstract concepts, its complex relations between phenomena and its deployment of scientific language.

Studies on classroom teaching and learning in EMI classrooms also reveal that there are qualitative differences in teacher-student interactions. Lo and Macaro’s (2012) study employs a cross-sectional design to compare the classroom interaction patterns of two different settings of EMI secondary classrooms in HK. In one setting, the teachers and learners have experienced EMI for three years (referred to as EMI school) whereas in other settings, Chinese is used as the medium-of-instruction from secondary 1 to 3 (years 7-9), but then switches to EMI from secondary 4 (year 10) onwards (referred as medium-of-instruction switching school). Lo and Macaro analyse classroom interaction data which are collected from eight secondary 4 lessons in a medium-of-instruction switching school and two EMI schools. Quantitative and qualitative analysis of the teacher and learner talk are conducted. The results indicate that the lessons at medium-of-instruction switching school tend to be more teacher-centred as there are fewer interactions between teachers and learners. On the other hand, the lessons at the EMI schools tend to be more interactive, as indicated in the form of extended initiation-response-feedback sequences, which implies that teachers will ask more follow-up questions for encouraging students to reach better-quality answers. Lo and Macaro argue that ‘when the medium-of-instruction changed from students’ L1 to their L2, lessons tend to become more teacher-centred and there are fewer opportunities for negotiation of meaning and scaffolding’ (p.29). Nevertheless, the authors collect the data from a small number of schools and statistical tests are not performed to evaluate the significance of the different interaction patterns observed in the two EMI settings. Thus, the conclusions drawn may not be generalisable to other classroom contexts.

2.3.4 Implementing Fine-tuning Medium-of-Instruction Policy for Providing Access to EMI Education

After 10 years of the implementation of the mother-tongue policy, the government succumbed to political pressure and decided to ‘fine-tune’ the mother-tongue policy by eliminating the classification of schools into CMI and EMI. Secondary schools are allowed to offer EMI classes,
partial-English-Medium classes (i.e. one or two subjects conducted in EMI) and/or CMI classes. CMI schools have the autonomy in selecting their medium-of-instruction for content subjects if they have met certain criteria (Education Bureau, 2009). Schools can offer one EMI class with all subjects taught in English, except Chinese and Chinese history if 85% of the secondary 1 students of that class belongs to the top 40% cohort based on the government’s secondary 1 allocation results. If the classes do not meet this criterion, the schools can choose alternative options, including (1) teaching all content subjects through CMI, except English language classes, (2) making use of a maximum of 25% of the whole curriculum time to teach up to two content-based subjects through EMI, (3) making use of the curriculum time to teach several units of some content subjects in English. This policy has resulted in a diversified mode of medium-of-instruction in schools, including:

1) Mostly EMI: this type of schools is typically top-ranking schools which recruits students with high Chinese and English proficiency and general academic ability. Nearly all content subjects (except Chinese-related subjects) are taught in English in all grade levels.

2) Mostly CMI: this type of school typically admits students with low English proficiency and general academic ability. Therefore, nearly all subjects (excluding English language) are taught in Chinese at all secondary levels. Nevertheless, the school can offer students’ exposure to English by providing some ‘extended learning activities’ in English, not more than 15%, 20% and 25% of the total lesson time at secondary 1,2 and 3 respectively, for supporting students’ English language development. For instance, schools can choose to teach several units of some content subjects through EMI.

3) Medium-of-Instruction switching: this type of school typically teaches all content subjects (except English) in Cantonese in junior secondary levels, but they switch the medium-of-instruction to EMI for most subjects in senior secondary levels in order to equip students for EMI university education in HK.

4) EMI by class: some schools may recruit students from a range of linguistic and cultural backgrounds. These schools may have several EMI classes at each secondary level based on the students’ English proficiency and academic ability. Recently, there is an increasing number of non-Chinese speaking students in HK. As a result, those secondary schools with a significant number of non-Chinese speaking students may have EMI classes in order to cater for the needs of this group of students (e.g. Lin and He, 2017).

5) EMI by subject: some secondary schools may choose to teach one or two content subjects through EMI. It has been found that secondary schools in HK prefer to adopt EMI for teaching mathematics and sciences because these subjects impose lower demand on students’ English literacy skills (Kan et al., 2011).
The emergence of these practices in HK reflects the fact that schools are no longer classified into EMI and CMI schools. The labelling effect of EMI and CLIL, which eliminates students’ learning motivation and self-confidence, is a result of the compulsory CMI policy (Poon, 2009). With the elimination of the labelling effect, this allows schools to exercise their own professional judgment in offering EMI or partial EMI classes under particular conditions, and/or CMI classes. Due to the mismatch between the number of students with adequate English proficiency and the number of places in EMI schools, some students with adequate English proficiency were misplaced in CMI schools under the compulsory CMI policy. Under the fine-tuning medium-of-instruction policy, they now have the opportunity to receive EMI education. Being allocated in EMI classes means that these students can possibly get a better job in the future and they are well-prepared to attend English-medium universities, and potentially increase their social mobility (Poon, 2013). This new medium-of-instruction policy ironically contradicts with the government’s long-standing belief in the value of promoting CMI education.

Nevertheless, there are limited empirical studies which evaluate its implementation process, its outcomes and effectiveness. Poon et al. (2013) carry out a study on the first year of implementing the fine-tuning medium-of-instruction policy. The study focuses on the students’ attitudes towards the medium-of-instruction policy and its effects on their content and language learning. The authors survey 461 students studying secondary 1 at three different schools in 2010 and the key findings indicate that all students in EMI and partial EMI acknowledge that they are confronting many difficulties when learning content subjects through EMI. The majority of the students also expect their teachers to deploy more mixed code in teaching to facilitate their understanding. Lastly, the impact of the medium-of-instruction policy on improving students’ English proficiency is not statistically significant. Yet, the authors’ findings, as they acknowledge, are preliminary and they only target one group of stakeholders. Teachers and other stakeholders are not involved in the study.

Chan’s (2013) case study explores the policy implementation in a typical former CMI secondary school and the author conducts a content analysis of the school-based policy documents and secondary 1,2 and 4 students’ self-reported data of their use of English over a five-day week. The findings indicate that EMI content subject lessons in secondary 1 and 2 levels tend to be teacher-centred and less interactive than English classes. It is also found that content teachers tend to use more English in elite classes. In other words, the majority of the normal classes may not require this amount of EMI teaching. This poses a question of whether the fine-tuning policy can benefit students with lower academic ability or lower English proficiency. Chan concludes that without close monitoring of the policy implementation, it is likely for schools to adopt the mixed-code
instruction, which will be a return to the colonial government’s laissez-faire policy in the 1990s. Nevertheless, this study only relies on students’ self-reported data on their language use without conducting a detailed analysis of the actual classroom interactions.

Chan (2014) conducts a follow-up study which explores the impact of the fine-tuning medium-of-instruction policy based on the perceptions of multiple stakeholders (students, teachers and principals). The study gathers different sources of qualitative data, including focus groups interviews, open-ended questionnaires, classroom observations and school-based policy documents. The findings reveal that the medium-of-instruction policy implementation has resulted in the emergence of several educational and practical issues which resemble those also happening in L2 bi/multilingual immersion education worldwide. Some of the issues include students’ struggles in learning content subjects through EMI, overemphasis on memorisation rather than fostering higher-order thinking skills, teacher-centred teaching and time constraints in managing both content and language matters (e.g. Lin and Man, 2009; Cammarata and Tedick, 2012). Moreover, based on Chan’s classroom observations, he finds out that the high proportions of EMI teaching seem to have only favoured the more capable students but sacrificed the academic performance of the less capable students. The less capable students are only able to express themselves in single words or short sentences. As illustrated in the study, teachers seem to lack professional knowledge in EMI pedagogy and tend to adopt a conventional approach to teaching which prevents the less capable students from benefiting from EMI education. Chan concludes that although the fine-tune medium-of-instruction policy has responded to the societal demand for promoting EMI education, whether students can benefit from it will depend on the implementation of the EMI policy at school and classroom levels.

The above studies (Poon et al., 2013; Chan, 2013; 2014) have demonstrated that the fine-tuning medium-of-instruction policy has its limitations. Although the government has provided specific criteria for schools to provide EMI classes, placing students into EMI classes does not mean that learning will take place in the classrooms automatically (Chan, 2013; 2014). It is important for the government to pay attention to how the policy is implemented at the local level in order to resolve the difficulties that are currently facing by the teachers and students in teaching and learning through EMI. This includes developing appropriate teaching and learning strategies in EMI classrooms and deciding the amount of professional and practical support that should be provided to schools and teachers (Lo and Lin, 2019a).

In this section, I have explained that the medium-of-instruction policy in HK has undergone a number of controversial changes. Policymakers have suffered from intense pressure to resolve the
issue between educational considerations and expectations from the public. The rapid medium-of-instruction policy changes in HK has revealed that the policy approach is not as effective as it expects. A key explanation for this is because policymaking is complicated, and it entails different stakeholders. A language policy is not likely to succeed if some of the key stakeholders’ interests are not catered for. As this illustrated, EMI is preferred by parents and students in HK. HK government made a change to their medium-of-instruction from English to Chinese in 1997, possibly for strengthening HK people’s national identity and their patriotic spirit. This suggests that political agendas, even if the HK government has not openly acknowledged, are vital to medium-of-instruction policies and other factors, such as educational issues, receive special attention when they converge with the particular political agendas. The fine-tuned medium-of-instruction policy re-introduces EMI education and it provides flexibility for schools to determine their medium-of-instruction. Nevertheless, the issues are encountered at the implementation level, such as the students’ limited English proficiency and teacher’s ineffective pedagogical strategies. The next section will focus on the multilingual practices in EMI secondary classrooms.

2.4 Multilingual Practices in EMI Secondary Classrooms

In comparison to studies on the use of L1 in L2 learning settings (e.g. Ustunel and Seedhouse, 2005), there are fewer studies which investigate L1 use in the EMI context. These studies typically employ naturalistic observations to investigate teachers’ spontaneous use of L1 in order to identify good pedagogical practices. Lin (1996) employs interactional sociolinguistics to analyse pedagogical practices in Hong Kong EMI classrooms (science, geography, history, math, social studies) and she reveals teachers’ creative use of their L1 to establish a closer relationship with students, reaffirm native cultural values and norms, construct bilingual academic knowledge and promote effective classroom management. She further concludes that these code-switching practices represent the EMI teachers’ pragmatic responses to the dilemmas created by the EMI policy in HK, where many students with limited English proficiency struggled to learn content subject knowledge through EMI.

Similarly, Lin (2006) conducts a further analysis of classroom interaction in HK EMI science classrooms and she argues that when the science teacher offers rich L1 semantic contexts (e.g. real-life examples or experiences familiar to the students) to the teaching of technical terms in English, this facilitates students’ understanding of the difficult scientific concepts. Moreover, Tavares (2015) adopts a case study approach to explore a teacher’s use of L1 behaviour in a HK EMI mathematics classroom and the analysis has demonstrated that the teachers’ use of L1 is motivated by her educational philosophy as the teacher aims to promote a safe learning
environment in the classroom. The teacher uses L1 to encourage students to verbalise their responses in English in order to foster a positive learning environment for the students. Based on the students’ feedback, the teachers’ use of L1 has reduced their anxiety, clarified the questions that they may have and built up their confidence when calling upon to respond to questions. Additionally, Nikula (2007) studies how English is used in Finnish biology and physics CLIL secondary classrooms and it is found that using English (L2) can serve social and affective functions in CLIL classrooms. Based on the classroom discourse analysis, Nikula argues that CLIL students’ uses of L1 allow them to affirm their identity as language users instead of learners of English and create a bilingual space in the classroom in order to promote a meaningful and goal-oriented classroom interaction.

Hence, it seems that using L1 can potentially facilitate both content and language learning in EMI secondary classrooms. However, some researchers also warn that using L1 has to be ‘principled’ and ‘judicious’ with a clear pedagogical goal (Macaro, 2005; Lasgabaster, 2013). A recent study by Pun and Macaro (2019) investigate the effect of L1 and L2 use on teacher’s question types and interactional patterns in HK EMI science classrooms. The findings indicate that L1 use tends to be associated with higher order questions and the use of English appears to be limiting teacher’s use of higher order questions. The authors conclude that such multilingual practices in EMI classrooms will prevent students from acquiring academic English. Nonetheless, the conclusion drawn by the authors may be misleading and the findings may not be generalisable to other classroom contexts as the study only focuses on HK EMI secondary science classrooms. It is vital to note that several studies (e.g. Lin, 2006) have rightly argued that it is difficult for limited English proficiency students to understand the content knowledge in English in the EMI context. As Lin (2006) argues, a more realistic educational goal is to assist students to understand the English texts and express the content knowledge and concepts in the appropriate domain-specific language. Hence, there are various factors that affect why, when and how EMI teachers employ L1 in the EMI classrooms.

Several studies have illustrated that the teachers’ use of L1 is affected by the teaching contexts (e.g. school environment, students’ English proficiency) that they confront. Gierlinger (2015) conducts a longitudinal qualitative study for over three years in order to investigate the CLIL teachers’ use of L1 in Austrian CLIL lower-secondary classrooms. The study collects various data sources including teacher interviews, classroom observations and stimulated recall interviews and the results indicate that the teachers’ uses of L1 serve for the following functions: managing the classroom, maintaining students’ behaviours, translating unknown vocabulary items, dealing with vocabulary items that the teacher does not know in English, and promoting the understanding of content. This study clearly illustrates that the teachers’ uses of L1 are not carried out in an
unprincipled manner since they are used with clear pedagogical orientations.

Similarly, Lo (2015) aims to understand whether EMI teachers can use L1 appropriately to address their students’ needs. Both quantitative and qualitative methods are employed to analyse year 10 classroom interaction data which are collected from 12 classes in five HK secondary schools. Twelve teachers teaching biology, history and geography are selected as participants and all participating teachers are proficient in both English and Cantonese. Through conducting timed analysis to analyse the proportion of teacher and learner talk and the proportion of L1 and L2 use, the results indicate that in whose schools where learners have high English proficiency (Schools D and E), the teachers mainly translate the technical terms in Cantonese. In contrast, in those schools where learners’ English proficiency levels are not as high (Schools A, B and C), the teachers switch to L1 more frequently. Through conducting discourse analysis to study the classroom interaction qualitatively, it is noticeable that the teachers at school A, B and C tend to switch to L1 for explaining difficult concepts and subject-specific vocabulary in order to make the content comprehensible for the students. Lo argues that EMI teachers in HK seem to be sensitive to employ L1 in the classrooms in order to overcome the potential barriers of learning academic content through the medium of English.

A recent study by Lo and Lin (2019b) explore how EMI teachers teaching various content subjects can systematically use L1 in order to maximise the effectiveness of EMI both in content and language learning. By adopting the notions of ‘curriculum genre’ and ‘task structure’ in analysing teachers’ use of L1 and L2 in EMI secondary schools in HK, the authors suggest that L1 is useful for constructing content knowledge and the teachers also employ both L1 and L2 to engage students with guided reading, note-taking and re-writing. The authors also observe how L1 is employed by teachers to prepare low English proficiency students for certain classroom tasks and the L2 is gradually introduced as an attempt to bridge the students’ understanding of the content knowledge in the L1 and L2. When dealing with higher proficiency students, teachers are found to employ L1 to relate content knowledge to real-life examples that are directly linked to the students’ life experience. Such findings have illustrated that teachers’ use of L1 in their lessons can serve for different purposes in order to achieve content and language learning in EMI classrooms.

As illustrated, the findings of these studies reveal that teachers’ uses of L1 are used to achieve various linguistic, educational, social and socio-cultural functions. Some studies have suggested that the use of L1 can facilitate, instead of hindering, L2 learning in EMI contexts (e.g. Lo, 2014; Travers, 2015). On the other hand, several scholars (e.g. Pun and Macaro, 2019) have suggested that using L1 in EMI settings can potentially fail to develop students’ L2 oral proficiency, their
willingness to communicate and risk-taking. Hence, it is suggested that EMI teachers need to have a clear pedagogical orientation when making use of L1 in the subject classrooms. However, the above studies follow a functional analysis in order to identify how different named languages are switched back and forward to construct a coherent unit as well as the purposes of switching from one language to another at a particular point of classroom interaction. Nevertheless, such an approach does not take into account of the role of other linguistic (e.g. style, register, accents) and multimodal resources (e.g. gestures and spatial positionings) in the meaning-making processes in EMI classroom interactions. Moreover, linguistic features, including adapted borrowings, domain-specific lexical items and the use of dialectal variants, often do not lend themselves to a strict code-based classification. Using translanguaging as the conceptual framework can allow researchers to capture how different language and non-language cognitive and semiotic resources transcend culturally-defined language boundaries. Translanguaging scholars (e.g. Li, 2011; Canagarajah, 2018; Li, 2018) aim to challenge the divides between the so-called ‘named languages’ and the non-verbal communication cues since these resources are all part of the repertoire of meaning- and sense-making resources. This will further be discussed in chapter 3.

### 2.5 Teacher Beliefs regarding the Language Choices in EMI Classrooms

Teacher beliefs is possibly the most frequently used term within the body of literature which is labelled as ‘teacher cognition’ (Borg, 2003). It is a term that deals with an individual’s behaviour and learning (Ajzen 1988) and it is possibly the best indicator of the decisions that are made by individuals. Due to the complicated nature of teacher beliefs, a number of definitions have been deployed by researchers in exploring teacher beliefs (e.g. Rokeach, 1968; Sigel, 1985; Kagan, 1992; Flores, 2001; Pajares, 1992). Chung (2018) provides a working definition of beliefs which attempts to integrate various perspectives of beliefs:

‘Beliefs are understandings or propositions subjectively accepted as true. Either consciously or unconsciously held, they bear a closer relationship with teachers’ behaviour and thinking, can be broadly related to the nature and acquisition of knowledge as well as teaching, and are often developed through a process of social construction’. (p. 17)

Chung (2018) argues that this working definition adopts the perspective that teacher beliefs can potentially influence what they think and do. However, teachers may not necessarily be aware of the beliefs that they hold. Therefore, beliefs should be inferred through studying the teacher’s verbal statements and their actions. This working definition also emphasises that teacher’s actions can be shaped by a combination of various factors and the teacher’s beliefs about teaching can
learning are subject to change, depending on the context. It is important to note that in this thesis, I am also referring to how other sociocultural factors, such as the teacher’s prior life experience, personal history, environment, can potentially shape the EMI teachers’ construction of different translanguaging spaces in the classroom. Teacher beliefs is only one of the possible factors that can contribute to the creation of a translanguaging space in the EMI classroom (see further details in section 3.2.3.1, chapter 3). In this section, I aim to demonstrate how EMI teachers’ decision to draw on L1 in the classrooms are influenced by their different beliefs.

A considerable amount of studies has been conducted to understand the teacher beliefs about classroom language choices in EMI and CLIL classrooms (e.g. Tung et al., 1997; Probyn, 2001; Airey, 2011; Lasagabaster, 2013; Briggs et al., 2018). Lasagabaster’s (2013) study involves 35 in-service CLIL teachers who are asked about their beliefs in terms of using L1 in their classes in Colombia. Lasagabaster analyses the teacher’s reflection essays that they have completed during the professional development course. The findings reveal that the teachers are generally positive about using L1 in the classes since they believe that it can serve as a scaffolding tool to facilitate content and L2 learning, explain abstract and difficult concepts in L1, make students feel comfortable in the classroom, boost the student’s confidence and encourage students to participate in the classroom discussions. However, based on the teachers’ self-reflection on their amount of L1 use in the classrooms, there seem to be some variations between teachers concerning L1 use. The analysis demonstrates that the CLIL teachers are able to use L1 to achieve various pedagogical functions, but their code-switching practices are not systematic nor based on any guidance since they rely on their own intuition. There is a need for CLIL teachers to be aware of how systematically and directly they should code-switch so that its optimal use (Macaro, 2009) can enhance L2 and content learning.

A large-scale questionnaire is carried out by Briggs et al. (2018) in order to explore teacher beliefs in secondary and tertiary EMI teachers from 27 countries. 167 responses are included in the statistical analysis and the respondents work in 29 different countries, including Germany, Spain, Australia, Thailand, China, Poland, Italy and Hungary. The questionnaire is developed as a consequence of a preliminary research study conducted by the authors and it is piloted with 9 participants. The study reports the challenges that EMI teachers confront in the classrooms and the EMI teachers believe that using English to teach content subjects is beneficial in terms of advancing students’ English proficiency, but they feel that EMI will affect the teaching of academic content due to the varying student English proficiency levels. This requires the teachers to draw on their L1 to explain the content knowledge to the students, but they believe that using L1 will go against the aim of implementing EMI in the classrooms. The authors argue that the EMI policy
is being introduced in institutions without thorough discussions with the teachers and therefore without providing sufficient support to teachers.

In lower secondary EMI education in South Africa, Probyn (2001) investigates the teachers’ beliefs about teaching content subjects through EMI and their own reflections on their classroom practice. Probyn carries out interview data with five EMI teachers who teach mathematics, accounting, science, business economics and history. She also observes and video-recorders two lessons for each teacher. Using thematic analysis as the method, the analysis has illuminated a number of pedagogical strategies for enabling students’ content and language learning. The most notable strategy is the use of code-switching and the teachers believe that switching to L1 allows them to achieve several pedagogical goals, including furthering students’ understanding, inviting student’s participation, scaffolding students’ responses and emphasising key points. They also believe that using L1 can help them to check whether students are following the lessons, manage classroom discipline and create a relaxing teaching environment for students. However, several teachers express the conflict between English learning and using L1 in the EMI classrooms. Due to the students’ low levels of English proficiency, they often struggle to adapt their levels of English sufficiently in order to allow students to grasp the content and are having to deploy L1 to scaffold student’s content learning.

Tung et al. (1997) conduct a large-scale questionnaire on the teacher beliefs towards the use of EMI in HK secondary schools. The study was carried out in 1997 when the political status of HK would change from British colony to Special Administrative Region of China. At that period of time, there were predictions that the status of English as the official medium of communication within government, law and businesses would be diminished and Putonghua would be greatly enhanced and Putonghua as the official medium of communication would be introduced. The authors collect the survey data from first year students, their teachers and parents of the twenty-four secondary schools. Over 5,000 students, over 4,600 parents and more than 700 teachers form the sample of the data. The findings reveal the teachers’ beliefs that Chinese as the medium-of-instruction will enhance student learning since it can assist the teachers in covering the curriculum in greater depth. Teachers also believe that using Chinese can increase students’ interests and create a better learning atmosphere for students. Using English is considered as less effective than teaching content in students’ L1 as teachers believe that there is a lack of resources for preparing them to teach in English and they may struggle to explain technical terms in English. However, it is noticeable that students and parents value English over Chinese as the medium-of-instruction although they agree that CMI can better promote students’ content learning.
A recent study by Pun and Thomas (2020) utilises questionnaire and interview data to investigate the challenges and coping strategies that are deployed by HK EMI science teachers to carry out their teaching. 19 science teachers from eight HK EMI secondary schools complete the survey and conduct the interviews with the authors. The study reports that the use of student’s L1 is the most prevalently reported strategy and teachers believe that it is necessary to draw on any available linguistic resources to explain important ideas to students. The authors argue that the EMI teacher’s beliefs regarding their decision to use L1 in the classroom seem to relate to their belief about their own or their students’ low-level English proficiency. The correlation analysis has also revealed that several teachers’ self-reported English proficiency levels correlate with the teachers’ beliefs about their EMI experience. The authors further suggest that the teachers with low-level English proficiency feel less confident in teaching science in English and therefore may deploy L1 to compensate for themselves and facilitate the students’ understanding.

Overall, these studies have revealed that using student’s L1 can be a useful resource for content teaching in EMI classes. However, as Laragabaster (2013) and Macaro (2018) argue, the general findings of EMI teacher’s beliefs of using L1 in classrooms is not conclusive as yet since teacher’s beliefs can be affected by different factors, including students’ English proficiency, the teachers’ confidence of their own English proficiency, and the EMI situation in the particular institutions/schools. Additionally, the cited studies (e.g. Tung et al., 1997; Laragabaster, 2013; Briggs et al., 2018) only rely on one type of data source (i.e. questionnaires for Briggs et al., 2018 and Tung et al., 1997, and teacher’s reflection essays for Laragabaster, 2013) to explore the complexity of teacher beliefs regarding using L1 or English in EMI classrooms. There is a need for research studies to analyse and triangulate multiple data sources, such as combining video-observation data and interview data in Probyn’s (2001) study, in order to better understand how these teachers’ beliefs and their actual classroom practices are shaped by various sociocultural factors, including the predominant educational philosophy, popular beliefs in language education, and the socio-political status quo.

Alternatively, the above studies are grounded on a monolingual bias and perceived languages as separate entities. There is a lack of studies which examines the teacher beliefs about their use of translanguaging in EMI classrooms. One of the few studies which examined teacher beliefs of their own translanguaging practices at an EMI science university classroom is by Mazak and Herbas-Donoso (2015). This ethnographic case study collects ethnographic field notes, audio-recordings of the classroom interactions, semi-structured interviews with the professor, and teaching materials, such as PowerPoints, to closely examine the purpose of using translanguaging in the science classrooms. The findings identify several functions of translanguaging practices.
employed by the professor including: using key English terminology when explaining the scientific concept in Spanish, reading the textbook in English but discussing about it in Spanish, employing Spanish cognates while referring to the textbook in English. In the interview, the professor demonstrates his belief that using both English and Spanish strategically allow him to effectively convey scientific information to the students. The professor also explains that he deliberately uses English to refer to the key scientific terms in order to ‘facilitate students’ access to the scientific community’ (p.711) so that they can independently search for further information regarding a particular scientific concept beyond the classroom setting. This is because these key terminologies are constantly written in English in the scientific community. This illustrates that the professor has specific pedagogical considerations for using translanguaging as a way to develop students’ scientific discourse in both languages.

Doiz and Lasgabaster (2017) conduct a similar study which examines the EMI teachers’ beliefs regarding their translanguaging practices at a Spanish university. It is important to be aware that although the paper emphasises translangaging as the research focus, the authors switch to the term ‘use of L1’ in their research questions. The study organises focus groups with the EMI teachers to capture and analyse their ideological discourses. A total of 13 teachers teaching economics, engineering and communication are involved in this study. The findings illustrate that the majority of the teachers believe that using L1 is detrimental to the goals of EMI and it will hinder the creation of an English-only classroom environment. Only two teachers support using languages flexibly to develop students’ multilingualism. As this study does not observe the teachers’ actual practices in the classrooms, the authors advocate future research to observe EMI classes in order to identify any mismatch between beliefs and practices.

Chang’s (2019) ethnographic study observes how 18 university lecturers from a range of disciplinary backgrounds carry out their lectures in a Taiwanese EMI university over 6 months. The data are collected from classroom observations and semi-structured interviews and they are analysed through nexus analysis. The classroom data analysis shows that the lecturers draw on various linguistics resources, including Chinese, Taiwanese and English, during the process of content teaching and learning. The interview data, on the other hand, reveal that the EMI lecturers understand the importance of deploying available linguistic resources at their disposal to construct meaning. However, the lecturers have not embraced a translanguaging ideology. In other words, although the lecturers deploy translanguaging to facilitate their content teaching, they have not rejected the English-only policy at their university. Chang argues that translanguaging practices are found as important for lecturers to achieve various pedagogical purposes, but translanguaging practices are also constrained by the monolingual ideologies during instruction. Chang, therefore,
advocates the need to transform the current EMI policy by moving away from the current English-only focus toward multilingual awareness.

Although the above cited studies (e.g. Mazak and Herbas-Donoso; 2015; Doiz and Lasgabaster, 2017; Chang, 2019) claim that they have investigated the teacher beliefs about translanguaging in EMI classrooms, the results should be interpreted with caution. These studies adopt the old-fashioned definition of translanguaging and consider translanguaging as a shift from one language to another. As noted, Doiz and Lasgabaster associate translanguaging with the term ‘use of L1’ or alternation between two separate codes. The authors do not clarify what they understand by the term ‘translanguaging’. This demonstrates the authors’ lack of understanding of the ramifications of the notion. Moreover, these studies ask teachers regarding their use of language choices in the classrooms without considering the multimodal aspects of translanguaging. As I will explain in the next chapter, translanguaging is a multilingual and multimodal practice which involves drawing one’s full linguistic and semiotic repertoire to construct meaning and knowledge. Hence, there is a need for future research to explore teacher’s beliefs regarding the use of multilingual and multimodal practices in EMI classrooms in order to better understand how beliefs are related to their pedagogical practices.

2.6 Summary

This chapter has reviewed key literature in the fields of knowledge that this thesis touches upon. This includes EMI, medium-of-instruction policy, multilingual practices in EMI classrooms and EMI teacher beliefs. The chapter gives an introduction to the differences between EMI and other immersion programmes. It reviews the research studies on medium-of-instruction policies in HK, multilingual practices in EMI classrooms and EMI teachers’ beliefs on language choices in the classrooms.

This chapter raises a question for debate in terms of whether English, Cantonese or Mandarin or even all three languages should be adopted as the medium-of-instruction to teach content subjects in HK secondary EMI schools. Since there is no ‘one size fits all’ solution for teaching every content subject on the curriculum, this raises the potential of developing a flexible curriculum. Is the plurilingual education model a realistic possibility? As Poon (2013) recommends, the HK government should consider adopting models of bi/multilingual education in designing the fine-tune medium-of-instruction policy. The teaching of L1 and L2 should be planned carefully and holistically with the planning of teaching medium in the whole school curriculum. This suggestion challenges the necessity of only using one named language (L1 or L2) as the medium to teach
content subjects. Hence, this doctoral study aims to contribute to the current literature on EMI teaching and learning by examining HK EMI teachers’ use of various linguistic, multimodal and spatial resources to create different translanguaging spaces in the classrooms for achieving the oriented pedagogical goals. This study will also examine how the EMI teachers make sense of their own translanguaging practices in the classrooms in order to shed light on how teacher’s beliefs are connected to their creation of translanguaging spaces in the EMI classrooms. The following chapter will focus on exploring translanguaging as a theoretical framework, as an analytical perspective and as a pedagogical resource for teachers to maximise the resources the students can access in the process of learning instead of restricting them to one language and one modality.
Chapter 3: Conceptual Framework

3.1 Introduction

In order to understand how teachers employ multilingual and multimodal resources in their repertoires to construct meanings in EMI classrooms, known as *translanguaging*, this chapter will turn to three relevant concepts which underpin the notion of translanguaging: translanguaging as a theory of language, as a pedagogical practice and as an analytical perspective. I will first explain how the notion of translanguaging is informed by the perspectives on languaging and bi/multilingual pedagogy. The chapter will then illustrate how translanguaging as a theory of language and as an analytical perspective can inform our understanding of the complexity of the creative and dynamic practices language users engage in with multiple linguistic and semiotic resources. This can allow us to understand the EMI classroom as a fluid and dynamic translanguaging space. The chapter will finally review empirical studies which illustrate the nature of teachers’ translanguaging practices in EMI classroom interactions and identify the research gaps that the current study aims to address.

3.2 Three Uses of Translanguaging: A Theory of Language, a Pedagogical Practice and an Analytical Perspective

A considerable number of research studies on multilingualism has moved away from the perspective of languages as separate bounded entities to a perspective of communication in which speakers draw on whatever linguistic and semiotic resources at their disposal to create meanings (Jorgensen et al., 2011; Blackledge et al., 2014). Instead of choosing the named language as the unit of analysis, sociolinguists move away from a focus on languages as distinct codes to an emphasis on the agency of the speakers engaging in employing, constructing and interpreting different kinds of linguistic and semiotic signs for communication. Recently, there are a number of alternative terms that are being used in the field which refers to the fluidity of language practices in everyday communication. This can be observed in Rampton’s notion of ‘crossing’ (2014), Jacquement’s (2005) ‘transidiomatic practice’, Jorgensen’s (2008) ‘polylingualism’, Otsuji and Pennycook’s (2011) ‘metrolingualism’, Higgins’s (2009) ‘multivocality’, Canagarajah’s (2013) ‘translingual practice’, Mignolo’s (2000) ‘bilanguaging’ and Blommaert’s (2010) comparison between ‘mobile resources’ and ‘immobile languages’. Although these terms differ from each other, they all share the same idea that speakers do not reproduce named languages. Rather, speakers have access to a wide range of repertoires which they can employ in social interactions. This thesis
will employ the term ‘translanguaging’ as it can better capture the fluidity of language practices. In the following sections, I will explain the three uses of translanguaging as a pedagogical practice, as a theory of language and as an analytical perspective.

3.2.1 Translanguaging as a Pedagogical Practice

The term ‘translanguaging’ was first coined by Williams (1994) in the context of Welsh bilingual classrooms in reference to the deliberate alternation between languages for receptive or productive purposes, which is reflected in the practice of reading and discussing a topic in one language and then writing about it in another in Welsh revitalisation programmes. Here, the alternation between languages is not spontaneous but rather strategic and deliberate, involving ‘using one language to reinforce the other in order to increase understanding and in order to augment the pupil’s ability in both languages’ (Williams, 2002: 40). In other words, it aims to employ the stronger language to help learners to develop the weaker language in order to contribute to the balanced development of the student’s two languages. Whilst translanguaging promotes the flexible use of multiple languages and other meaning-making resources, it seems to go against the basic premise of EMI. The reality though is that in many if not all EMI classes, the use of languages other than English is actually very common. This is similar in many ways to the situation that Williams (1994) observes in the Welsh-medium classes where the teacher, following the school policy, tries to teach in Welsh only, but most pupils respond in English. Rather than seeing it as a barrier to revitalise Welsh, Williams views translanguaging as a way to realise and maximise the pupils’ learning potential. Williams (1994) in its original conception wants to advocate a translanguaging pedagogy in order to assist learners in scaffolding one language with another. The term ‘scaffolding’ means that the ‘expert’ offers assistance to the novice through supportive dialogue to allow him/her to undertake tasks that they cannot manage to complete alone (Lantolf and Aljaafreh, 1996). Although there are studies on the deployment of scaffolding techniques by teachers in multilingual classrooms, a lot of them pay attention to the teacher’s use of target language for scaffolding students’ language learning in the classrooms (e.g. Donato, 1994).

However, recent translanguaging literature has paid attention to teachers’ deployment of multiple linguistic resources for scaffolding. The findings of the studies (e.g. Hornberger and Link, 2012; Li, 2014a; Lin and He, 2017) typically indicate that the teachers encourage students to draw on their multiple repertoires in the classroom which consequently can facilitate the students’ development of multilingualism (see section 3.3 for more studies). According to Garcia and Li (2014: 3), the ‘trans’ prefix in translanguaging refers to the following aspects of language and education:
“(1) trans-system and trans-spaces, in which translanguaging is going between and beyond socially constructed languages, structures and practices;

(2) transformative nature of translanguaging, as traditional understandings of language practices are generated, this leads to the emergence of different discourses and voices that have been disregarded.

(3) trans-disciplinary consequences of language analysis, offering a tool for understanding not only the nature of the language practices but also other aspects of socialisations, human cognition, learning, social relations and structures.”

Later expansions and theorisations of the notion have emphasized the potentially transformative nature of translanguaging for multilinguals to bring in different sociocultural dimensions, including the speakers' social identities, life histories, beliefs, and their knowledge of the wider institutional environment, as resources in the process of meaning-making (Garcia & Li, 2014). Garcia and Li (2014) propose that translanguaging practices are transformative as it has the potential to remove the hierarchy of languages in a society that is seen as more valuable than the others. They argue that translanguaging is viewed as a new language practice which allows the flow of fluid discourses in a different social, cultural and political context and provides a voice to the speaker’s linguistic identities that have been suppressed within the fixed linguistic ideology adopted by nation-states. In this way, translanguaging challenges the existing dichotomy of separating languages into L1, L2 or Lx. Translanguaging is concerned with the entire repertoire of speakers, instead of the structural knowledge of particular languages separately. Hence, translanguaging encourages teachers and students to deploy their available multilingual and multimodal resources as a way to challenge the traditional configurations, categories, and power structures, equalise the hierarchy of languages in the classrooms and allow students’ full participation in constructing new meanings and new configurations of language practices. This can potentially give voice to students who are silenced by the monolingual policy in multilingual classrooms. Hence, translanguaging can be a way for promoting to provide equity and social justice.

Studies have illustrated that translanguaging is not only a multilingual and multimodal practice, but it can offer pedagogical and interpersonal functions in the classrooms (Cenoz and Gorter, 2011; Allard, 2017). It plays a role in deepening students’ understanding of the curricular content, establishing students’ identity positions, promoting inclusion and students’ participation in the classrooms, preventing communication breakdown and maintaining fluency and meaning-based interactions (Creese and Blackledge, 2010; Lewis et al., 2012; Palmer et al., 2014). It can also provide teachers and students the options to develop their ‘linguistic security and identity
investment’ (Garcia, 2009: 157) and offer examples of ‘dynamic bilingualism’ when teachers draw on their students’ linguistic and multimodal repertoires to respond to specific sociocultural contexts (Allard, 2017). Translanguaging also enables creativity and criticality in the multilingual users which allow them to draw on their multiple communicative resources (Li, 2011). Furthermore, translanguaging has the potential to promote social justice since it eradicates the L1/L2 dichotomisation, challenges the existing hierarchies of different ‘languages’, ‘liberates the voices’ of multilingual students (Garcia and Leiva, 2014). Several studies have demonstrated that translanguaging can lead to students’ uptake of content knowledge (Licona, 2015) and improve students’ language proficiency and build rapport (Garcia et al., 2012). Based on the translanguaging literature, it is illustrated that translanguaging has transformative effects on pedagogy and students’ development of multilingualism, illustrated in the next section.

3.2.1.1 Research Studies on Translanguaging in Bi/Multilingual Classrooms

One of the most pertinent studies which illustrates the creativity and criticality of the students’ translanguaging is by Li (2014a). Using interactional sociolinguistics, Li focuses on classroom interactions between the children and their teachers in the UK Chinese heritage language classroom, where the teacher and students both understand Chinese, and illustrates the ways in which participants switch freely between different varieties of Chinese and English and different modes of communication. Moreover, Li also demonstrates that the students do not only bring together their multiple linguistic skills but also their knowledge of the social world, particularly their awareness of the history of the community to which they belong and their positions in it, as well as their attitudes and beliefs during the process of learning. Li argues that the students’ creative and critical expressions of meanings in their schoolwork indicate their agency in constructing their sociocultural identities, attitudes and values and challenge the dominance of Mandarin as the Chinese lingua franca. Such translanguaging practices go beyond pedagogy and learning and it can potentially have an impact on the students’ development of identity, social relationships and values.

A growing body of work in multilingualism has revealed that translanguaging is not only a multilingual and multimodal practice, but it can offer pedagogical and interpersonal functions in multilingual classrooms (Garcia and Li, 2014; Tai and Li, 2020). For instance, Woodley (2016) illustrates how translanguaging in a highly diverse elementary classroom promotes participation. By constructing multilingual resources, including labels and signs and posters in multiple languages, offering select home language translations, grouping students with the same L1s, and encouraging language comparisons when explaining new vocabulary items, the teacher successfully leverages students’ multilingualism while communicating with his students in English.
However, the findings of this study are generated from the teacher’s interview data and fieldnotes. Without a detailed analysis of the classroom discourse, it is unclear how does translanguaging enable inclusion in multilingual classrooms.

Although several studies (e.g. Li, 2014a; Woodley, 2016; Wang, 2019; Ollerhead, 2019) have illustrated that fluid language use in the classroom could result in a beneficial impact on students’ well-being, identity formation and confidence, there is a need to consider whether translanguaging in the classroom will be effective in various classroom environments as this will ‘depend on the socio-political and historical environment in which such practice is embedded and the local ecologies of schools and classrooms’ (Creese and Blackledge, 2010: 107). Some educational studies (e.g. Rampton, 2006; Charalambous et al., 2016) have illustrated that translanguaging may lead to a decrease in well-being and students may not perceive translanguaging as an empowering tool to recognise linguistic diversity in society. Charalambous’s et al. (2016) study is one of the few studies which illustrates how translanguaging might not be helpful in valorising linguistic hybridity in particular contexts. The ethnographic study examines how a primary school teacher introduces Turkish, which is the home language of students with Bulgarian backgrounds, in a Greek primary classroom. It is found that despite the teacher’s effort in embracing her students’ superdiversity and encouraging translanguaging to promote mutual understandings and maximise communication, the teacher’s pedagogical practices do not encourage the suppression of Turkish-speakerness since the students are feared that ‘speaking Turkish’ could be seen as ‘being Turkish’ (p.327) as Turkishness is associated with negative historical indexicalities in Greece. The authors note that in some communities, ‘discourse of conflict creates unfavourable ecologies for hybrid linguistic practices’ (p.327).

Similarly, Allard’s (2017) ethnographic study examines the pedagogical functions of the teachers’ translanguaging in a beginner-level ESL reading class and a beginner-level ESL science classroom in a US high school. The ESL students are Spanish speakers and they are expected to develop their English proficiency in order to be promoted to the mainstream content classes. The ESL teachers can speak Spanish and they both share similar Spanish proficiency. Based on the data derived from the classroom observations and teachers’ interviews, the teachers’ use of translanguaging is aimed to facilitate communication between low-proficiency ESL students and teachers, acknowledge students’ existing linguistic repertoires and assist them in understanding the curricular material and encourage students’ participation in the lessons. Nevertheless, from the students’ perspectives, translanguaging is perceived as a hindrance to the students’ English language development as they receive insufficient exposure to English. Due to the students’ beliefs in the importance of language purity in the classroom, this weakens the power of their teachers’ translanguaging, which
contributes to students’ low engagement with their studies, unwillingness to participate in the classrooms, and fraught student-teacher relationships. Furthermore, the school does not have a unifying language policy to celebrate multilingual diversity. Based on the ethnographic observations, the linguistic landscape in the school’s areas (e.g. corridor walls) reflects the dominance of English monolingualism. Hence, although the teachers’ translanguaging facilitates communication between teachers and students and affords students greater access to content, the teachers’ translanguaging is not a transformative pedagogical practice due to the monolingual language ideologies reflected in students’ beliefs and the absence of a coherent language policy in the school.

Therefore, it is important for translanguaging researchers not to presume that translanguaging itself can necessarily give back voice, release bilingual subjectivities, raise well-being, and ultimately transform the unequal community into a fairer world (Jaspers, 2018). This is because it is necessary to consider the local circumstances and the predominant discourses in the particular contexts before introducing specific linguistic resources in the classrooms in order to avoid resulting in negative influences on students’ learning outcomes.

As shown, the notion of translanguaging emphasises that it does not only going between different linguistic structures, systems and modalities, but also going beyond linguistic codes. It challenges the perspective that there are boundaries between different named languages, linguistic varieties and other communicative means. Translanguaging ‘signals a trans-semiotic system with many meaning-making signs, primarily linguistic ones that combine to make up a person’s semiotic repertoire’ (Garcia and Li, 2014: 42). It is a process of meaning-making which entails the speakers strategically as well as spontaneously drawing on their one linguistic and semiotic repertoire in an integrated manner without focusing on ‘languages’ as distinct and separate codes. This does not imply that the speaker is not aware of the structural constraints of particular named languages. In fact, Li and Ho (2018) argue that the speakers are fully aware of these facts, but the speakers are capable to deploy this knowledge to strategically achieve their communicative intentions.

3.2.2 Translanguaging as a Theory of Language

In this section, I will explain how the concept of translanguaging as a theory of language is informed by the work on ‘language’ from the sociocultural perspective and ecological psychology perspective, and the concepts of multimodality and multilingualism. This section will also explain how translanguaging as a theory of language can inform our understanding of the complexity of the creative and dynamic practices language users engage in with multiple linguistic and semiotic resources.
3.2.2.1 Translanguaging from the View of Languaging
3.2.2.1.1 The Sociocultural Perspective of Languaging

Under the sociocultural perspective, knowledge is constructed through social interactions where learners bring into relevance their sociocultural histories and communicative resources (Vygotsky, 1978). Garcia (2009) notes that an individual’s use of language is affected by social, cultural, political and economic situations. Therefore, meaning-making processes are not the same in various sociocultural contexts. Individual’s literacy practices are culturally determined and are employed for particular cultural and communicative purposes. Moreover, language should not be characterised by systematicity since speakers constantly change their use of language according to different social contexts.

Extending this concept, Swain (2006: 98) introduces the term languaging as ‘the process of making meaning and shaping knowledge and experience through language’. It is also linked to Becker’s (1988) attempt to shift away from conceptualising language as a noun that has been accomplished to language as a verb or an ongoing process. As learners employ language for making meaning and problem-solving in interaction, language becomes the tool which allows speakers to construct the idea that he/she is hoping to convey. Swain (2006: 97) argues that ‘language serves as a vehicle through which thinking is articulated and transformed into an artefactual form’. This relates to the internalisation process which entails the learners externalising their thoughts through social interactions and then allowing learners to reflect upon these externalisations in order to make refinements accordingly. Swain (2006: 98) concludes that ‘languaging about language is one of the ways we learn language’. From this perspective, it can be illustrated that Swain perceived language learning as a process rather than an outcome, which entails the negotiation and co-construction of meaning. Furthermore, Gynne and Bagga-Gupta (2015: 512) conceptualise languaging as ‘ways-of-being-with-words’ which emphasise the idea of ‘language as a process, and product of the social activity, or a practice of interactional agency’.

All these conceptualisations of languaging share the similar idea that multilinguals strategically employ language as a tool to learn and accomplish one’s communicative intentions. Swain (2006) draws on Wantanabe (2004)’s analysis of an English-as-a-second-language classroom interaction and demonstrate how the learners acquire different aspects of a target language by ‘talking-it-through’ and specifically how the learners employ language as a mediational means to mediate their cognition in order to solve a language-related problem. Languaging, as Swain (2006: 105-106) suggests, ‘mediated the students’ language learning by drawing their attention to language-related problems they had, and by giving them the tools to reason with, to solutions’. This implies
that languaging allows learners to develop their metalinguistic awareness so that learning becomes more explicit.

3.2.2.1.2 Ecological Psychology Perspective of Languaging

It is important to note that translanguaging is informed by a dialogic and distributed perspective of language. Scholars, such as Nigel Love and Paul Thibault, perceive languaging as a ‘distributed and heterogenous biocultural resource that is spread over persons, environmental affordances, artefacts, cultural patterns, and values’ (Thibault, 2011: 240). From their perspective, languaging refers to ‘an assemblage of diverse material, biological, semiotic and cognitive properties and capacities which languaging agents orchestrate in real-time and across a diversity of timescales’ (Thibault, 2017: 82). In other words, the concept of languaging rejects the idea of dividing the linguistic, paralinguistic and extra-linguistic perspectives of human communication since languaging involves the orchestration of multiple bodily resources to construct meanings. Particularly, it highlights the significance of social factors including ‘feeling, experience, history, memory, subjectivity and culture’, ideology and power (Li, 2018: 9).

Language is perceived as a system which originates from the speakers’ situational behaviours. This perspective questions the old and established perspective of language, which assumes separate linguistic systems as pre-existing realities. The multiple linguistic and semiotic resources that speakers deploy during social interactions is seen as a product of ‘first-order languaging’. Specifically, Thibault (2017: 74) notes that first-order languaging ‘is an experimental flow that is enacted, maintained, and changed by the real-time activity of participants’. Based on the perspective of first-order languaging, language is social and dialogic instead of a pre-existing code. Thibault further notes that first-order languaging ‘includes a whole range of bodily resources that are assembled and coordinated in languaging events together with external (extrabodily) aspects of situations’ (p.215). These multiple linguistic and multimodal resources are later codified and labelled as various named languages (often due to historical, political or national forces). Thibault (2017: 80) employs the notion of ‘second-order language’ to refer to the ‘reified products of first-order languaging’. That is, these different languages are considered as second-order realities rather than first-order realities. Second-order language consists of lexicogrammatical patterns which represent ‘attractors – future causes – that guide and constrain first-order languaging. They are stabilised cultural patterns of longer, slower cultural timescales’ (Thibault, 2011: 216). In other words, speakers are always languaging when they are engaged in meaning-making processes; that is, speakers are being led and constrained by former stabilised cultural patterns, which come under the various names of social languages, linguistic varieties, registers etc. From this view, languaging involves the orchestration of the whole range of bodily resources, which are multilingual,
multisemiotic, multisensory and multimodal (Li, 2018).

Based on the languaging view on language learning, it perceives the novices adapting their ‘bodies and brains to the languaging activity that surrounds them’, and by doing so, the novices ‘participate in cultural words and learn that they can get things done with others in accordance with the culturally promoted norms and values’ (Thibault, 2017: 76). Thus, language learning is viewed as a process of resemiotisation (Iedema, 2003), referring to actions which allow learners to construct new meanings when they are engaging in the process of transforming a sign from one semiotic mode into another. It is also a process of participation since individuals employ multiple resources that are acquired over the course of their life trajectories through participation in different socio-cultural settings (Creese and Blackledge, 2010).

Hence, the concept of languaging reinforces language as a process instead of as an object. Languaging is constantly being jointly constructed between individuals and their environments. It reconceptualises language as a ‘multi-scaler organisation of processes that enables the bodily and the situated to interact with situation-transcending cultural-historical dynamics and practices’ (Thibault, 2017: 78) rather than reducing language to ‘linguistic objects’ with corresponding formalism, including phonemes, words and syntax. Moreover, the established notions of multilingualism, which emphasises achieving a certain level of proficiency in multiple different languages (Ellis, 2008; Rothman, 2008), have gradually been replaced by a perspective in which language users will deploy any kinds of linguistic resources that are useful and accessible to them for facilitating the meaning-making processes. Nevertheless, Garcia and Li (2014) argue that it is necessary to have translanguaging as a notion which can better capture the complexity of the multilingual language users’ language exchanges since the term languaging mostly concerns with the speakers’ knowledge of particular structures of specific languages separately. It does not fully highlight how the multilinguals draw on their entire linguistic and multimodal repertoires to construct hybrid language practices in order to mediate their thinking and meaning-making processes (Li, 2018). By adding the ‘trans’ prefix to languaging, Li (2018) reinforces the idea of crossing boundaries and acknowledging fluidity and flexibility between linguistic structures, systems and various modalities.

3.2.2.2 Translanguaging and Multimodality

Translanguaging aims to challenge the boundaries between named languages, and indeed between language varieties, which are social and political in nature (Otheguy et al., 2015; Li, 2018), which can be manipulated by the language users for strategy use in meaning-making. However, scholars (e.g. Li, 2018; Li and Ho, 2018; Ho and Li, 2019; Li, 2020; Tai and Li, 2020; 2021a; 2021b; 2021c)
further conceptualise translanguaging as breaking the boundaries between linguistic and semiotic resources. By embracing the social semiotic view of multimodality, scholars problematise the ideological biases that privilege conventional linguistic codes in meaning-making. As Li (2020) argues, linguists tend to focus on linguistic aspects in communicative practices, including investigating syntax, phonology and morphology in linguistics research. They typically pay little attention to other semiotic resources that create meaning in real-life social interactions. However, social interaction is highly multimodal, and meaning is never only conveyed through verbal utterances and writing in everyday human communication. Kress (2015) makes a similar argument and he argues that only focusing on speech and writing in the field of applied linguistics will prevent researchers from understanding the communicative practices in contemporary society. Hence, a multimodal turn in applied linguistics is required:

‘Language, as speech or writing, remains an anchoring-point in thinking and working in Applied Linguistics. Here, however, the reference-point to be discussed in multimodality. Its material resources are many and varied; they go well beyond speech and writing. ‘Material’ in the sense employed here refers to those phenomena which are accessible to and for engagement by the ‘senses’, the sensorium. All of these “material resources” impinge more or less closely on the present domain of Applied Linguistics, in ways both distinct yet closely connected’ (p. 51).

There are three theoretical assumptions related to multimodality. The first assumption is that ‘all interactions are multimodal’ (Norris, 2004: 1). Jewitt (2009) further argues that ‘multimodality describes approaches that understand communication and representation to be more than about language, and which attend to the full range of communicational forms people use […] and the relationships between them’ (p. 14). In this sense, language is only considered as one of the communicative modes, which is of equal significance with other modes, including gestures and verbal speech to contribute to meaning. The second assumption is that ‘each mode in a multimodal ensemble is understood as realising different communicative work’ (Jewitt, 2009: 15). Since different communication modes have different potentials for constructing meaning, each mode has its own situated meaning in a specific sociocultural context in which it is employed. Therefore, it is vital to understand that one cannot analyse social interaction holistically by just focusing on only one mode. All modes, including language, is part of a multimodal ensemble that has to be understood in its entirety (Kress, 2015). Furthermore, the third assumption is that ‘people orchestrate meaning through their selection and configuration of modes’ (Jewitt, 2009: 15). Although different modes perform various functions in social interactions, they do not work individually. Rather, they are orchestrated to create meanings. As argued by Jewitt (2009), different modes ‘co-present’ and ‘cooperate’ with each other for creating meanings in human
communication.

In recent years, there are more research studies in applied linguistics that pay attention to some form of multimodality, mostly on studying the role of gestures, to investigate the processes of L2 teaching and learning. As Smotrova and Lantolf (2013) argue, both gesture and speech form a unit that is necessary to be analysed as a whole in order to understand the role of gestures in enhancing speaking and thinking. As a result, gestures have an important role as a mediational tool in L2 learning and development, particularly in relation to vocabulary explanations (e.g. Smotrova and Lantolf, 2013; Tai and Brandt, 2018; Tai and Khabbazbashi, 2019a; Tai and Khabbazbashi, 2019b), grammatical forms (e.g. Matsumoto and Dobs, 2017) and pronunciations (e.g. Tai and Poon, 2016) that are not familiar to learners. Despite such research development, Block (2014) criticises the fact that such research only focuses on one communicative mode, notably gestures, while other semiotic modes are not well-recognised. He invites researchers to ‘take on board this wide range of modes more explicitly and more completely, examining how they form ensembles to communicate meaning in different contexts’ (p. 70). Additionally, researchers should not only recognise multimodality as a phenomenon in everyday life social interaction but should also ‘embrace the potential paradigmatic shift that the notion of multimodality can bring to our understanding of communicative practices’ in order to prevent producing hegemonic discourses that favour the conventional role of language (Adami, 2017: 3).

As shown, multimodality has drawn the researcher’s attention to the multimodal means which are previously neglected in the literature. Williams’s (1994) original discussion of translanguage as a pedagogical practice has included modalities of reading, writing, listening and speaking. As the notion has been further developed as a theoretical concept, translanguage embraces the multimodal view that sign makers can draw on their wider repertoire of multimodal resources at their disposal to create meaning. Li (2018) further extends the notion of translanguage as multilingual, multisemiotic, multisensory, and multimodal practices that individuals do for thinking and for expressing thought. From a translanguage perspective, this emphasises the need to look beyond the conventional conceptualisation of named languages as different codes of speech and writing, specifically, the embodied and multimodal aspects of communication.

### 3.2.2.3 Translanguage and Multilingualism

A multilingual is someone who can speak more than one language. The term ‘bilingualism’ is often used in the literature, which typically refers to a speaker who can speak two languages. However, in the context of education, ‘multilingual education’ is often employed as an umbrella term which includes bilingual education (Cenoz, 2013). Moreover, the prefix ‘multi-’ does not simply refer to
two or more languages. It has a broader meaning which refers to the ‘complex linguistic interactions that cannot be enumerated’ (García and Li, 2014: 3). The concept of multilingualism can be divided into two levels: individual and societal. Individual multilingualism is often used interchangeably with the term plurilingualism. Plurilingualism is defined as ‘the repertoire of varieties of language which many individuals use’ (Council of Europe, n.d.). In this sense, ‘some individuals are monolingual and some are plurilingual’. Such a perspective differs from the concept of societal multilingualism which refers to ‘the presence in a geographical area […] of more than one variety of language […] in such an area individuals may be monolingual, speaking only their own variety’. Although bilingualism is typically deployed at the individual level, multilingualism is normally employed at the societal level as a way to describe social groups that deploy more than two languages (García and Li, 2014).

There has been a tendency that languages are conceptualised as a separated and bounded entity. This perspective has shaped the early definition of bilingualism and multilingualism and it promotes the ideology of monolingual norm. Bi/multilinguals are considered as deficient and lacking language competence, as implied by the notions of non-native speakers (e.g. Cook, 1999), interlanguage (Selinker, 1972) and fossilisation (Selinker, 1974). These notions refer to the multilinguals’ incomplete and incorrect linguistic usage. Such a deficit perspective of bi/multilingualism is summed up by Grosjean (1985: 468-470):

- ‘Bilinguals have been described and evaluated in terms of the fluency and balance they have in their two languages
- Language skills in bilinguals have almost always been appraised in terms of monolingual standards
- The contact of the bilingual’s two languages is seen as accidental and anomalous.’

The monolingual perspective of bi/multilingualism has been criticised by sociolinguists who provide a different view of understanding bi/multilingualism. As Blommaert et al. (2005) argue, rather than perceiving what languages does or does not the multilingual know, researchers should focus on how different languages, which are known by the multilinguals can be a useful resource for learning and facilitating social interactions. It is fundamental to recognise that translanguaging is concerned with the full repertoire of the language users, instead of the users’ structural knowledge of particular languages (Li, 2018). The perspective that it is necessary to separate different languages apart in the classroom so that they will not ‘interfere’ with each other has received lots of criticisms from applied linguists. Such a monolithic view is challenged by the dynamic bilingualism framework which ‘goes beyond the idea that there are two languages that
are interdependent [...] instead, it connotes one linguistic system that has features that are most often practised according to societally constructed and controlled ‘languages’, but other times producing new practices’ (Garcia and Li, 2014: 14). This framework emphasises the fluidity of languages that are employed by bi/multilinguals and the languages are often identifiable but inseparable. It treats the bi/multilinguals’ ability to speak multiple languages as an asset instead of a hindrance affecting their learning processes. In other words, the goal of language teaching and learning should be developing students’ multilingualism, instead of conforming to monolingual practices which limits their multilingualism to two or more separate autonomous languages.

3.2.2.3.1 The Meaning of Repertoire

Since translanguaging concerns the speakers’ use of multilingual and multimodal repertoires of learners in the meaning-making processes, it is important for this sub-section to review the discussion of the definition of repertoire and explain the features of repertoire.

A translanguaging perspective suggests that, instead of selecting which named language to use in specific social contexts, speakers have a repertoire which allows them to choose resources to communicate. Blommaert et al. (2005: 203) argue that the repertoires are dynamic and mobile and they ‘can change as the space of language contact changes’. Repertoires, such as linguistic, semiotic, and sociocultural resources employed in social interaction, are not a static set of resources that speakers carry around with them. It is not the same at any point in time and space. Rymes (2014) uses the term ‘communicative repertoire’ to describe how speakers use communicative resources to communicate effectively in different social interactions in which they participate. Repertoires do not only entail different language varieties, styles, registers, but also other means of communication, including gestures, eye-gaze, posture, dress, dance moves. Rymes argues that individuals interact in a ‘complex communicative milieu’ (p.1) since individuals draw on resources in infinitely different ways, depending on the context that they confront. Individuals draw on different ways of speaking to change the way they talk within a single conversation. In other words, an individual’s communicative repertoires are constantly changing and expanding by necessity. By choosing and selecting elements from one’s communicative repertoires to facilitate meaning-making processes, this allows individuals to develop a sense of shared belonging and negotiate co-membership with local and global communities. This thesis adopts Rymes’s sociolinguistic understanding of repertoire which emphasises that the named language is only one of the features of communicative repertoire that speakers can draw on. A translanguaging perspective proposes that instead of deciding which named language to employ in specific social interaction, speakers have a communicative repertoire from which they choose resources to communicate (Creese and Blackledge, 2010; Li, 2018).
From the translanguaging perspective, even the so-called monolinguals are able to translanguage in everyday social interactions as they are capable of employing various linguistic features of their ‘named language’, multisensory and multimodal resources. Traditionally, monolinguals are referred to as individuals who do ‘not have access to more than one linguistic code as a means of social communication’ (Ellis, 2008: 313) and they do not have the ability to illustrate a range of linguistic competencies (Ellis, 2008; Rothman, 2008; May, 2014). Although monolinguals may have linguistic knowledge of various dialects of a named language (e.g. Hong Kong English, Singapore English), this kind of knowledge is typically not considered as part of the monolinguals’ linguistic competence (Grosjean, 1998). However, as Rymes (2014) argues, ‘every interaction is a multilingual interaction’ (p.29). In her example of a Liberian student using the Hindi word ‘Jaan-e-man’ (which means sweetheart) in an English class in Philadelphia, Rymes observes that non-Hindi students gradually began to employ this word jokingly among themselves, such as saying ‘Hand me a computer, Jaan-e-man’ in an English class. The so-called ‘monolinguals’ have the ability to use different linguistic elements from their repertoire in social interactions with the multilinguals. Hence, it is important to note that one does not necessarily need to have ‘full’ proficiency of an L2 in order to partake in multilingual interactions. This is because all individuals have some minimal ability to employ words that they know from other languages (Rymes, 2014). Nevertheless, it needs to note that although monolinguals may have the ability to engage in multilingual interaction, they may not always employ multiple linguistic elements in every social interaction because the speakers adjust their use of language according to the social context and their interlocutors (Otheguy et al., 2015). Therefore, not all social interactions are necessary multilingual in nature. Rymes further argues that people who absolutely have no knowledge of other languages can also engage in multilingual interactions since they will have different ways of speaking to different people and in different contexts. For example, they may use different registers when speaking to an elderly or to a teenager or speaking at a social gathering or speaking at a business conference. Even those speakers who have no words from any languages except their L1 have access to different varieties, registers and styles when they communicate. Hence, no one is truly monolingual because their monolingual linguistic competence is variable rather than static (Rymes, 2014; Otheguy et al., 2015).

In Otheguy’s et al. (2015) discussion paper, the authors support Ryme’s (2014) argument that monolinguals’ linguistic competence is variable. The authors encourage researchers to pay attention to the notion of ‘idiolect’ which refers to the speakers’ unique and personal language and a mental grammar which appears in interaction with other interlocutors and allows the speaker’s use of language. The authors further argue that the idiolects of monolinguals and multilinguals ‘are
not qualitatively different, only quantitatively different [...] the difference is that the idiolects of multilinguals ‘contain more linguistic features and a more complex socio-cultural marking of which features to use when and where’ (p.292). In other words, a multilingual’s idiolect will involve larger sets of lexical and grammatical features from different socially and politically defined languages in comparison to a monolingual’s idiolect which entails lexical and structural features from regionally, socially and stylistically differentiated varieties of the same named language (e.g. Tyneside English and Queen’s English).

Rothman (2008) offers empirical evidence to support Ryme’s (2014) claim that even the so-called monolinguals have access to multiple grammars for their native language. He demonstrates this argument firstly with linguistic data from American English, demonstrating that American English speakers have access to different grammars in relation to the employment of the subjunctive in English, which they use as appropriate in various registers according to the social contexts. Secondly, he employs an example from Brazilian Portuguese to illustrate a similar possession of two grammars, which are the inflected and uninflected infinitives, as a key feature of Brazilian Portuguese monolinguals. The empirical evidence demonstrates that being monolingual does not mean that a speaker has one steady-state monolithic grammatical competence of his/her native language. Rather, the speaker has a multitude of grammars for their native language, which entails different registers of speech. The evidence challenges the traditional view of monolinguals who only know one dominant recognised version of the language and it further supports Otheguy’s et al. argument that the ways how monolinguals and bi/multilinguals employ their idiolects are not that different since both types of speakers use their idiolects selectively and strategically according to their communicative needs and their interlocutors. This further suggests that ‘most monolinguals are multilingual speakers of dialects/registers of one language’ (Rothman, 2008: 452). This perspective reinforces Ryme’s argument that monolinguals have access to multiple mental grammars for their native language (in some ways similar to multilinguals who can draw on multiple lexical and grammatical features from different named languages) and there is considerable variation across monolingual speakers. Additionally, both monolinguals and bi/multilinguals have their own geographical and socio-cultural considerations which limit their employment of idiolectal features. Therefore, it is necessary for research on translanguaging to acknowledge the multiple competencies within so-called monolingual learners because, through a detailed analysis of the so-called monolingual speakers’ use of idiolectal features (e.g. Rothman, 2008), the actual linguistic behaviours of the monolinguals are not qualitatively different from multilinguals.

Additionally, repertoire can be understood in the context of globalisation. Pennycook and Otsuji
(2014) coin the concept of spatial repertoire in their discussion of metrolingualism. They argue that metrolingualism focuses on ‘everyday multilingualism in relation to local processes of globalisation – everyday practices and lived experience of diversity in specific locations – while emphasising the interrelationships between language and urban space’ (p. 164). This concept of metrolingualism invites researchers to focus on the creative linguistic practices that are manifested in urban spaces. Pennycook and Otsuji (2014) suggest a new way of understanding linguistic repertoire by coining the term spatial repertoire which refers to the ‘linguistic resources at people’s disposal in a given place’ (p. 162). The authors collect interactional data from two restaurants. The first one is a French bistro in Tokyo, and it has staff who can speak French and Japanese, serving customers who are mainly Japanese. The other restaurant is an Italian pizzeria in Sydney with staff from Greece, Poland, Nepal, Thailand and India. The findings reveal that the repertoires, which are constructed through the speakers’ life experience, is connected to the linguistic resources, activities, movements, food and artefacts that are available at that specific place. The authors then suggest that rather than looking at what named languages that are available in that speaker’s linguistic repertoire, it is important to study the linguistic practices that are manifested from the interactions at a specific context or from a specific social activity. This study reinforces the idea that repertoire is mobile and multimodal. They are connected to a particular place and other spatial affordances and are shaped by an individual’s life experience and mobility patterns. In other words, when speakers are moving from one place to another, they bring their repertoires with them and their repertoires change as the place changes, hence it is mobile (Pennycook and Otsuji, 2014).

So far, the sociolinguistic understanding of repertoire reinforces that not only are linguistic resources present in a speaker’s repertoire, semiotic resources also form part of a speaker’s repertoire. Theoretically, translanguaging is based on the concept of repertoire, which refers to the totality of linguistic and semiotic resources of the speakers (Otheguy et al., 2015; Kusters et al., 2017). On the other hand, translanguaging acknowledges the idea that every individual, including monolingual ones, are capable of employing their multiple linguistic and semiotic resources in various social contexts for meaning-making without regard for the socially defined language boundaries. Translanguaging, therefore, views repertoires as resources which are constantly drawn on by speakers depending on the situational communicative needs that they may encounter. Hence, the view of translanguaging includes the concept of repertoire, which is well-documented in the translanguaging literature, since it allows a shift from perceiving languages as bounded entities (e.g. Li, 2014a; Li and Ho, 2018).

Alternatively, the idea that speakers can strategically and selectively appropriate the words of others in order to construct meanings in social interactions is related to Bakhtin’s (1986) notion of
assimilation, in which the individuals’ utterance is shaped and developed during constant and continuous interaction with others’ utterances. Bakhtin (1986: 89) further argues that the utterances produced by the other people do not only act as ‘information, directions, rules and so on, but strives rather to determine the very basis of our ideological interrelations with the world, the very basis of our behaviour’. In other words, individuals will never stop becoming what they are as they will constantly and continuously be engaging in social relations with others. Rampton (2014: 276) conducts a study on teenagers in England and he conceptualises ideological becoming as ‘the dialogical processes by which people come to align with some voices, discourses and ways of being, and to distance themselves from others’. Thus, our utterance involves the words of others, which are re-appropriated and re-worked in order to make them our own. Similarly, Li (2016) studies New Chinglish as a new form of English and the distinctive features of New Chinglish include: (1) appropriating English words and phrases which have been assigned with Chinese meanings, (2) inventing new English words and expressions with Chinese characters, (3) New Chinglish with Chinese regional accents which are intelligible to native Chinese speakers. Such an appropriation of different linguistic features represents a new form of linguistic diversity which is related to the mobility of different linguistic resources. This appropriation of linguistic resources is also related to Sociocultural Theory’s notion of internalisation (Lantolf and Thorne, 2006; Tai and Khabbazbashi, 2020a). The process of internalisation can be observed when speakers appropriate mediational tools, including ‘language’ in institutionally-defined sense and other semiotic resources, and enact them voluntarily within a new interactional context for the right communicative purposes. As shown, the repertoire of an individual represents a wide range of ‘earlier voices, discourses and codes’ (Busch, 2014: 22). Hence, it is necessary for applied linguistics research to study beyond the artificial divide of linguistic and non-linguistic aspects of L2 learning in order to better understand how teachers and students mobilise their emerging multilingual repertoires for content and L2 learning.

3.2.3 Translanguaging as an Analytical Perspective
In this section, I begin with a discussion of the notion of translanguaging space, which is followed by a discussion of adopting translanguaging as an analytical perspective to understand the linguistic innovation and change initiated by multilinguals.

3.2.3.1 Translanguaging Space
Li (2011; 2018) theorises the notion of ‘translanguaging space’ which refers to the space that is created by and for translanguaging practices. As argued before, a translanguaging perspective would interrogate the traditional divides between the linguistic, the paralinguistic and the extralinguistic aspects of human communication as nonsensical. Nevertheless, space is not simply
about its physical properties. The idea of ‘socially produced’ space is suggested by Lefebvre (1991) and this idea has led to subsequent scholarly work on spaces and places. The key assumption of the notion of ‘socially produced space’ is that space is socially constructed, and that social interaction is a social practice. Therefore, engaging in translanguaging practices can create ‘a social space for the multilingual language user by bringing together different dimensions of their personal history, experience and environment; their attitude, belief, and ideology; their cognitive and physical capacity, into one coordinated and meaningful performance’ (Li, 2011: 1223). In other words, this translanguaging space can be transformative because such a space allows individuals to create and combines new identity, values and practices. The notion of translanguaging space is different from other conceptualisations of language since translanguaging space aims to go beyond the boundaries between spatial and other semiotic resources since it views spatial positioning and display of objects as semiotic and socially meaningful.

Li (2018) further argues that the concept of translanguaging includes two notions which are essential to bilingual education: creativity, which refers to the ability to ‘push and break boundaries between named language and between language varieties and to flout norms of behaviour’ (p. 15), and criticality, which refers to the ability to use ‘available evidence insightfully to inform different perspectives of cultural, social and linguistic phenomena and to challenge and express ideas through reasoned responses to situations’ (p. 23). From a translanguaging lens, bi/multilinguals are provided agency to employ various linguistic and semiotic resources creatively and critically to challenge the traditional configurations, categories, and power structures, and construct new meanings through interactions (Li, 2014a; Zhu et al., 2017). As Li (2011) argues, the two notions of creativity and criticality are intrinsically connected since one cannot break boundaries (i.e. being creative) without being critical and ‘one’s criticality is one’s creativity’ (p. 1223).

### 3.2.3.2 Moment Analysis

Methodologically, adopting translanguaging as an analytical perspective allows researchers to go beyond from doing structural analysis for identifying the frequent and regular linguistic patterns. That is, researchers need to move beyond looking for patterns with high frequency and regularity, such as the traditional research on language variation and change (e.g. Cheshire and Fox, 2009), and CA research that explores regular sequential patterns in social interactions (e.g. Tai and Brandt, 2018; Tai and Khabbazbashi, 2019a; 2019b). More importantly, the translanguaging perspective redirects the researchers in focusing on how language users break boundaries between named languages and non-linguistic semiotic systems in particular moments of the classroom interaction (Li, 2011; 2018). Hence, this analytical perspective encourages researchers to explore the spontaneity and transient nature of social interaction (Li, 2020). It helps to highlight the
multilingual’s creative and critical practices in social interactional contexts. In other words, it allows researchers to illuminate how individuals make good use of the affordances of various available social and linguistic resources creatively to transcend the standards of the named languages and the sociocultural norms.

It is important to note that ‘translanguaging spaces are interactionally constructed’ (Li, 2011: 1225). In order to analyse the construction of translanguaging spaces and study the creativity and criticality of multilingual practices, this requires researchers to focus on the spontaneous and momentary performances of the speakers. Moment Analysis is a methodology which is proposed by Li (2011) for investigating the spontaneous acts of creativity and criticality in everyday social interactions. As Li (2011) argues, a moment can refer to a turning point or a period of time which has a significant impact on subsequent events and developments. Moment analysis is inspired by the concept of procedural consequentiality, which is associated with CA (Schegloff, 1992), and also the concept of double hermeneutic, which is associated with IPA (Smith et al., 2013, see chapter 4). Moment analysis focuses on what prompts a particular social action at a particular moment of the interaction and the consequence of the action. In this sense, the researcher is concerned with how specific moment of the use of various linguistic, multimodal and multi-semiotic resources is being noticed or remarked upon by the participants and what may have resulted in a particular action at a specific moment of the interaction (Li and Zhu, 2013). Using moment analysis allows researchers to explore how speakers manipulate and orchestrate multiple resources to challenge the structural boundaries of named languages and create translanguaging spaces for the act of translanguaging.

Conducting moment analysis requires researchers to collect different types of data sources (Li, 2011). As Li (2011) suggests, it is particularly important for researchers to collect both the observation and audio/video recordings of naturally occurring interactions and metalanguaging data, which are the speaker’s commentaries on their own language practices. It is necessary to collect metalanguaging data since it enables researchers to highlight the process of the speakers trying to make sense of their experience as they reflect on their own linguistic performances by themselves or with other interlocutors. The metalanguaging data can be collected through individual or group interviews, journals or autobiographies. When analysing the data, the researcher needs to focus on the way that the speaker articulates and position themselves during their metalanguaging process. In doing so, researchers can identify any changes in the course of their reflection and themes that emerge from the metalanguaging.

Thus, adopting a translanguaging perspective in analysing the classroom data can allow me to
reveal how an EMI classroom can be transformed into multiple translanguaging spaces which afford teachers and students to construct new configurations of pedagogical practices. Research studies by Tai and Li (2020; 2021a; 2021b; 2021c) have demonstrated that adopting a translanguaging perspective in analysing EMI classroom interactions can highlight translanguaging as a critical source for creating multiple translanguaging spaces for content learning and student participation. Tai and Li (2021a) illuminate the potential of playful talk in transforming the EMI classroom into a translanguaging space, which allows the teacher to bring in various linguistic and multimodal resources and different kinds of knowledge to perform a range of creative acts for facilitating content learning and promoting meaning communication (i.e. chapter 5). Alternatively, Tai and Li (2020) illustrate the ways EMI mathematics teacher construct an integrated translanguaging space by bringing the student’s everyday life space into the EMI institutional learning space in order to turn the classroom into a lived experience. This allows the teacher and students to bring their funds of knowledge to the forefront which makes the content knowledge more relatable and relevant to the student’s everyday life experience (i.e. chapter 6). Based on the same data set, Tai and Li (2021b) argue that translanguaging creates a space for co-learning and co-learning allows the teacher and students to learn from each other, which facilitates equity in knowledge construction and recognises students’ various knowledge in the classroom (i.e. chapter 9). Moreover, Tai and Li (2021c) reveal that the EMI classroom can be transformed into a technology-mediated space where a technological device can extend the teacher’s semiotic and spatial repertoires for accomplishing content teaching and promoting student involvement in the classroom (i.e. chapter 7).

3.2.4 Translanguaging as the Theoretical Framework of the Project

As shown in previous sections, the notion of translanguaging can be divided into three uses: translanguaging as a pedagogical resource, as a theory of language and as an analytical perspective. In this study, it will adopt the perspectives of translanguaging as a pedagogical resource and as an analytical perspective which provide a lens for me to examine how EMI teachers make use of their multilingual and multimodal repertoires both strategically and spontaneously to achieve the pedagogical goals of the classroom interaction, and how the teachers interact between different modalities and transcend the boundaries of language in the teaching process. I argue that translanguaging practices involve going beyond different linguistic structures and systems and different modalities. This study takes the position that speakers draw on their multilingual and multimodal repertoires, as well as other sociocultural dimensions, including the speakers’ social identities, life histories, beliefs and their knowledge of the wider sociocultural environment, as resources in the process of negotiation of meaning (Li, 2011). While there are existing studies which have investigated the pedagogical functions of translanguaging in the bi/multilingual
educational contexts, such as ESL and EMI (e.g. Allard, 2017), the link between teachers’ translanguaging practices and the specific pedagogical goals in the local contexts is not made explicit in the current literature. This is a gap which this doctoral project aims to fill (see section 3.4 for further details).

3.3 Research Studies on Translanguaging in EMI Classrooms

The theoretical framework of translanguaging has recently attracted the attention of EMI researchers due to the ‘multilingual turn’ in bi/multilingual education (May, 2014) calling for a more nuanced ethnographic understanding of speakers’ complex, multilingual and multimodal repertoires in their construction of meanings. Although there is a need for constructing opportunities for target language use in EMI lessons (Macaro, 2018), it is equally important to encourage fluid language practices and allow students to draw on their full linguistic and semiotic repertoires in EMI classrooms in order to alleviate the language barriers to learning academic concepts and counteract students’ linguistic insecurity in the classroom and facilitate the learning of content subjects (Lin, 2019). This has encouraged EMI researchers to analyse the tension between the practice of using English as the only language of instruction and the reality of multilingual students speaking multiple languages. Unfortunately, a considerable number of EMI researchers fail to explain their understanding of translanguaging or fully understand the ramifications of the notion. There is also a tenancy for recent research to treat translanguaging as a re-branding of code-switching (e.g. Coyle et al., 2010; Lasagabaster 2013, Bieri, 2018). Moreover, several studies (e.g. Gierlinger, 2015; Lo, 2015; Morton and Evnitskaya, 2018) on teacher’s use of L1 in EMI and CLIL classrooms acknowledged translanguaging but the authors frame their discussions of the findings around code-switching. Hence, this shows that the notion of translanguaging may be mentioned in passing in the EMI literature, but the studies did not analyse the pedagogical practices from a translanguaging perspective.

To date, there is a small body of literature which investigates the manifestation of translanguaging practices in different education levels of EMI classrooms including primary (e.g. Toth, 2018), secondary (e.g. Lin and Wu, 2015; Lin and Lo, 2017; Tai and Li, 2020; 2021a; 2021b; 2021c) and higher education (Mazak and Herbas-Donoso, 2015; Chang, 2018). As this study conducts a fine-grained analysis to explore translanguaging practices in secondary EMI classrooms in HK, studies which explore the practice of translanguaging in secondary EMI settings in different countries, focusing on using L2 (English) as the medium-of-instruction to teach and learn content subjects, are selected for review.
Lin and Wu's (2015) study is the first study, to the best of my knowledge, that employs CA to investigate how learners use translanguaging to actively construct meaning and display understanding in a year 8 HK EMI science classroom. Based on the analysis of a five-minute classroom interaction, the findings indicate that the teacher mostly follows the rigid Initiation-Response-Feedback schema and does not attempt to activate her learners’ L1, Cantonese, to scaffold their access to the science discourse in English. However, when the teacher grants permission to a low-proficiency learner to answer the teacher’s response in Cantonese, it provides an opportunity for the learner to initiate an extended sequence in Cantonese which contradicts with her struggling effort in articulating her previous response in English. The authors argue that creating a space for learners to translanguage by drawing on their familiar linguistic resources, both everyday and academic wordings, is effective in assisting with their learning of L2 science discourse.

Building on Lin and Wu’s (2015) study, Jakonen et al. (2018) employ CA to analyse how a student’s translanguaging practices subvert the English-only norm in a junior secondary CLIL history classroom in Finland and is treated as ‘language mixing’ by other peers. The analysis illustrates that the student’s translanguaging practices involve deploying a wide range of linguistic resources, through combining lexical items and grammar of English and Finnish and uttering English words with a stereotypical Finnish accent, to create a linguistic form which is highly creative and hybrid. The analysis illustrates the role of sequential contexts in establishing the meaning of translanguaging to participants since these sequential contexts can illuminate the locally upheld norms around linguistic choices.

Lin and He (2017) conduct an ethnographic study to investigate how translanguaging is employed as a pedagogical strategy by the EMI science teacher to motivate the South Asian ethnic minoritized learners from Pakistan, Nepal and India to utilise their multilingual repertoires. Ethnographic naturalistic observations of the classroom interactions in a year 9 HK EMI science classroom are carried out for analysing the participants’ translanguaging practices and interviews are conducted to help the researchers to understand the meanings of the learners’ use of Urdu phrases in the classrooms. The findings indicate that several learners employ both their knowledge from their home language expressions (Urdu) and English, as well as their body and gestures to display their understandings of the human digestive system. It is also noticeable that the teacher draws on her prior knowledge of Urdu that she has learnt previously from her learners to give the instruction in the learners’ L1. The authors suggest that although the teacher and learners come from different linguistic and cultural backgrounds, their willingness to learn from other’s linguistic and cultural resources have created a space for learning to take place where learners are motivated
in learning the subject content through the L2 and developing their linguistic repertoires for communication. This study provides important pedagogical implications for EMI education as it offers new insights into how translinguaging can function as an effective pedagogical scaffolding strategy in EMI classrooms, particularly with learners of multilingual backgrounds, to motivate learners’ content and L2 learning and facilitate the meaning-making processes. It fills in the literature gap where the participating teachers and students in most of the EMI studies shared the same L1 and uniquely explored how the teacher and students who have different L1s and cultures fulfil the classroom tasks in the same L2, English.

Nikula and Moore (2016) present an exploratory study of translanguaging in various secondary CLIL classroom settings (biology in Finland, technology in Spain and history in Austria). The authors argue that they have conducted the first representative studies which explored translanguaging as a complex, fluid and momentary practices rather than a straightforward systematic alternative of languages. The authors employ qualitative discourse analysis as the primary method to analyse the classroom talk. The analyses are similar to Lin and Wu’s (2015) and Lin and He’s (2017) findings that teachers and students employ translanguaging practices to fulfil different communicative intentions, including engaging in language play, orienting to pedagogical and interpersonal concerns, and delivering classroom instructions. The authors argue that their classroom findings are beyond the old-fashioned definition of translanguaging which only conceptualise translanguaging as a deliberate switch of languages for input and output in the classrooms. This study contributes to the wider literature on translanguaging by demonstrating translanguaging as a locally situated practice in various geographical CLIL contexts. Nevertheless, the study’s discourse analysis of the classroom talk was simplistic and brief, which was different from Lin and Wu’s (2015) and Tai and Li’s (2020; 2021a; 2021b; 2021c) studies where they conduct a fine-grained analysis of the classroom talk in order to analyse the functions of translanguaging served in the HK EMI classrooms.

Sah and Li (2020) conduct a critical discourse analysis of teachers’ and students’ language use in two EMI classrooms (social studies and health and population classrooms) in a multilingual public school in Nepal. The majority of the students speak the Newari language as their L1, which is an indigenous language in Nepal, and there are students from Nepali, Gurung and Limbu speaking communities. The authors collect various data sources, including classroom observations, teacher interviews and focus group discussions with students to understand the ways translanguaging takes place in the EMI classrooms. The authors first conduct a quantitative analysis of the language use in the EMI classrooms and the findings illustrate that both teachers and students employ Nepali and English variably in different classrooms. Notably, the number of Nepali words that are used
by the teachers and students are more than English words in both classes in order to support students’ content knowledge acquisition. The critical discourse analysis of the classroom interaction reveals that both teachers and students translanguage between English and Nepali and this facilitate students’ participation and content comprehension to a certain extent. However, the authors argue that the teachers’ and students’ uncritical adoption of translanguaging practices reproduces the hierarchy of named languages by privileging the national languages (e.g. Nepali) above the indigenous languages for minoritized students (e.g. Newari). It is further argued that “unequal languaging practices create a discriminatory learning space for linguistic minoritized children’ (p.17). The study provides useful pedagogical implications for teachers and it reinforces the need for EMI teachers to be critical when engaging in translangauging and have an awareness for promoting equal integration of minoritized languages. Nonetheless, the study only conceptualises translanguageing as switching between named languages and it suffers from several methodological limitations. The study’s critical classroom discourse analysis does not illustrate the connections between the classroom discourse and societal and cultural processes and structures (Fairclough, 1992). The authors also attempt to compare two different classrooms’ language use through conducting a descriptive statistical analysis. I argue that the author could not be sure that any difference between the language use is not a result of the characteristics of the school, teacher or students.

3.4 Identifying Research Gaps

As shown in section 3.3, the findings of these studies (e.g. Lin and Wu, 2015; Nikula and Moore, 2016; Lin and He, 2017; Jakonen et al., 2018; Sah and Li, 2020) challenge the monolingual pedagogical principle adopted in traditional EMI classrooms and provide qualitative findings to illustrate the role of translangauging in facilitating the meaning-making processes. Nevertheless, there is still limited research conducting a fine-grained analysis to study the nature of translangauging in secondary-level EMI classroom interactions. Particularly, most of these studies (e.g. Nikula and Moore, 2016; Poza, 2018; Lin and Lo, 2017; Jakonen et al., 2018; Sah and Li, 2020) only conceptualise translangauging as a practice which indicates the movement among linguistic repertoires. A small body of EMI research on translangauging (e.g. Lin and He, 2017; Wu and Lin, 2019) and the wider translangauging studies in bi/multilingual classrooms (e.g. Moore and Vallejo, 2018; Canagarajah, 2018) are able to demonstrate translangauging at work in different modalities through multimodal transcriptions. These studies clearly demonstrate the usefulness of adopting a multimodal view to describe and analyse the complexity of participants’ translangauging practices.
In reviewing the EMI and CLIL research, limited classroom discourse studies are found to investigate the nature of EMI and CLIL history classrooms (Duff, 1995; Llinares and Morton, 2010; Morton and Jakonen, 2016) and mathematics classrooms (Tavares, 2015; Mahan et al., 2021). Translanguaging potentially allows EMI teachers and students to draw on all the languages and knowledge that they already know to facilitate the process of knowledge construction. This new knowledge will be fundamentally different if the construction process involves multiple language/knowledge bases than from a monolingual knowledge base. Hence, translanguaging, in turn, can potentially enable students with low English proficiency to alleviate the language barriers to learning abstract concepts in geography and history classes. I choose to study HK EMI mathematics and history classrooms since mathematics and history have not been extensively scrutinised as a content subject in EMI research. Jakonen’s et al. (2018) study is one of the very few studies which conducted an in-depth study to examine the functions of translanguaging in CLIL history lesson (described in section 3.3). Additionally, there is a lack of research that has conducted in-depth classroom discourse analysis on translanguaging practices in EMI mathematics classrooms (e.g. Tai and Li, 2020; 2021a; 2021b; 2021c). Therefore, studying EMI history and mathematics classrooms may potentially provide a broader picture of the roles of translanguaging practices used within the broader humanities and sciences, technology, engineering and mathematics disciplines. This can potentially offer new perspectives on aspects that have not been analysed before.

Moreover, although there are a small number of studies which employ CA to explore translanguaging practices in EMI classrooms (e.g. Lin and Wu, 2015; Jakonen et al., 2018), they have been analysing translanguaging practices from an institutional-level of classroom context. Seedhouse (2004: 205) argues that ‘classroom interaction is not an undifferentiated whole but can be divided into a number of sub-varieties or classroom contexts’. There is still a lack of comprehensive understanding of how translanguaging contributes to the creation of different translanguaging spaces in EMI classrooms. In my doctoral thesis, I argue that multiple translanguaging spaces can be created in EMI classrooms for teachers and students to bring the relevant sociocultural knowledge, pedagogical beliefs and personal interests in achieving a range of pedagogical goals. In each translanguaging space, teachers and students engage in multiple meaning-making systems which can create new configurations of language and pedagogical practices. Such an argument emphasises the reflexive relationship between pedagogy and interaction in classroom discourse (Seedhouse, 2004; Walsh, 2013).

Alternatively, in reviewing recent EMI research, it was noticeable that there is a dearth of research which explores why translanguaging practices are employed in specific moments of classroom
interactions in EMI classrooms. To date, no study has ever studied how EMI teachers discursively interpret their own translanguaging practices. In order to fully understand the construction of translanguaging in EMI settings, it is necessary to collect metalanguaging data from teachers. These are the speaker’s reflections on their own linguistic performances. This enables researchers to understand how EMI teachers’ translanguaging practices are influenced by their ‘linguistic knowledge and skills, personal histories, sociocultural experiences, attitudes, beliefs and ideologies’ during the process of negotiation of meaning (Li, 2011). Hence, this project will employ video-based reflection which is based on video-recordings of the EMI mathematics and history teachers’ lessons. The analytical focus will place on the teachers’ interpretation and understanding of their translanguaging practices in achieving the pedagogical foci of the different translanguaging spaces identified in the classrooms (see chapter 4).

3.5 Summary

In this chapter, I have given a detailed overview of the three uses of translanguaging: translanguaging as a pedagogical practice, as a theory of language and as an analytical perspective. I have reviewed studies on translanguaging in bi/multilingual classrooms and EMI classrooms. I have concluded the chapter by identifying the research gaps which motivates me to conduct this doctoral project. The next chapter presents the methodological frameworks that I have employed for the study.
Chapter 4: Methodology

4.1 Introduction

This chapter presents in detail the methodological framework of this study. It will first present the research questions of this study. I will further explain the data collection procedures, the types of data that will be collected and the methods for analysing the data. The analytical framework for this study draws on a variety of approaches, namely Multimodal Conversation Analysis (MCA) with Interpretative Phenomenological Analysis (IPA), to interpretively analyse the translanguaging practices because a flexible framework is needed in order to review the complexities of classroom talk (Eggins and Slade, 1997). Particularly, a case study design (Yin, 2009) is adopted as this study involves following four individual EMI teachers through a period of time. For each of the teachers, pre-study semi-structured interviews, classroom interaction observations and post-study video-stimulated interviews were conducted.

4.2 Research Questions

This study aims to investigate how different translanguaging spaces are created to achieve the teachers’ pedagogical goals in EMI mathematics and history classrooms. Hence, this study addresses the following research questions (RQs):

(1) What are the roles of the EMI teachers’ use of translanguaging in creating different translanguaging spaces for achieving their pedagogical goals in Hong Kong EMI classrooms?
(1.1) How do HK EMI teachers employ resources in their repertoires to construct playful talk?
(1.2) How do HK EMI teachers employ resources in their repertoires to bring outside knowledge into the classrooms?
(1.3) How do HK EMI teachers employ resources in their repertoires to create a technology-mediated space in the classrooms?
(1.4) How do HK EMI teachers employ resources in their repertoires to deepen student engagement?
(1.5) How do HK EMI teachers employ resources in their repertoires to engage in co-learning of linguistic and everyday life knowledge in the classrooms?
(2) How do the HK EMI teachers make sense of their use of translanguaging during the lessons?
4.3 Research Sites and Participants

4.3.1 Participating Schools and Students

According to School A’s and School B’s language policies, teachers are expected to teach their subjects in English. A total of two history and three mathematics classes will be involved in the study, with approximately 200 students. As this study will observe the teachers’ classroom practices over a period of time, I aim to observe eight to ten lessons taught by the participating teacher. Since there are four teachers who are involved in this study, a total of 45 40-minute lessons will be observed and video-recorded. The class size will range between 30 and 40 students.

School A is a prestigious Band 1 secondary school in the New Territories, and it is the first EMI school in the local district. The school is a typical local EMI secondary school, which provides education from secondary one to six based on the curriculum guides set by the HK Education Bureau. The school uses English to deliver most of the lessons (except Chinese, liberal studies and Mandarin classes), and the school examinations are assessed through English. The choice of this school as the site of this research is due to the fact that I was a former student of this school for three years and I have good knowledge about the organisational structure of the school and the school curriculum.

The classes taught by teachers A and B then become the student participants of this study. These students have received at least 6 years of primary education, where Cantonese was employed as the Medium-of-instruction and English was taught as an L2. During the fieldwork period, I observed a secondary three (year 9) and secondary four (year 10) class taught by teacher A over two weeks. The year 9 students were all 15-year-old and the year 10 students were all 16-year-old. The year 10 class was classified as an elite class (based on the school’s internal examination results) and all students spoke Cantonese as their L1s. There were 30 students in the year 10 class and all students passed the internal school English examinations. The year 9 class was classified as an enhancement class and there were 18 students in the class. Students, who ranked below average among their cohort in the internal mathematics examination, were enrolled in this class. All students spoke Cantonese as their L1s except two students in the class. These two students spoke Mandarin as their L1s, and they were migrants from the mainland China. Based on the first author’s initial conversations with the teacher, most of the students in the year 9 class passed the internal school English examinations which involved reading, writing, speaking and listening.

Alternatively, I observed the secondary 1 (year 7) class which was taught by teacher B for over two months. The class had 30 students and according to the teacher, the students’ English
proficiency levels were below average among their cohort in the internal English examination. Since teacher B taught all year 7 history classes, he noticed that their general academic performance was also below average. The year 7 students in this class were all 13-year-old.

Bi/Multilingualism is an important objective of School A and the school is committed to provide quality education to prepare students to become bi/multilinguals so that they will be able to play a role in the ever-changing and culturally diverse world. Although the school’s mission statement is explicit in that it aims to develop students to be bi/multilinguals, the school language policy places heavy emphasis on the use of English on the school campus which aims to create a rich and strong English learning environment for all students. All morning assemblies and staff meetings are conducted in English. All teachers and students are explicitly informed that English has to be used during the content lessons. Moreover, English-for-all-days is held on every Monday when everyone (all teaching staff and students) in school must use English for communication. However, in practice, the actual implementation of English-for-all-day could vary as not all students are willing to speak English to their peers and teachers outside the classrooms. Chinese week and Mandarin (Putonghua) week are also held to promote Chinese language acquisition, but these events are only held annually. Hence, it can be seen that the school’s language policy is biased in favour of English over other named languages (Cantonese and Mandarin in this case) and is not designed to support students’ multilingualism.

School B is classified as a Band 3 designated school which receives funding from the Education Bureau to deliver a mediated Chinese curriculum for helping South Asian (SA) students in learning Chinese as an L2. The choice of this school as the site of this research is due to the fact that this school has a typical high concentration designated school as 80% of the students are classified as SA students and the school has been educating SA students for an extensive period of time. The school principal is well-known for promoting multicultural education at his school through giving public lectures and presenting research findings in academic conferences. The majority of the students are from Southeast Asia and the school has recruited a small group of local and mainland Chinese students. The school provides education from secondary one to six based on the curriculum guides set by the HK Education Bureau. The principal of school B started to advocate the use of iPad for facilitating teaching and learning in 2018. He believes that the deployment of the iPad can enhance student engagement and collaboration during classroom interactions (Interview with Principal). It is noticeable that teachers C and D often employ iPad to carry out their teaching (fieldnotes).

School B offers EMI classes to SA students in order to cater for the needs of this group of students.
I observed the year 10 EMI mathematics class which was taught by teacher C for over a month. In
the EMI classes for SA students, since the teachers and students do not share a common L1, the
school adopts a monolingual EMI policy where teacher and SA students are encouraged to speak
English during EMI lessons to facilitate the learning processes. The students’ national backgrounds
were diverse and there were thirty-eight students enrolled in the class: fourteen of them were
Pakistani, eleven of them were Nepalese, eight of them were Indian, three of them were Filipino,
one of them was Yemeni and one of them was Russian. All students in the class were 16-year-old.
All students have received at least six years of primary education. SA students typically attended
primary schools where English was used as the medium-of-instruction. The SA students’ English
proficiency were deemed as satisfactory by the EMI teacher. Many of the SA students in the class
have grown up in HK or migrated to HK as a child and they could all understand or speak
Cantonese. Teacher C commented that the students’ mathematical results were below average
among their cohort in the internal mathematics examination and students were generally not
motivated to enhance their results in mathematics. Based on my initial conversations with teacher
C, all students passed the internal school English examinations.

School B also offers a mixed class in each grade which aims to provide an interactional space
where both SA students and Chinese students can learn content subjects together in the same class.
This can potentially create a multilingual learning environment for all students where they can
engage in intercultural communication. Students who are in the mixed classes can take the school-
based content subject examinations in either English or Chinese. They can also choose to buy their
textbooks in either Chinese or English. Although the two groups of students are preparing for the
examinations in either English or Chinese, the main medium-of-instruction of the mixed classes is
in English since 80% of the students in these classes are SA students. Nevertheless, the school
adopts a flexible language policy which allows teachers and students in the mixed EMI classes to
speak Chinese (Mandarin or Cantonese) in order to ensure all students can understand the content
knowledge and create a bi/multilingual learning environment for all students.

During the fieldwork period, I observed a year 7 history class, taught by teacher D, which included
both Chinese and SA students for over three months. There were forty students enrolled in the
class: seven of them were Indian, five of them were Nepalese, three of them were Pakistani, two
of them were Sri Lankan, one of them was Japanese, nineteen of them were HK Chinese, two of
them were Filipino and one of them was British. All students in this class were 13-year-old. The
students have received six years of primary education and they either primary schools where
English or Cantonese was used as the medium-of-instruction. The principal and teacher D both
commented that the general academic performance of this year 7 were satisfactory and these
students generally achieved satisfactory results in their internal assessment results at their respective primary schools before joining school B. Based on my initial conversations with teacher D, all students passed the Pre-Secondary One Hong Kong English Language Attainment Test.

4.3.2 Participating Teachers
The four male teachers have agreed to take part in this study. Two teachers (Teachers A and B) work at school A which is a typical EMI secondary school in HK. Other teachers (Teachers C and D) work at school B, an EMI secondary school which recruits lots of ethnic minority students, and they are subject heads of mathematics and history respectively. All teachers are experienced teachers and they have at least seven years’ experience in teaching their subjects in English. However, all of them did not receive any specific EMI teacher training while they were pursuing their education degree. Three teachers are native speakers of Cantonese and one of them is from Pakistan and he has lived in HK for most of his lifetime. All teachers have achieved a sufficient level of English proficiency (IELTS above level 6.5), as well as being certified teachers of their subjects.

<table>
<thead>
<tr>
<th>Participating Teachers</th>
<th>Responsible Subjects and Secondary Forms</th>
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<tbody>
<tr>
<td>School A Teacher A</td>
<td>Secondary Three and Four Mathematics</td>
</tr>
<tr>
<td>School A Teacher B (Head of History)</td>
<td>Secondary One History</td>
</tr>
<tr>
<td>School B Teacher C (Head of Mathematics)</td>
<td>Secondary Four Mathematics</td>
</tr>
<tr>
<td>School B Teacher D (Head of History)</td>
<td>Secondary One History</td>
</tr>
</tbody>
</table>

Table 4.1 Participating teachers’ teaching allocation

Teacher A was my former colleague and he has at least eight years’ experience in teaching mathematics in English at School A. As this ethnographic study requires a close-up observation of the teacher’s translanguaging practices, sufficient familiarity and trust were needed which enabled me to gain access to the classrooms and conduct interviews with the teacher. The teacher is an L1 speaker of Cantonese and previously attended an EMI school for his own secondary education. English is his L2 and he has a limited level of Mandarin/Putonghua proficiency. His bachelor’s degree in mathematics and IT education and MSc in Mathematics were obtained from two top-ranked EMI universities in HK. During his undergraduate studies, he occasionally taught drama at several HK secondary schools.

Teacher B has taught for more than twenty-one years in School A and he serves as Head of History at the school. He was my mentor when I was a student and he was keen to be a research participant
so that I could collect sufficient empirical data for my doctoral project. Teacher B is a native speaker of Cantonese and he can speak fluent English. He has a limited level of Mandarin/Putonghua and Japanese proficiency. He attended an EMI school for his own secondary education. He majored in History and minored in Chinese Language and Literature and Japanese Studies during his undergraduate studies. His bachelor’s degree and postgraduate diploma of education were obtained at a prestigious EMI university in HK. He is qualified to teach the Chinese language, Chinese history and western history. He often attended professional development programmes that were offered by the Education Bureau in order to enhance his knowledge of history pedagogy and special educational needs. Before becoming a teacher, he worked as an editor for a publisher and a research assistant at an EMI university in HK.

Teacher C has at least seven years’ experience in teaching mathematics and science in English and he currently serves as the Heads of Mathematics and Science departments at the school. The teacher was interested in the concept of translanguaging and research on EMI mathematics education and he wished to learn more about it. Therefore, he was willing to participate in this study when I initiated it. He is a Pakistani and he has lived in HK for most of his lifetime. He is an L1 speaker of Urdu and Punjabi. Arabic, English, Cantonese and Mandarin are his additional languages. He previously attended EMI schools for his early childhood, primary and secondary education. Although English is his L2, he considers English as his most proficient language, after Cantonese, Urdu and Punjabi. He acknowledges that he has limited proficiency in Mandarin and Arabic. His bachelor’s degree in chemistry and a post-graduate diploma of education were obtained from two top-ranked universities in HK. These universities also use EMI.

Teacher D has taught Chinese language and history for sixteen years at School B and he acts as the Head of History department at the school. The teacher is an L1 speaker of Cantonese and he is fluent in Mandarin/Putonghua. He recognised that his English proficiency is below average. He previously attended a CMI school during his secondary education and he majored in Chinese Language and Literature and minored in Chinese history during his undergraduate study in a HK university. He then pursued a postgraduate diploma in education at a prestigious EMI university in HK.

4.4 Data Collection Procedures

Case study is a form of ethnographic study design (Creswell, 2012) and it is often known as a qualitative research approach ‘in which the investigator explores a real-life, contemporary bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth
data collection involving multiple sources of information’ (Creswell, 2013: 97). This study adopts a case study approach in conjunction with the employment of ethnographic tools. By doing so, I can separate out cases because they may offer insights into an issue related to the research topic, or because of their unusual nature (Creswell, 2012). Table 4.2 summarises the methods of data collection that will be employed to address the RQs:

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Data Collection Source(s)</th>
<th>Rationale(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What are the roles of the EMI teachers’ use of translanguaging in creating different translanguaging spaces for achieving their pedagogical goals in Hong Kong EMI classrooms?</td>
<td>Classroom interaction data, formal semi-structured interviews with teachers, informal interviews with teachers, field notes, video-stimulated-recall-interviews and any other artefacts</td>
<td>Exploring how translanguaging spaces are created at a particular moment in the lesson.</td>
</tr>
<tr>
<td>1.1, 1.2, 1.3, 1.4, 1.5 How do HK EMI teachers employ resources in their repertoires to engaging in playful talk, bringing outside knowledge into the classroom, using a technological device, deepening student engagement and engaging in co-learning of linguistic and everyday life knowledge in the classrooms?</td>
<td>Classroom interaction data, formal semi-structured interviews with teachers, informal interviews with teachers, field notes, video-stimulated-recall-interviews and any other artefacts</td>
<td>Exploring the various multilingual, multimodal, multi-sensory and multi-semiotic resources that are employed by the teachers in the EMI classrooms.</td>
</tr>
<tr>
<td>2. How do the HK EMI teachers make sense of their use of translanguaging during the lessons?</td>
<td>Classroom interaction data, video-stimulated-recall-interviews</td>
<td>Eliciting video-stimulated comments from teachers to complement the analysis of teachers’ translanguaging practices.</td>
</tr>
</tbody>
</table>

Table 4.2 Data sources that were used to explore the RQs.
4.4.1 **Formal Semi-structured interviews**

Cohen et al. (2011: 409) suggest that an interview is a ‘flexible tool for data collection’ which allows for the employment of ‘multi-sensory channels’, including verbal and non-verbal resources for communicating ideas between the interviewer and the interviewee. Interviews can be classified into two types: formal and informal (Richards, 2003). Formal interviews are typically divided into structured, semi-structured and open (Richards, 2003) and a semi-structured approach is commonly preferred in ethnography (Copland and Creese, 2015). A total of four semi-structured interviews were carried out. The semi-structured interviews are based on themes to address but they are unstructured enough to leave room for the interview to ‘facilitate the open expression of the informant’s perspective on the world’ (Hammersley and Atkinson 2007: 129). In other words, the interviewer and interviewees are free in semi-structured interviews to deviate from the questions and engage in topics that are raised in the course of the interaction. The semi-structured interviews were scheduled in advance with the four participating teachers before collecting classroom interaction data. The interviews used a pre-prepared interview schedule which aimed to (1) elicit factual information related to the teachers’ ethnolinguistic background, language use and teaching experience as well as (2) gain information about the teachers’ ideologies, beliefs and attitudes, such as the teachers’ understanding of the rationale of implementing EMI, their perception of the best EMI pedagogy and their attitudes towards using multiple languages in the classrooms, which encourages a more open response.

4.4.2 **Informal Interviews**

Various informal interviews were undertaken with the teachers after class in order to better understand the observed lessons. These informal interviews can be referred to as ethnographic interviews (Spradley, 1979) because they take place spontaneously rather than being scheduled with participants in advance. The researcher needs to build a rapport with participants and spend a considerable amount of time participating in and observing common practices in order to create or seize chances to gain detailed information through ethnographic interviews. Agar (2008) identifies three features of informal interviews. First, no list of written questions will be prepared in advance but rather ‘a repertoire of question-asking strategies from which you draw as the moment seems appropriate’ (Agar, 2008: 140). Second, the researcher does not assume the role of interviewer, with the authority and knowledge that he/she brings. Rather, the researcher positions him/herself as unknowledgeable and allows the interviewee to take the lead. Third, the interviews can potentially occur in different settings, such as during recess time or classroom activity, rather than in an interview room. Gobo (2008: 191) offers an additional feature to the list when he argues that the researcher is ‘less concerned to achieve his/her knowledge objective than one single interview, because doubts, ambiguities and interpretative uncertainties can be resolved by
subsequent interviews over the entire span of the research’. As these ethnographic interviews are part of the ethnography, they are meant to complement what I can observe in the EMI classrooms and provide the teachers with an opportunity to reflect on their own practices and attitudes (Rampton, 2006).

Informal interviewing is an interactive process. Therefore, the quality of the interviews is shaped by the time that the interview spends building rapport with the participants and how well the interviewer interacts with the participants. In order to successfully complete an informal interview, researchers need to be skilled in creating or seizing chances to ask questions to the participants. Black and Metzger (1965: 144) further explain that the ‘task of the ethnographer is to discover questions that seek the relationship among entities that are conceptually meaningful to the people under investigation’. In other words, the researcher needs to understand what questions participants are answering and which questions are being taken for granted since they are ‘what everybody knows without thinking’ (Black and Metzger, 1965: 144). A good strategy for asking an ethnographic question is simply to ask the participant to talk about a specific cultural scene. This strategy is classified as descriptive questions and it encourages the participant to offer their perceptions of their experience with the interviewer.

An issue with informal interviews is that they can be difficult to record. This is because an informal interview is typically conducted ‘on the hoof’, that is, when the researcher and participant are moving from one space to another, such as walking along a corridor. During this brief discussion, the researcher has to seize this opportunity to engage the participant in discussion regarding what he/she has done in order to better understand the research context or issues involved. It may not be appropriate to take out a recording device in front of the participant since they may not realise that they are in a research context. Therefore, the interviewer may need to ‘rely on memory to record the interview in writing after the event’ (Copland and Creese 2015: 34).

4.4.3 Classroom Observations and Video-Recording Classroom Interaction

In this project, I observed classroom interactions from a distance. Schensul and LeCompte (2013: 88) define observation from a distance as ‘the way researchers initially observe activities related to the topic of interest’ in an unobtrusive manner. While observing the classrooms, I video recorded the whole classroom interactions. One video camera was set up in classrooms taught by teachers B, C and D in order to capture the teachers’ and students’ behaviour simultaneously. The camera was located in the back of the classroom, which captured a teacher’s view. In teacher A’s mathematics classrooms, two video cameras were set up in the classrooms in order to better capture the students’ behaviours. The first camera was located in the back of the classroom and the second
video-camera was positioned in the left end of the classroom in front, which captured the students’ views. A total of forty-one lessons were recorded (i.e. eleven 40-min lessons taught by teacher A, eleven 30-min lessons taught by teacher B, eleven 40-min lessons taught by teacher C and eight 40-min lessons taught by teacher D). I acknowledge that placing a second video-camera at the front of the classroom could allow me to explore the complex nature of teacher-student interaction and also integrate what other students were doing at particular moments for analysis. This could potentially provide important contextual information. Nonetheless, since teachers and students were not comfortable with having two cameras in the classrooms (except teacher A and students who were taught by teacher A), I had to make a compromise accordingly by using only one camera for video-recording.

During classroom observation, detailed field notes were taken. The contents of the field-notes entail the following information: the number of students who attended the classes, the students’ seating arrangements, the general atmosphere of the classroom, the relationships among students, teachers’ and students’ unique behaviour and utterances, their attitudes to classroom activities, and most importantly, the specific instances that I identify as translanguaging practices. Such a long-term observation and constant reflections through taking field-notes allow me to identify key translanguaging practices in particular EMI classroom moments.

4.4.4 Video-Stimulated-Recall-Interviews
A total of 6 video-stimulated-recall-interviews were conducted with the participating teachers. The goal of conducting video-stimulated-recall-interviews is to allow the researcher and the participating teachers to achieve a shared understanding of the functions of the teachers’ own translanguaging practices in EMI classrooms. The focus is placed on ‘reflections upon descriptions, explanations and justifications given in the course of a talk’ (Gellert, 2001: 35) and the teacher’s own interpretations of what is happening in the classroom interaction. Speer (2005) points out that using video-stimulated recall interviews allows researchers to focus on particular examples of teachers’ practices; as Speer argues (2005: 224) ‘coarse-grain-sized characteristics of beliefs and general descriptions of teaching practices appear unlikely to do justice to the complex, contextually dependent acts of teaching’. Using video-stimulated recall interviews is also an effective strategy in understanding teachers’ beliefs in terms of their pedagogical practices (e.g. Morton, 2012).

Before conducting the interviews, video-clips which reveal salient features of teachers' translanguaging practices were chosen by me as the stimulus. The teachers were asked to watch the selected video-clips and explain why they employed translanguaging practices in that particular EMI classroom moments. This provides the teachers with a chance to reflect on their own
pedagogical practices and offer me an opportunity to verify certain things that are not clear from the observation alone. This can illuminate how EMI teachers’ translanguage practices are influenced by various sociocultural dimensions. It also allows me to identify similarities and differences between my own interpretations and their retrospective views regarding the functions of their translanguage practices and to conduct member-check with them. Each interview took approximately sixty minutes long, depending on how many instances to be discussed during one session. The interviews were conducted in the researcher’s and teachers’ L1 (Cantonese). However, they were free to use English (L2) to express their thoughts.

Alternatively, in order to ensure the reliability of the data and avoid the teachers forgetting about what is going on at particular interactional moments, I conducted the video-stimulated-recall-interviews during the same semester as soon as possible after the translanguage practices were identified. This is because identifying translanguage practices normally required a couple of weeks for me to conduct the initial analysis at the latest. It is possible that the teachers might forget why they translanguage in particular moments of the interaction at the time of the interviews. Nevertheless, I still value their own views and their re-interpretations about their purpose for translanguage, which can potentially open up alternative views or interpretations on the functions of teachers’ translanguage in specific EMI classroom moments in achieving the pedagogical goals of the classroom interactions.

Table 4.3 illustrates the different stages in the study, the various data collection methods that are employed at each stage and the types of data that are produced.

<table>
<thead>
<tr>
<th>Stage of Study</th>
<th>Relationship with RQs</th>
<th>Data Collection Method</th>
<th>Type of Data Produced</th>
<th>Target Amount of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Insights about the teachers’ professional training, their linguistic knowledge, their perceptions of the best practices and their attitudes towards using multiple languages in the EMI classrooms.</td>
<td>RQ1</td>
<td>Formal Semi-structured interviews; Informal interviews</td>
<td>Audio-recordings and transcripts of interviews</td>
<td>4 x 1-hour interviews; various informal interviews</td>
</tr>
</tbody>
</table>
2. Classroom practice

RQ1

Video-recordings of classroom interaction; Fieldnotes

✓ Video-recordings and transcription of classroom interaction
✓ Fieldnotes

✓ 44 x 30-40 mins lessons
✓ 44 fieldnotes

3. Teachers’ insights about their translanguaging practices

RQ2

Video-stimulated-recall-interviews

Audio recordings of teachers’ comments and transcripts

6 x 1-hour interviews

Table 4.3 The data that are collected for this study

4.5 Pilot Study

A pilot study was conducted at school A (see section 4.3.1) in May 2019 for two weeks. The study involved teacher A teaching a junior and a senior secondary mathematics class. The aim of the pilot study is to choose the appropriate tool for collecting data and test the procedures of the data collection in order to determine whether I need to make any changes in the main study. The pilot study mirrors the structure of the proposed main study and answers the similar RQs of the main study.

I received ethical clearance to conduct the pilot study from the University of Cambridge in February 2019. The following table summarises the different stages in the study, the different data collection methods that are used at each stage, the types of data and the amount of data that are produced.

<table>
<thead>
<tr>
<th>Stage of Study</th>
<th>Relationship with RQs</th>
<th>Data Collection Method</th>
<th>Type of Data Produced</th>
<th>Target Amount of Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Insights about the teacher’s professional training, his linguistic knowledge, his perceptions of the best</td>
<td>RQ1</td>
<td>Formal Semi-structured interviews; Informal interviews</td>
<td>Audio-recordings and transcripts of interviews</td>
<td>1 x 1-hour formal interviews; several informal interviews</td>
</tr>
</tbody>
</table>
practices and his attitudes towards using multiple languages in the EMI mathematics junior and senior forms classrooms.

<table>
<thead>
<tr>
<th>2. Classroom practice</th>
<th>RQ1</th>
<th>Video-recordings of classroom interaction; Fieldnotes</th>
<th>✓ Video-recordings and transcription of classroom interaction</th>
<th>✓ Fieldnotes</th>
<th>✓ 19 x 40 mins lessons (11 Form 3 lessons and 8 Form 4 lessons)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>3. Teacher’s insights about his translanguaging practices</th>
<th>RQ2</th>
<th>Video-stimulated-recall-interviews</th>
<th>Audio recordings of teachers’ comments and transcripts</th>
<th>3 x 1-hour interviews</th>
</tr>
</thead>
</table>

Table 4.4 The data that are collected for the pilot study

### 4.5.1 Reflections on the Pilot Study

The pilot study confirms that the stages of study are appropriate, and changes are not necessary. It also confirms that combining MCA with IPA to analyse the classroom interaction was appropriate since MCA allowed me to identify examples of the teacher’s translanguaging practices. I was able to triangulate my MCA analysis with the video-stimulated-recall-interview data in order to understand how and why translanguaging is constructed at that moment of the interaction.

Conducting a semi-structured interview with the teacher before classroom observation was successful in the pilot study. This semi-structured interview provided useful information about the teachers’ educational background, his prior life experience and his personal views on EMI pedagogy and multilingualism.

Throughout the classroom observation period, two video cameras were employed, and they were proved to be useful for capturing a holistic view of the classroom interaction. Moreover, ethnographic interviews were carried out while we were walking back to the staff room.
Additionally, since my RQs mainly focus on the teacher’s translanguaging practices, I decided not to conduct semi-structured or video-stimulated-recall-interviews with students. Nevertheless, I acknowledge the fact that conducting ethnographic interviews with students could be a way for me to understand students’ contributions to the classroom talk.

The pilot study highlights the importance of the video-stimulated-recall-interviews in order to allow the teacher to reflect upon his own translanguaging practices. The teacher also comments that the interview is a reflective process for him to make sense of his own pedagogical practices.

4.6 Analytical Framework (Combining Multimodal Conversation Analysis with Interpretative Phenomenological Analysis)

The methodological framework of this study employs a variety of approaches to interpretively investigate the creation of different translanguaging spaces in EMI classrooms because ‘an eclectic approach is not only richer but also essential in dealing with the complexities of talk’ (Eggins and Slade, 1997: 23). Since translanguaging practices are complex in nature (different sociocultural factors, such as personal history, life experience, identity, beliefs, can potentially play a role in affecting our use of meaning-making resources in the process of constructing knowledge), it is necessary to have a flexible framework that can integrate multiple theoretical orientations, methodologies and data sources to understand the complexities of translanguaging practices. Hence, this study will integrate MCA along with IPA to study how translanguaging practices are constructed in EMI mathematics and history classrooms and how the teachers make sense of their own translanguaging practices at particular moments of the classroom interaction. This methodological approach allows researchers to go beyond from doing structural analysis for identifying the frequent and regular patterns. This redirects the researchers in focusing on how language users break boundaries between named languages and non-linguistic semiotic systems in particular moments of the classroom interaction (Li, 2011; Li, 2018). This echoes Li’s proposal of Moment Analysis (see section 3.2.3.2, chapter 3) which aims to investigate the spontaneous acts of creativity and criticality in everyday social interactions. Moment Analysis focuses on what prompts a particular social action at a particular moment of the interaction and the consequence of the action. In this sense, the researcher is concerned with how specific moment of the use of various linguistic, multimodal and multi-semiotic resources is being noticed or remarked upon by the participants and what may have resulted in a particular action at a specific moment of the interaction (Li and Zhu, 2013).
4.6.1 Multimodal Conversation Analysis

This study combines MCA (e.g. Sacks et al., 1974) with ethnographic information gathered through interviews with research participants and classroom observations as a participant observer in order to investigate how different translinguaging spaces are created in EMI classrooms. MCA, with its roots in ethnomethodology and sociology, ‘focuses on how social order is co-constructed by the members of a social group’ (Brouwer and Wagner, 2004: 30) through fine-grained analysis of the social interaction. It takes an emic/participant-relevant approach (Markee and Kasper, 2004) in order to explicate the detailed process of how social actions, such as learning, are co-organised and achieved through talk-in-interaction. MCA allows researchers to analyse naturally-occurring interaction and every minute detail ‘is considered relevant in uncovering participant orientations toward the interaction’ (Waring, 2008: 580). The analytic stance of MCA requires researchers not to pre-theorise the relevance and importance of language-in-use, which entails semiotic resources including eye gaze and gestures. The analytical focus must be on sequences instead of on isolated turns or utterances (Hutchby and Wooffitt, 1998). A key feature of MCA is that it views interaction as structurally organised. Heritage (1995: 396) points out the following: ‘social interaction is informed by institutionalized structural organizations of practices to which participants are normatively oriented’. This suggests that social interaction is patterned and there should be an interactional pattern known among interlocutors and that they should orient to such an order during the conversations.

As a result of ‘empirically based accounts of the observable conversational behaviours of participants’ (Markee, 2005: 355), MCA research has discovered several formal features of talk including turn-taking, adjacency pair, repair, preferred and dispreferred organisations (ten Have, 2007). These formal interactional features offer a useful starting point for researchers when analysing interactions in different social contexts. However, as Richards (2006: 13) argues, ‘the emphasis in the analysis […] is not on how interactants obey the relevant rules, but on how they jointly construct the conversation and their shared understanding of what is happening in it’. MCA analysts need to pay attention to how talk unfolds and not investigate utterances in isolation. Therefore, when examining interaction on a turn-by-turn basis, the spoken interaction has to be carefully transcribed, including detailed information regarding pausing, pitch, or pace, with ‘a ferocious attention to detail that not all researchers can muster’ (Richards, 2003: 28). This is because the construction of social interaction offers as much information regarding meaning and context as its content.

MCA is also considered as a useful research method for studying how language policies are implemented in actual practices. Spolsky (2004) suggests that studying the effectiveness of
language policies involves analysing actual language use since speakers use interactional norms
to make sense of their language choice, in terms of knowing what language(s) should be used or
not in a particular social context. Bonacina-Pugh (2012) argues that CA allows analysts to analyse
talk-in-interaction and identify the set of interactional norms that speakers orient to in social
interaction. From a CA perspective, speakers employ these interactional norms to interpret each
other’s language use; that is, ‘a point of reference or action template for interpretation’ (Seedhouse,
2004: 10). Therefore, these interactional norms are not prescriptive or ‘rules’, but they are the
speaker’s implicit understanding of what should be done. In this sense, such an understanding
informs the speakers’ interpretation and production of utterances in social action. Bonacina-Pugh
(2020) illustrates how CA can be deployed to reveal practiced language policies in an induction
classroom for newly-arrived immigrant children in France, where French is the medium-of-
instruction. The findings demonstrate that there are moments when the teacher and students orient
towards the declared and perceived language policies of the French educational system. Bonacina-
Pugh also demonstrates that the classroom participants orient towards a practiced language policy
(Bonacina-Pugh, 2012) which legitimates them for using multiple languages other than French.
This sense of legitimacy is negotiated at the local level of classroom interaction and it is repeatedly
followed by other classroom participants.

Moreover, Spolsky and Shohamy (2000) argue that a way to study a language policy within
language use is to investigate its ‘non-observance’ (p.29). This refers to the observed patterns
where speakers do not follow what is typically done. These can potentially justify the implicit and
deducible rules that ‘are not always observable, but […] their non-observance is noticeable, in the
way that a car driving faster than the speed limit is noticeable but does not disprove the existence
of a law controlling speed’ (p.29). The examination of ‘non-observance’ is related to deviant case
analysis which is a useful CA tool for analysts to examine cases that are dissimilar from the
previously examined interactional phenomenon (Hertiage, 1984). Using CA as the methodological
approach allows analysts to identify deviant cases by pay attention to participant’s orientation. As
Bonacina-Pugh (2012) argues, by examining the participant’s orientation to deviant cases, this
enables CA analysts to deduce what a normative case will be. In other words, studying deviant
cases can illuminate what interactional norm speakers are orienting to in interaction which can
shed light on whether a language(s) is considered legitimate or not and when.

Bonacina-Pugh (2012; 2020) has illustrated the potential of using CA as an efficient
methodological tool for examining the enactment of language policies in multilingual classrooms.
To date, a few researchers in the field of SLA (e.g. Lin and Wu, 2015; Jakonen et al., 2018) have
adapted MCA as a method to explore translanguaging practices in EMI and CLIL settings (see
The findings of the studies (e.g. Jakonen et al., 2018) illustrate that MCA is effective in explicating the detailed process of how translanguaging practices are jointly constructed between teachers and students in EMI classrooms although classroom participants are expected to use the target language (i.e. English) throughout the lessons under the monolingual policy. Many linguistic ethnographers utilise MCA as the linguistic framework of their studies (e.g. Copland, 2011; Rock, 2017; Matsumoto, 2018) due to its focus on linguistic form in interaction when integrated with ethnographic information. This allows for the data to be triangulated and for multiple interpretations of a particular social action. When reporting findings, linguistic ethnographers can offer linguistic evidence for the arguments that he/she makes which addresses the criticism of ethnographic work that it is heavily reliant on the researcher’s own interpretation of the research setting. MCA also offers a set of formal features for how speakers behave in interactions and any identified atypical interactional features can bear further investigation.

4.6.2 Interprettive Phenomenological Analysis

This study will draw on the theoretical and methodological frameworks of IPA to investigate how the teachers perceive their own translanguaging practices at specific moments in the interaction. This can increase our awareness, knowledge and understanding of the teachers’ unique perspectives. IPA is a qualitative approach developed within the field of psychology for investigating personal lived experience (Smith, 1996). Smith and Osborn (2008) state that IPA focuses on the in-depth exploration of personal experience and how individuals understand and make sense of their experiences. The assumption behind this idea is that individuals are actively engaged in the world and they are constantly reflecting on their experiences in order to perceive them (Smith et al., 2013). IPA has three key theoretical underpinnings: phenomenology, hermeneutics and idiography. IPA aims to study participant’s experience in its own terms rather than overly influenced by external psychological theories or personal proclivities of the researcher. In addition, IPA acknowledges the investigation of the meanings of the participants’ experiences as an interpretative enterprise on the part of both researcher and participants. Thus, in order for researchers to understand how participants make sense of their world, a dual interpretation process called ‘double hermeneutic’ is involved. This requires researchers to try to make sense of the participants trying to make sense of their world (Smith et al., 2013). Due to its nature of in-depth examination of the participants’ experiences, IPA is idiographic in the sense that it conducts an in-depth analysis of a small number of participants’ experiences. By doing so, it allows researchers to take an ‘insider’s perspective’ (Conrad, 1987) or the emic approach in order to understand the participants’ personal experience case-by-case. This also allows researchers to identify the convergence and divergence, commonality and individuality within the study sample. Smith et al. (2013) also suggest researchers to play an active in the interpretation process. The active role of
the researchers means that various interpretations of the participants’ experiences are possible. Given its inductive approach and capacity to explore the participants’ complex lived experience, IPA is chosen as the analytical method for this study. In the below sub-sections, the three key theoretical foundations of IPA (i.e. phenomenology, hermeneutics and idiography) will be explained.

4.6.2.1 **Phenomenology**

Phenomenology, developed by Husserl, is a philosophical approach to examine the human experience and ‘the way in which things are perceived as they appear to consciousness’ (Landridge, 2007: 10). Husserl argues that a key feature of consciousness is ‘intentionality’. In other words, all human experience originates from intentionality and hence all human actions, thoughts and feelings have an intended object. This argument challenges the previously accepted understanding that individuals and objects can exist independently (Langdrige, 2007). By exploring these intended objects, one is able to demonstrate how consciousness makes sense of the world as it occurs and in its own terms (Langdrige, 2007). For Husserl, phenomenology entails the careful investigation of human experience. He is specifically interested in searching for a way by which someone might come to accurately understand their own experience of a given phenomenon. This may allow them to distinguish the essential qualities of that personal experience which make them distinguishable from others.

In order for meaning to be explored through experience, Husserl argues that it is necessary to ‘go back to the “things themselves”’ (Husserl, 1970: 252). The ‘thing’ refers to the experiential content of consciousness. This is a significant statement since Husserl suggests that individuals often experience the world through using the ‘natural attitude’. Put another way, we do not often fully focus on our own experience and understand them in regard to our pre-existing categorisation system (Smith et al., 2013). Nevertheless, Husserl argues that we should attempt to focus on every specific thing in its own right. Hence, Husserl suggests us to study our experience by adopting a phenomenological attitude rather than a natural attitude. Adopting a phenomenological attitude entails us to ‘bracket’ our own assumptions and preconceptions. That is, this involves ‘bracketing’ one’s pre-existing expectations and allowing the phenomena to speak for themselves. Husserl refers to this process as ‘phenomenological reduction’. The analytical focus is on describing the experience, instead of analysing or interpreting the experience according to one’s pre-determined conceptual criteria. It is, therefore, necessary for phenomenologist to identify its essential qualities and its underlying meaning. Husserl further argues that through ‘bracketing’ one’s own prejudices and biases, we can investigate the essential meaning of a specific phenomenon (Larkin et al., 2011).
In developing Husserl’s work further, Heidegger (1962) introduces a more existential phenomenological approach which moves away from the descriptive commitments of Husserl. Heidegger agrees with Husserl’s perspective that an individual’s engagement with the world is intentional. Nevertheless, Heidegger argues that individuals cannot be meaningfully separated from their context (i.e. the world of people, objects, language, and culture) (Smith et al., 2013). He argues that the world that individuals inhabit are contextually-bound and historically situated in a specific life frame and it is through this perspective that individual engages with life. Due to these reasons, it is suggested that individuals are not able to fully detach their prior assumptions in order to make sense of their experiences.

Smith et al. (2013) suggest that using phenomenology allows us to understand how we can investigate and perceive human experience in its own right. Husserl has emphasised the significance of engaging in reflective and reflexive thinking when investigating human experience. Nevertheless, I second Heidegger’s perspective that we cannot fully ‘bracket’ our prior experience, knowledge and preconceptions when studying experience. Hence, the goal of using IPA in this study is to understand EMI teachers’ perceptions and their individual experiences rather than identifying the universal ‘essence’ of the teachers’ lived experiences.

4.6.2.2 Hermeneutics

Hermeneutics is described as the theory of interpretation (Langdridge, 2007). It was originally developed for interpreting biblical texts, but it subsequently developed as a theoretical framework for interpreting various texts, including historical documents and literary texts. In particular, Heidegger (1962) suggests that an individual’s engagement with the world and his/her perception of the meaning of his/her experience is accessed through interpretation. Hence, individuals will inevitably draw on their prior assumptions and preconceptions to interpret their lived experiences. Heidegger (1962: 191-192) argues that ‘an interpretation is never a presuppositionless apprehending of something presented to us’. Thus, even though our preconceptions will facilitate our understanding of our experience, our preconceptions can also act as a blockade to the process of interpreting our lived experiences where our analytical focus should allow the phenomena to speak for themselves (Smith et al., 2013). This relates to the role of ‘bracketing’ in the process of interpreting qualitative data (see section 4.6.2.1).

IPA operates a double hermeneutic which means that ‘the researcher is trying to make sense of the participant trying to make sense of what is happening to them’ (Smith et al., 2013: 36). This requires a high level of interpretation of the part of the researcher (Smith, 2011). Gadamer (1975: 238) argues that ‘the important thing is to be aware of one’s own bias, so that the text may present
itself in all its newness and thus be able to assert its own truth against one’s fore-meanings’. In other words, when researchers are interpreting one’s experience, it is important for them to be aware of their own preconceptions while analysing the qualitative data. Ricoeur (1970) proposes two approaches for doing interpretation: a hermeneutic of empathy and a hermeneutic of suspicion. A hermeneutic of empathy aims to reconstruct the meaning of the experience from a participant’s perspective (Smith et al., 2013). This entails engaging with the data in order to understand what is presented. On the other hand, a hermeneutic of suspicion attempts to search for the hidden meaning in the participant’s account of his/her experience. This requires the researchers to employ theoretical concepts from outside the data to explain the psychological phenomena. However, such a deductive approach is not compatible with the approach of this study since this study aims to adopt the emic perspective to reconstruct the phenomena (i.e. EMI teachers’ experience in their teaching) in its own terms. Rather, links to theoretical concepts will be considered when the analysis is completed.

Smith (2004) proposes that IPA can integrate a hermeneutic of empathy with a hermeneutic of ‘questioning’. This approach allows the researchers to understand a specific phenomenon from the participant’s perspective and ‘stand in their shoes’ (Smith et al., 2013: 36). Alternatively, the IPA researcher is also ‘stand alongside the participants’ (Smith et al., 2013: 36) in order to ask questions over things that they are saying and make sense of their claims. By doing so, the interpretation may move away from illustrating what the participant would say themselves since it heavily relies on the researcher’s interpretation of the experience. Nevertheless, Smith et al. (2013: 36) argue that a successful IPA research ‘combines both stances – it is empathic and questioning’ and combining both perspectives allow researchers to ‘understand both in the sense of trying to see what it is like for someone and in the sense of analysing, illuminating and making sense of something’. Smith et al. (2013) further state that the interpretations of the individual’s experience must always be based on the reading of the data instead of importing a reading from outside the text. Hence, the hermeneutics of questioning differs from Ricoeur’s hermeneutics of suspicion because the ‘questioning’ has to be derived from the reading from within the data itself.

The hermeneutics of circle is considered as an important concept to IPA. It is concerned with the interactive relationship between the part and the whole at a number of levels (Smith et al., 2013). In order to understand the meaning of any given part, the researcher has to look to the whole. Similarly, the meaning of the whole can only be perceived when the researcher looks to the parts (Smith et al., 2013). This relationship operates at several levels and the below table is an example of the levels:
<table>
<thead>
<tr>
<th>The Part</th>
<th>The Whole</th>
</tr>
</thead>
<tbody>
<tr>
<td>The single word</td>
<td>The sentence in which the word is embedded</td>
</tr>
<tr>
<td>The sentence</td>
<td>The complete text</td>
</tr>
<tr>
<td>The complete text</td>
<td>The research project</td>
</tr>
</tbody>
</table>

Table 4.5 A set of relationships which can be employed to interpret the data (adapted from Smith et al., 2013: 28)

This table emphasises that the different layers of interpretation as the researcher engages with the text of individuals’ experience. It also highlights that the interpretation process in IPA is dynamic and non-linear and it requires a repeated process of engagement with the data.

4.6.2.3 Idiography
The third major influence on IPA is idiography. IPA is different from other psychological approaches which concern with making arguments at the group or population level. IPA aims to focus on individual’s perspectives and the experiences of specific individuals instead of making populational level claims (Smith, 2004). IPA has a commitment in conducting an in-depth analysis and subsequently, the analysis has to be thorough and systemic. Since IPA aims to understand specific experiential phenomena from the individual’s perspectives, it employs small, purposely selected samples. Idiography can also refer to the commitment to single case analyses or to a process which focuses on the examination of each case before identifying the convergence and divergence across participants (Smith, 2011). For this study, the idiographic commitment will be represented in the analysis chapters by discussing the interview data after the analysis of each classroom interaction extract in order to illustrate the teachers’ individual experiences.

It is crucial to note that IPA does not aim to produce generalisable results. Rather it emphasises on the idea of ‘theoretical generalisability’ which refers to the possibility of the research findings to be applied to another context (Hefferon and Gil-Rodriguez, 2011). Smith et al. (2013) argue that IPA invites the readers to play an active role by drawing on their prior knowledge and life experience in order to assess the applicability of the findings and the potential implications for their own practice (Smith et al., 2013). Hence, it is acknowledged that although the EMI teachers’ perceptions of their translanguaging practices in the classrooms are only applicable to the teachers under study, the findings can enhance understanding and provide additional insights to the current knowledge base.
4.6.2.4  Limitations of Interpretative Phenomenological Analysis

IPA aims to collect participants’ insights on experience, and this requires researchers to repeatedly listen and analyse the language that the participants employ to make sense of their experiences. Hence, this relies on the ability of the participants to articulate their thoughts. Nonetheless, Willig (2013) suggests that some participants may not have the skills to articulate the intricate details of experience, particularly when they are not familiar with talking in such a way. Smith et al. (2013: 194) further argue that ‘our interpretations of experience are always shaped, limited and enabled by language’ and this presents another limitation since language is limited in itself. Language may construct barriers to be able to fully articulate our thoughts (Jaeger and Rosnow, 1988).

Additionally, several methodological approaches, such as Discursive Psychology, promote analysing language as a way to perceive how participants discursively construct their ‘reality’. Willig (2013) further suggests that researchers can only understand how individuals talk about their experiences through language instead of having an understanding of the actual experience. Nevertheless, Smith and Osborn (2008) suggest that there is a direct connection between how individuals talk about their experience and their thoughts and feelings. The researcher analyses the participant’s talk in order to understand how participants make sense of their experiences (Smith, 2011). Although this study acknowledges the limitation outlined by Willig (2013), this study will adopt the perspective that the researcher can learn something about the participants’ lived experiences through analysing their language and that the participants can in part describe their experience.

Moreover, IPA does not aim to explain why participants experience particular phenomena in specific ways. Rather, IPA aims to describe, illuminate and understand individual’s views. Willig (2013) suggests that this is a potential limitation since the lack of explanation can prevent us from understanding the phenomena that the participants have experienced. Finally, it is possible that the interpretations are limited by the researcher’s ability to interpret the data as the researcher plays a major role in the process of interpretation (Brocki and Wearden, 2006). In order to ensure the validity of my analysis, some security is offered by the detailed guidelines and discussion in relation to the interpretative process (e.g. Smith et al., 2013; see section 4.7.3).

4.6.3  Triangulating MCA Findings with Ethnographic Information

The present study is distinct from a ‘pure’ CA study, which aims to ‘explicate the endogenous organisation of talk-in-interaction as such’ (ten Have, 2001: 3), in that it draws on ethnographic information gathered from classroom observations, formal semi-structured interviews, informal interviews and video-stimulated interviews from participants to triangulate with the classroom
interaction analysis. The main reasons why collecting ethnographic information is necessary are the following. First, the interview data gained from the participants and my own perspective as a participant observer can lead to broader interpretations, which allows for the data to be triangulated and offers multiple interpretations of the roles of translanguaging in the EMI classrooms. Importantly, gaining ethnographic information, such as the participants’ language attitudes, background, beliefs in teaching and learning and their own interpretations of the classroom interactions through interviews, is important in understanding how and why translanguaging is employed in specific moments of the classroom interactions, which is not accessible through a description of interactional sequence alone. Second, since translinguaging practices entail multilinguals ‘bring together different dimensions of their personal history, experience and environment, their attitude, beliefs and ideology, their cognitive and physical capacity’ to facilitate their meaning-making processes (Li, 2011), MCA cannot reveal how participants bring various dimensions of personal history, ideologies and beliefs etc to create the translinguaging spaces in EMI classrooms (Li, 2011). These sociocultural factors may not emerge from the MCA analysis directly, but they can be explored through using interviews and/or ethnographic approach. Hence, using ethnographic data gained through interviews and fieldnotes potentially allow me to gather additional contextual information to inform the interpretations of my MCA analysis. (Copland, 2011; Matsumoto, 2018). In short, ethnographic information gained through interviews and participant observations should be integrated with a detailed description of the moment-by-moment analysis of talk-in-interaction.

However, the ethnographic information needs to be treated with caution. First, participants may claim that they do not understand something in the conversation although they display their understandings at the time of recording or vice versa. This is possibly because they may forget or re-interpret the interactional moments with the researcher. In addition, contradictory information from the MCA analysis may emerge from the interview data. Several MCA scholars (e.g. Antaki, 2012; Ford, 2012) have offered some arguments for the problems inherent in combining MCA with ethnography. They argue that the goal of MCA is to analyse ‘what is publicly transacted, not what is privately thought or felt’ (Antaki, 2012: 497). In other words, participants’ feelings about the interactions that they participated in have no direct relevance to MCA analysis. This is because MCA analyses do not aim to document the speakers’ concerns (e.g. worries, intentions, objectives) which are only knowable only to the speakers themselves. The primary aim of MCA is to document the observable resources that speakers employ in constructing their actions in interactions. Second, participants’ re-interpretations of their actions are considered as interactional productions which are shaped by the interactional context in which they are produced (i.e. an interview with the researcher) instead of mere representations of the speakers’ interests, goals etc (Pomerantz, 2012).
The participants’ re-interpretations of their actions may range from descriptions of the conversations, the speakers’ own interpretations of interactional moments, the speakers’ own interests, agendas and concerns and so on. These various types of reports may or may not be relevant in interpreting what happens in the interaction (Pomerantz, 2012) because they may not be publicly displayed in the social interaction. Third, although Waring et al. (2012: 487) argue that ethnographic information can ‘correct an initial MCA analysis with regard to what is being done […] or what might be inferred’, scholars (e.g. Ford, 2012; Pomerantz, 2012) explain that it is not possible to use participants’ reports to correct MCA analyses of the talk. This is because MCA aims to capture how participants construct each turn at the moment and based on the methodological perspective, there are no grounds for correcting MCA analyses of what is publicly displayed through the participants’ practices in the talk (Ford, 2012).

Despite the above arguments regarding the use of ethnographic information to inform MCA analyses, Seedhouse (2004) argues that it is still possible to combine MCA with an ethnographic approach to the study of classroom interaction. Ford (2012: 511) further points out: ‘for non-CA research agendas in which CA is used as one method’, participants’ self-reports are sources for understanding their concerns, ideologies and the potential links between the retrospective recalls and the real-time interactions. For studying research topics like translanguaging practices, gathering ethnographic information makes absolute sense (Li, 2014a) to complement the MCA analysis of the classroom interactions. Seedhouse suggests that an initial MCA analysis of how participants perform an action in interactions can be followed by an ethnographic analysis of why participants perform such an action. However, the methodological imperatives explained by Schegloff (1992) suggest that MCA researchers need to ground the analysis in the first instance in the fine-grained details of the discourse, rather than in the external aspects of cultural, social or personal identity or social context which may or may not potentially be related to that moment of the interaction. Hence, Seedhouse (2004) concludes that although combining MCA and ethnography can allow researchers to link the macro-levels of contextual and social structures with the micro-level of linguistic practices, any analytical claim about the interactions needs to be based on the participants’ orientations as evidenced in the details of the talk. In other words, the external/contextual factors, e.g. culture, are relevant to the MCA analysis only if it is demonstrated to inhabit the details of the interaction.

4.7 Data Analysis Procedures

4.7.1 Analysing Classroom Interaction Data
This study combines MCA with ethnographic information gained through pre-interviews, field
notes and video-stimulated-recall-interviews in order to examine the construction of translanguaging practices in EMI classrooms.

4.7.1.1 Identifying Translanguaging Instances
The identifications of translanguaging instances are critical for this study. This study considers translanguaging as practices where participants draw on their multilingual and multimodal resources from their repertoires in a fluid and dynamic manner to construct meaning (Li, 2018) in the EMI classroom setting. Through adopting translanguaging as an analytical perspective, this allows me to identify how teachers and students move between their full linguistic and semiotic repertoires when they interact in the EMI lessons. Therefore, when analysing classroom video-data, I will look for translanguaging instances which involves going beyond different linguistic structures and systems (i.e. not only different languages and dialects, but also styles, registers and other variations in language use) and different modalities (e.g. switching between speaking and writing, or coordinating gestures, body movements, facial expressions, visual images). The identifications of translanguaging instances in the data are relied on the analysis of the interaction itself.

In order to ensure that my analysis is reliable and valid, the identified translanguaging practices are solidified by reiterative line-by-line analyses of the data at least two times to minimise the possibility of any subjective interpretations. Throughout the re-analysis process, I strived to maintain the ‘radically emic perspective’. I have also presented my MCA transcripts to the Multimodal Analysis Research Group (MARG) at Newcastle University in November 2020 and the CA Data Session at the University of Hawaii at Manoa in October 2020 and April 2021 respectively. These data sessions involved PhD students and academic staff from different universities whose research interests are situated in social interaction. The group reviewed three of my selected transcript segments and the corresponding videos in the sessions. Presenting at the data sessions allowed me to resolve confusions and divergent readings and the group agreed that the transcripts that I presented were accurately transcribed and the analyses of the extracts were accurately analysed. Having other MCA analysts examining my data can bring a ‘fresh’ eye to the data and make sure that my analysis is not my own ‘interpretation’, but ‘sharable and shared understandings which can […] be analysed in procedural terms’ (ten Have, 2007: 140).

4.7.1.2 Transcription of Classroom Interaction Data
The classroom interaction data are transcribed using the conventions developed by Jefferson (2004) and Mondada (2018) to provide a detailed record of the discourse. Transcriptions allow the readers to observe the complexity of the nature of talk. As Hutchby and Wooffitt (2008: 69) suggest,
transcription of data is an important procedure at the core of MCA analysis:

‘Transcription is a necessary initial step in enabling the analysis of recorded interaction in the way that CA requires. Secondly, the practice of transcription and production of transcript represent a distinctive stage in the process of data analysis itself’.

Therefore, transcription is acknowledged as the orthographic representation of the data which becomes the basis of the MCA analysis. However, it is crucial to note that ‘transcripts are not the data of CA, but rather a convenient way to capture and present the phenomena of interest in written form’ (ten Have, 2007). It is possible that any transcription conducted by different researchers can be affected by their own theoretical approach to the data (Lapadat and Lindsay, 1999). The position that most MCA researchers hold is that a transcript should include as many details as possible since nothing is considered as irrelevant. Minute details, such as intonations, non-verbal resources, length of silence, are needed as these details could inform researchers regarding ‘how social actions are performed, how each turn is produced and treated by the participants’ (ten Have, 2007: 89).

However, many MCA researchers transcribe the data to different levels of detail (Brandt, 2011). Each MCA analyst needs to decide how much detail they will transcribe. This is because MCA principles, to some extent, do not comply with real-life practicalities and the transcription process can take many months. Therefore, I first did a ‘rough’ transcription initially which involves the spoken utterances and some other notable features (e.g. gestures). Further details that are potentially relevant to the research topic are added after watching the video-data multiple times. Multimodal aspects of the transcripts are also included in the transcript to explore the switch of communicative modes in the classrooms. For the purpose of my research, screenshots are integrated into the transcripts to enhance clarify for readers. A ‘+’ sign is used to indicate the onset of non-verbal actions (Sert, 2017). ‘#’ sign is employed for the screenshots to indicate to the readers the exact locations of the figures in the transcripts. ‘*---*’ is used to describe the action that is continued across subsequent lines and ‘---*’ represents the end of the action (Mondada, 2018). In order to represent the multilingual talk, English translations are highlighted in italics and placed after the verbal features of talk on a separate line (see Appendix A for more transcription conventions).

4.7.1.3 Data Analysis with Ethnographic Information

MCA analysis of the video-data first involves adhering to the principle of ‘unmotivated’ looking. This requires the researchers to ground the research focus based on the recordings of the
interactions without referring to the external factors that are unacknowledged by the participants in order to develop an emic understanding of the classroom interaction. Although one may argue that all looking is motivated (e.g. Psathas, 1990), the idea is that a research study should look ‘openly’ without any particular interest of focus before conducting further exploratory analysis. Therefore, it is important for me to explore the video-data with an open mind rather than assuming that translanguaging practices will definitely emerge in the video-data. When identifying translanguaging practices, collections of similar occurrences are built up and differences and similarities between cases are identified in order to reveal different aspects or features of translanguaging practices (Sidnell, 2010).

Line-by-line analysis is conducted to examine how talk is sequentially organised on a turn-by-turn basis, relating each utterance to what has said before and what comes after. Prior MCA studies have discovered a number of interactional features of talk, including turn-taking, pausing, repair, adjacency pair and multimodality (Waring, 2008; Brandt, 2011; Sert, 2017). These interactional features provide a useful starting point when studying how translanguaging is sequentially organised. However, as Richards (2006: 13) argues, ‘the emphasis in the analysis […] is not on how interactants obey the relevant rules, but on how they jointly construct the conversation and their shared understanding of what is happening in it’. Therefore, MCA researchers need to pay attention to how talk unfolds and not examine participants’ utterances in isolation from the contextual environment. That is, the meaning of the talk is shaped and displayed in the environment in which it occurs. (Kasper, 2009).

After conducting line-by-line analysis, ethnographic information, such as the information of participants’ backgrounds and other wider sociocultural factors, are incorporated with the close descriptions of the translanguaging sequences since the ethnographic information might be inaccessible through the MCA analysis. This allows me to understand how and why the teachers’ translanguaging practices are influenced by various sociocultural factors, such as personal history, identity and social contexts. However, the combination of ethnographic information with MCA analysis of translanguaging sequences needs to be treated with caution (see section 4.6.3). In order to ensure that the MCA analyses are not affected by the ethnographic information gained from participants as well as my own perspective as a participant observer, I ground the analysis of the video-data in the first instance in the details of the interaction, instead of the external details of the sociocultural factors. The data analysis should be based on the participants’ orientations and any analytical claims should be evidenced in the details of the interaction. However, contextual information can only be analysed in the talk, only when they are ‘actually procedurally relevant to the participants at that moment’ (Seedhouse, 2004: 91). After completing the MCA analyses, I then
analyse the fieldnotes, pre-interviews and video-stimulated-recall-interview data (see below sections 4.7.2 and 4.7.3) so that it allows for the data to be triangulated. This can provide different interpretations of the functions of translanguaging practices in different EMI classroom moments.

4.7.2 Analysing Pre-Teacher Interview and Ethnographic Interview Data
This study analyses the formal semi-structured interviews and informal interviews with teachers in order to triangulate with the classroom interaction video-data. Thematic analysis is used to analyse the interview data. Ayres (2008: 867) defines thematic analysis as ‘a data reduction and analysis strategy by which data are segmented, categorised, summarised, and reconstructed in a way that captures the important concepts within a data set’. This method is used to facilitate the identifications of codes (or themes) which are generated through repeated reading of the interview transcripts. According to Struss and Corbin (1990), thematic analysis requires the researcher to read line-by-line to segment the data into meaningful units according to emergent themes, patterns or conceptual categories. Coding offers structure to the data which allows researchers to develop a comprehensive understanding of the issue (Flick, 2007).

4.7.3 Analysing Post-Teacher Video-Stimulated-Recall-Interview Data
The main purposes of these video-stimulated-recall-interviews with participating teachers are to identify: (1) similarities and differences between my interpretations and their retrospective views on the functions of their translanguaging practices in the classrooms and (2) to do member check with the teachers. Analysing video-stimulated-recall-interviews data can also enable me to systematically compare the teachers’ actual translanguaging practices and their interpretations of their practices. IPA is used to analyse the interview data. The teachers’ retrospective views are used to supplement the initial MCA analysis of the teachers’ translanguaging practices and resolve any ambiguities arising in the classroom interaction data that cannot be resolved through analysing transcriptions and classroom observation.

IPA aims to provide evidence of how the participants make sense of phenomena under investigation and simultaneously document the researcher’s sense making. Hence, this requires the researcher to move between emic and etic perspectives. Adopting an emic perspective allows the researcher to analyse the participants’ account of experience inductively. On the other hand, adopting an etic perspective requires the researcher to study the data through psychological perspectives and interpreting it by applying psychological concepts or theories which the researcher finds useful in demonstrating the understanding of research problems. However, the researcher needs to be careful when applying external theories in interpreting participants’ experiences. It is important to remember that all the interpretations must be grounded in the
interview data and this requires a close attention to the interview data itself. As Smith et al. (2013: 37) argue, a successful interpretation is one which is ‘based on a reading from within the terms of text which the participant has produced’.

Smith et al. (2013) suggest a number of stages that are involved in data analysis. The analysis entails moving from focusing on the individual to a more shared understanding as well as moving from a descriptive level to a more interpretative level. The following table illustrates the stages which are involved in the analysis (adapted from Smith et al., 2013). It is crucial to note that the analysis is an iterative process rather than linear. This is because the analysis requires the researcher to draw on one’s interpretative resources to understand what the participant is saying, but concurrently the researcher is constantly checking his/her own sense-making against what the participant has actually said.

The following analytical stages are followed:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Reading and re-reading</td>
<td>The process involves immersion in the data through reading and listening to the interview recordings multiple times.</td>
</tr>
<tr>
<td>2. Developing exploratory comments</td>
<td>This stage entails initial noting on the transcripts in increasing depth. The exploratory comments are divided into the three key areas:</td>
</tr>
<tr>
<td></td>
<td>i. <strong>Descriptive comments</strong>: Focusing on the content of the interview and describing the issues regarding the participant’s experiences</td>
</tr>
<tr>
<td></td>
<td>ii. <strong>Linguistic comments</strong>: Focusing on the participant’s use of language</td>
</tr>
<tr>
<td></td>
<td>iii. <strong>Conceptual comments</strong>: Providing interpretative comments. In order to develop the interpretative comments, two approaches to interpretations (a hermeneutic of empathy and a hermeneutic of questioning) will be adopted.</td>
</tr>
<tr>
<td>3. Moving on to the next case</td>
<td>After analysing the data for a participant, the researcher will move on to analyse the remaining transcripts and</td>
</tr>
</tbody>
</table>
repeat the process. Each case is analysed in its own right in order to develop new exploratory comments.

Table 4.6 Stages that are involved in the IPA Analysis

4.7.4 Analysing Fieldnotes

As Emerson et al. (1995: 105-106) suggest, ‘writing fieldnotes is a process of “analysis-in-description”. Indeed, all descriptions are selective, purposed, angled, voiced, because they are authored’. Thematic analysis is used to analyse the fieldnotes and this requires me to conduct the coding inductively in order to generate categories that are grounded in my observations.

The following table summarises the data analysis methods that are used for each data source:

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Data Analysis Method(s) Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal semi-structured interviews</td>
<td>Thematic analysis</td>
</tr>
<tr>
<td>Classroom interaction</td>
<td>Combining MCA with ethnographic information (obtained from pre-interviews, fieldnotes, informal interviews and video-stimulated-recall-interviews)</td>
</tr>
<tr>
<td>Informal interviews</td>
<td>Thematic analysis</td>
</tr>
<tr>
<td>Fieldnotes</td>
<td>Thematic analysis</td>
</tr>
<tr>
<td>Video-stimulated-recall-interviews</td>
<td>IPA</td>
</tr>
</tbody>
</table>

Table 4.7 Data sources and their corresponding data analysis method(s)

4.8 Ethics

This project follows the regulations established by the UCL Institute of Education Research Ethics Committee. Consent forms were provided to participants (in both Chinese and English). I explained the different aspects this project implies regarding aims, my role as a researcher and data collection and storage. Participants were informed that they could withdraw from the project at any time without justifying their decision. Participants were anonymously represented in the data. Anonymized screen-shots are used in this study to make sure that the images of the teachers and students are not visible and identifiable. All recordings are confidential and securely stored. I have used two encrypted USBs to store the video recordings and delete any data from my laptop. I am also the only person who transcribed the video data for research purposes and subsequent publications. Generated data would comply with current general data protection regulation. Names uttered in the video recordings and interviews are not included in the actual transcripts and
pseudonyms are used to ensure the anonymity of students, teachers, and schools. Ethical approval was received in December 2019.

4.9 Summary

This chapter has presented the methodological approaches of this study, which entails combining MCA with IPA to analyse translanguaging instances in HK EMI classrooms. The processes of data collection and the procedures of analysing the data sources are explained. The chapter has also summarised the background information of the participating schools, students and teachers.

To conclude this chapter, an important issue related to my subjectivity has to be addressed. First, my position as a doctoral researcher and my presence in the EMI classrooms could potentially influence how the teacher and students engage in classroom interactions. It is noticeable that the classroom participants are less attentive to me and the video camera as the semester progressed. However, it is vital to acknowledge that none of the teacher and student talk were elicited for my research purposes.

Moreover, I also recognise that my role as a researcher shaped the research process in different ways, particularly when I was interviewing the teachers, identifying translanguaging instances for analysis and interpreting the interactional data and video-stimulated-recall-interview data. My positionality as a researcher and my status as a former student of school A could have affected how I talked to them, what they shared with me, and how I analyse as relevant data.

These issues are not only restricted to this study since subjectivity is an inherent limitation in qualitative studies. Nevertheless, this study offers in-depth and complex interpretations of different translanguaging practices through MCA analysis and member check by video-stimulated-recall-interviews. Additionally, as Stake (1995) argues, subjectivity can be a strength when researchers acknowledge their own bias. Researchers can employ subjectivity as the starting point for understanding a specific phenomenon. Notably, I would like to draw on my subject position as a former EMI student and qualified English-as-a-second-language teacher so that this study can reveal the phenomenon of translanguaging in EMI classrooms from an insider view. In summary, while I understand my subjective position as possible bias, I aim to employ my subjectivity to understand the insider knowledge among the participating EMI teachers and find out multiple realities regarding the teachers’ translanguaging practices in the EMI classrooms for achieving their pedagogical goals.
Chapter 5 — Analysis: Constructing Playful Talk through Translanguaging

5.1 Introduction

Chapters 5-9 will illustrate 27 instances of translanguaging practices in total in order to showcase how the EMI teachers draw on different multilingual, multimodal, multisensory and multi-semiotic resources for meaning making, such as gestures, embodied actions, visual materials, classroom artifacts, verbal speech and spatial repertoire. In doing so, I aim to demonstrate how the teacher’s translanguaging practices create various translanguaging spaces in the EMI classrooms for achieving various pedagogical goals, including facilitating content learning, promoting meaningful communication with students, building rapport with students. Each chapter focuses on the interactional features which facilitate the creations of different translanguaging spaces in the EMI classrooms and this includes: constructing playful talk (chapter 5), bringing the outside in (chapter 6), affordances of a technological device (chapter 7), creating opportunities for student engagement (chapter 8) and engaging in co-learning (chapter 9).

This chapter presents the role of translanguaging in constructing playful talk in an EMI classroom. Here, ‘playful talk’ refers to a range of verbal and multimodal activities and routines, including humour, parody, teasing, that can emerge in teacher’s and students’ talk (Lytra, 2017). Previous research shows that playful talk can be a useful tool for motivating and facilitating L2 learning in the classroom (e.g. Bell, 2005; Waring, 2013). There is, however, little empirical work on playful talk in EMI classrooms (e.g. Jakonen et al., 2018) or playful talk through translanguaging. Hence, studying the role of translanguaging in constructing playful talk in EMI classrooms can allow researchers and teachers to understand translanguaging as a resource for enabling classroom participants to engage in diverse multiple meaning-making systems and subjectivities. The analysis demonstrates that translanguaging appears to be a critical resource and that several social factors, including the teacher’s personal belief, history, sociocultural and pedagogical knowledge, play a role in constructing playful talk. The playful talk transforms the classroom into a translanguaging space which in turn allows the teacher and students to perform a range of creative acts and experiment with a variety of voices to facilitate the meaning-making and knowledge construction processes. This chapter will first analyse examples of playful talk for facilitating content learning (Extracts 1, 2 and 3). It will then analyse examples of playful talk for promoting meaningful communication (Extracts 4 and 5).
5.2 Playful Talk in L2 Interaction

The importance of playful talk in language learning and development has been discussed by a number of scholars (e.g. Cook, 2000; Bell, 2005). Playful talk is an interactional practice whereby linguistic resources are being manipulated to achieve ludic effects (e.g. Cook, 2000). Waring (2013: 192) builds on Cook’s definition of language play and conceptualises ‘doing playful talk’ as ‘stepping into an alternative world unfettered by the roles and the setting of the classroom and doing so lightheartedly’. According to Tarone (2000), language play aims to entertain, lower the affective filter, stretch a speaker’s sociolinguistic competence and destabilise the interlanguage system. Davies (2003) studies playful talk in peer interactions between L1 and L2 English speakers. The analysis demonstrates that L1 speakers assisted L2 speakers in learning how to engage in playful talk, ‘but also to experience its social meaning in American society’ (p. 1382). Warner (2004) discovers occurrences of play with the form, the concept and the frame during computer-mediated communication in two German online courses. Bell (2005) analyses how L2 verbal humour is constructed by L2 English speakers as they interact with L1 English speakers. The findings suggest that playful talk can be an indication of language proficiency as more advanced speakers employ L2 linguistic resources in more creative ways. Moreover, the findings also reveal that playful talk could potentially lead to a deeper processing of lexical items, making the meanings of the lexical items more memorable.

Some L2 classroom interaction studies have identified the social functions of playful talk as a face-saving device (e.g. van Dam, 2002) and as a strategy to create new selves and new social relations (e.g. Belz, 2002). Cekaite and Aronsson (2005) explore young children’s L2 playful talk in immersion classrooms and the findings illustrate that through the use of various verbal resources, including code-switching, artful variations in pitch, playful talk generates opportunities for the learner to learn the accurate L2 lexical items and grammar. Broner and Tarone (2001) analyse young learners’ playful talk in L2 during a Spanish immersion classroom and demonstrate that it allows them to deploy various linguistic resources in constructing classroom jokes and creating worlds that do not exist.

One of the first attempts to provide a conversation-analytic account of how playful talk is constructed in adult English-as-a-Second-Language classrooms where students may not share a common L1 with the teacher and other students is that of Waring (2013). She finds that participants mobilise identity as a resource for doing being playful and argues that playful talk can allow classroom participants to perform a range of subversive acts and experiment with a wide range of voices, including as teachers, parent, child, pop culture expert. Tai and Brandt (2018) demonstrate
how a learner employs both multimodal resources and her limited English repertoire to construct an embodied enactment in a humorous manner in order to display her understanding of a target lexical item in a beginner-level adult English-for-Speakers-of-Other-Languages lesson. As shown, playful talk can be seen as useful in facilitating meaning-making, creating a jocular environment, negotiating relationships, promoting student engagement and expressing students’ identities (Waring 2013; Lytra, 2017).

To date, there is little empirical work that explores the construction of playful talk in EMI classrooms. Although EMI classrooms are in a sense also L2 classrooms, they focus on subject contents and have pedagogical goals and agendas that are different from language classrooms. Based on the review of existing literature on playful talk in L2 interaction, this chapter aims to bring together the concepts of translanguaging and language play in order to extend our understanding of translanguaging practices in EMI instruction. In particular, I hope to achieve a fine-grained understanding of how playful talk is constructed through teacher’s translanguaging practices and what pedagogical goals does playful talk accomplish in situ.

5.3 Constructing Playful Talk to Facilitating Content Learning

In the whole dataset, ten instances are identified which illustrate the occurrence of playful talk in the main instructional sequences for promoting content learning. This can allow classroom participants to engage in humorous talk while the teacher is teaching the content. Extracts 1 and 2 are extracted from the secondary three mathematics classroom dataset and Extract 3 is extracted from the secondary four mathematics classroom dataset. Both classes were taught by teacher A (T) at school A. Extracts 1-3 are typical examples which reveal this interactional phenomenon and illustrate the role of translanguaging in creating the playful talk.

Extract 1: Constructing a mnemonic to facilitate students’ memorisation

Prior to the extract, teacher A was teaching the concept of a slope using English. Teacher A explained to students that when the straight line goes upwards to the right, then the slope is positive. If the straight line goes downwards, then the slope is negative. If it is a horizontal line, then the value of the slope is zero. During teacher A’s explanation, teacher A was drawing the slanting lines (going upward and downward) and a horizontal line on the blackboard which formed a triangle (see figure #1). In this extract, teacher A’s translanguaging practices can be observed through his use of Cantonese rhyming words, repetition, stress and an English technical term ‘slope’ to create a mnemonic (line 80) and reinforce the value of the slope of the horizontal line. Concurrently, teacher A’s translanguaging practices also involve his deployment of gestural and semiotic
resources (e.g. drawings on the blackboard) in order to display the flatness of the horizontal line that mathematically represents the value of zero.

72 T: slope is the measurement of the steepness (0.8) right?
73 (1.2)
74 T: 係咪有幾斜㗎嘛係咪 (0.7) +平路唔唔斜啊 (1.7) okay?
    (tr. it is the steepness, right?) (tr. Is a flat road considered as steep)
    +T points at the horizontal line on BB
75 (0.3)
76 T: 想 (0.3) memorise (0.5) memorise 吖 (0.4) 呢個口訣
    (tr. hey) (tr. okay) (tr. this mnemonic)
77 (1.1)
78 T: 我發明嘅 (1.1) haha
    (tr. I invented it)
79 (2.2)
80 T: <+條線 (0.6) 係+平 (1.0) 個 slope (0.9) +係零>
    (tr. the line is flat) (tr. the slope is zero)
    +T puts his RH on the horizontal line, palm facing downward #1
    +T moves his RH along the horizontal line, towards the left #2
    +T points at ‘0’ on the BB #3
81  +(2.1)
  +Students are clapping
82  +(4.3)
  +T moves RH upward, palm facing students #4
After reinforcing the concept of slope, teacher A utters ‘right?’ in line 72 to elicit confirmation from students. However, no student responds during the 1.2-second pause in line 73. Teacher A then switches to Cantonese to initiate a question in line 74 in order to elicit confirmation from students. However, no student responds to T’s questions in line 75. In line 76, teacher A first utters a Cantonese particle, ‘嗱’ (‘hey’), to draw students’ attention. Teacher A then switches back to English to utter ‘memorise’ twice and enunciates another Cantonese particle, ‘吓’ (‘okay?’) in order to emphasise the need for students to remember something. After a 0.4-second pause, teacher A switches back to Cantonese to mention the mnemonic, that is created by teacher A, to the students, ‘呢個口訣 (1.1) 我發明嘅 (this mnemonic (1.1) I invented it)’ (lines 76-78). In line 80, teacher A suddenly speaks slowly when uttering ‘條線 (the line). Simultaneously, teacher A’s hand movement visually indicates to students that the horizontal line on the blackboard is the line that teacher A is referring to (figure #1). When teacher A utters the word ‘平 (flat), teacher A moves his right-hand along the horizontal line (figure #2) in order to visually illustrate the flatness of the horizontal line to students. Teacher A continues to construct the second part of the mnemonic by uttering ‘個(slope)係零 (is zero)’. It is important to also notice that the word ‘係 (is)’ is repeated twice. Second, the English word ‘slope’ is used here to reinforce the technical term in the mathematical discourse. Third, the words ‘平’ [ping4] and ‘零’ [ling4] are rhyming words in Cantonese and coincidentally the meanings of these two words (i.e. flat and zero) reinforce the mathematical concept that the slope of the horizontal line must be zero. This message is also further emphasised as teacher A points at the ‘0’ on the blackboard (figure #3) when he is uttering ‘係零’ with stress. After teacher A’s introduction of the mnemonic, the students are clapping (line 81)
order to express their enjoyment of listening to teacher A’s mnemonic. Student 3 acknowledges the funniness of teacher A’s mnemonic by saying, ‘又幾好笑個喎 (it’s quite funny)’ (line 85). In line 86, teacher A repeats the mnemonic and enacts similar gestures as in line 80 (i.e. moving his arm along the horizontal line) in order to reinforce the mnemonic to the students. After teacher A utters a pre-closing ‘得唔得呀 (is it okay?)’ in line 86, student 6 initiates a question in Cantonese and asks whether teacher A still has anymore mnemonic that can be shared with the class. This leads to a series of laughter from students in line 90 and this also indicates that student 6’s question is treated as playful by the participants themselves.

In this extract, the construction of the mnemonic is considered as playful as signalled by the teacher’s and student’s reactions (e.g. a verbal acknowledgement in line 85 and the teacher’s laughter in line 78). During the post-video-stimulated-recall-interview, teacher A comments that this mnemonic was created by him when he was a secondary school student. The researcher is interested to understand teacher A’s reasons for using rhyme in creating this mnemonic:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall Interview Selected Excerpts</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>72 T: slope is the measurement of the steepness (0.8) right?</td>
<td>01 K: 同個口訣呢字你 rhyme 唸 (tr. This mnemonic involves rhyming words)</td>
<td>02 T: rhyme</td>
<td></td>
</tr>
<tr>
<td>73 (1.2)</td>
<td>03 K: 你留意個可？ (tr. Did you notice it?)</td>
<td>04 T: 像嗎像呀像 (tr. Yes. Yes)</td>
<td></td>
</tr>
<tr>
<td>74 T: 係唔係條斜嘅係條 (0.7) + 與鉛垂線斜 (1.7) okay?</td>
<td>05 K: 哪個 inspiration 你唔識 係個啲嘅？ (tr. Where did you get this inspiration from?)</td>
<td>06 T: 係條係平，個 slope 係零 啲嘅？ (tr. something like the line is flat, and the slope is zero?)</td>
<td></td>
</tr>
<tr>
<td>(tr. it is the steepness, right?) (tr. Is a flat road considered as steep)</td>
<td></td>
<td>07 K: ah ah ah ah ((nodding his head))</td>
<td></td>
</tr>
<tr>
<td>T points at the horizontal line on BB</td>
<td></td>
<td>08 T: 哦，即係唔係 (tr. oh. That’s….)</td>
<td></td>
</tr>
<tr>
<td>75 (0.3)</td>
<td></td>
<td>09 K: 即係平，係零嘅啦 (tr. Something like flat and zero-)</td>
<td></td>
</tr>
<tr>
<td>76 I: 哲 (0.3) memorise (0.5) memorise 嘀 (0.4) 睇啲口訣 (tr. key)</td>
<td>10 T: 像 (tr. Yes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(tr. okay) (tr. this mnemonic)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>77 (1.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>78 I: 我就明白 (1.1) 哈哈 (tr. I understood it))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>79 (2.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80 T: 係線 (0.6) 係+平 (1.0) 個 slope (0.9) 分差&gt; (tr. the line is flat) (tr. the slope is zero)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+T puts his RH on the horizontal line, palm facing downward #1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+T moves his RH along the horizontal line, towards the left #2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+T points at ‘0’ on the BB #3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
T stated that he liked positioning the rhyming words at the end of the sentence in order to draw students' attention to the rhyming words.

T displayed his expectation that the mnemonic would draw students' attention.

Using these rhyming words could draw students' attention to the mnemonic.

Using rhyming words could prevent boredom in the classroom.
Table 5.1: Video-Stimulated-Recall-Interview (Extract 1)

Using rhyming words could facilitate students’ memorization of the mnemonic due to the rhyming effect.
Teacher A explains that he personally enjoys integrating rhyming words in his talk in order to create a doggerel effect. Particularly, he likes positioning the rhyming words at the end of the sentence in order to draw students’ attention to the rhyming words. Towards the end of line 16 in the interview, teacher A shifts the footing by voicing out his students’ reactions as they hear the mnemonic: ‘咦，有啲，又啱音喎 (oh, that’s, that rhymes)’ and ‘佢講嘢一陣咬字又會唔會啱音喎呢 (oh, that teacher is talking now and will he use any rhyming words in his utterances?)’. Here, it can be suggested that teacher A displays his expectation that the mnemonic will draw students’ attention. In the MCA analysis, it is evidenced that teacher A’s introduction of the mnemonic is received with applause from students (line 81 of the interaction) and a verbal endorsement (line 85 of the interaction). This suggests that teacher A’s use of mnemonic is considered as playful and funny by the students. Teacher A also mentions that using these rhyming words can prevent boredom in the classroom and facilitate students’ memorisation of the mnemonic due to the rhyming effect. Therefore, it can be argued that teacher A’s personal interest in using Cantonese rhyming words and his pedagogical goal (i.e. assisting students in memorising the mathematical content) shape his translanguaging practices in constructing the mnemonic and creating a humorous context in the classroom interaction.

Extract 2: Creating an imaginary context to facilitate students’ memorisation

Extract 2 is the immediate continuation of Extract 1. Teacher A aims to introduce the imaginary context of going hiking to facilitate students’ memorisation. Teacher A picks up a red-colour chalk from the tray in line 108 and in the subsequent interaction, everything that teacher A writes on the blackboard is in red-colour, as opposed to the typical white-colour. In this extract, it can be shown that the triangle on the blackboard, which was constructed before the commencement of Extract 1, momentarily represents a hill and the hand-drawn person on the blackboard is often referred to as the students in the class and occasionally as teacher A himself. In particular, teacher A adopts a character viewpoint by imagining himself who goes hiking. By doing so, teacher A translanguage through switching his intonations and displaying his facial expressions to enact the feelings of going up the hill, which is laminated with a tone of non-seriousness. This is treated as playful and laughable by the class.
107 (2.4)
108 T: +the way I memorise the +slope um
        +T picks up a red-colour chalk from the BB tray
        +T moves his index finger along the slanting line
        (sloping upwards) from low to high position
109 (0.2)
110 T: +why this one is positive+ is
        +T moves his index finger along the slanting line (sloping upward) from high to low
        position repeatedly--->
        ---+  
111 (0.4)
112 T: +just imagine you go hiking
        +T draws a person next to the slanting line (sloping upward) ---> #5

Figure #5

113 (1.5)
114 T: 你會點呀(.)(tr. what would you (.) when you go hiking)
        ((tr. what would you do (.) when you go hiking)) ((tr. backpack))
        ---+  
        +T draws a person wearing a backpack
115 (1.7)
116 S3:  haha
117 (0.4)
118 T: okay? (0.3) okay? +you go hiking
        +T points at the person on the BB
T: +一開始去行山$+你係咪好開心$啊

((tr. before you walk up to the hill are you excited))

+T moves his index finger along the slanting line (upward) from low to high position
+Enacting a running gesture (holding his elbow at 90 degree and hold a small fist and swinging his arms forward) #6

S3: +唔開心

((tr. not happy))

+T stares at S3
+T narrows his lips

T: +唔係你未得閒行山 (.) +我好開心嘅

((tr. you haven’t had the time to go hiking)) (tr. I feel very happy)

+T looks at S3
+T points at the person on BB
T: okay I am very happy I am very positive

T moves his index finger along the slanting line (upward) from low to high position

Ss: hahaha

+Students clapping their hands

T: okay that's why the slope is positive

T draws a line going upward #7

T moves his index finger along the slanting line (upward) from low to high position

S3: $okay$ $okay$

S1: 我唔想俾反應你 hahaha ((tr. I don’t want to respond you))

S3: $okay$ $okay$

S1: 我唔想俾反應你 hahaha ((tr. I don’t want to respond you))
138 T: +and then after that you go up+
    +T draws another person at the top of the triangle on BB--->

139 (0.7)
140 T: and +then go back okay
    +T draws an arrow towards bottom, above the slanting line (sloping downward)
    #8

141 (0.3)
142 T: 要離開的時候會點嘅 (1.5) +你無下巴個樣
     ((tr. when you have to leave how do you feel)) ((tr. look at his facial expression))
     +T draws an upset emoji #9

143 (1.5)
144 Ss: hahaha
145 (0.4)
146 T: +係 very negative 嘢
   ((tr. it's very negative))
   +T walks to the T's desk, leaning over the back of the chair
147 (0.6)
148 S11: 點解
   ((tr. why))
149 (0.4)
150 T: 點解啊因為離開啊 (.) 有啲依依不捨呀 [嘅 (0.6) 係咪先]=
   ((tr. why because of leaving)) ((tr. you feel a bit nostalgic)) ((tr. right))
151 S3:
   [下認真?]=
   ((tr. really))
152 Ss: =hahaha=
153 S11: =會 negative
   ((tr. will be negative))
154 (0.2)
155 T: 係啦 (.) +會 NEGATIVE 嘢 (.) 嗷呀 (.) 會 NEGATIVE 啦+Δ=
   ((tr. yes)) ((tr. will be negative)) ((tr. correct)) ((tr. will be negative))
   +T stretches out his arm and points at S11→
   ΔT moves his index finger→
   →→
156 T: =嘅呀 (0.4) +走嘅時候好 negative
   ((tr. correct)) ((tr. you feel negative when you leave))
   +T walks to the BB
157 (0.3)
158 S3: 呢樣我認同嘅呢個
   ((tr. I agree with this))
159 (0.4)
160 T: +係啦 (.) 走嘅時候係唔係依依不捨阿唔係咪
   ((tr. yes)) ((tr. when you leave, you feel nostalgic right))
   +T acting like drawing the arrow towards downwards
161 (0.6)
162 T: +negative
+T holds up his thumb (RH) #10
+T points to his RHS, pointing behind his shoulder #10
+T stands next to the slanting line (going downward) #10

163 (0.8)
164 T: 呢個行山嘅過程 (0.2) 記住 +開始呢好開心好 =
(tr. the process of going hiking) (tr. please remember that at the beginning it's fun and
delightful))
+T moves his index finger along the slanting line
(upward) from low to high position

165 T: =+act~ (0.4) +$energetic$
+T closes his eyes
+T opens his eyes and smiling

166 (0.3)
167 T: very happy +very positive
+T moves his index finger to the top position of the slanting line
(sloping upward)

168 (0.5)

169 T: and +afterward (0.6) you go back
+T moves his index finger along the slanting line (downward) from high to low
position

170 (0.4)
171 T: you feel +very↓ negative↓ okay?
+T is frowning (a frown on his brow)

172 (0.7)
173 T: the slope (0.3) [+going to +negative]
+T moves his index finger along the slanting line
(downwards) from low to high position
+T moves his index finger along the slanting
line (downwards) from high to low position
In line 111, teacher A establishes a hypothetical scenario by drawing a person next to the slanting line (upward) (figure #5) and stating ‘just imagine you go hiking’ (line 112). While teacher A is drawing a person, teacher A switches to Cantonese to initiate a question, ‘你會點呀 (.) 去行山嘅時候’ (how would you feel when walking up the hill)’ to encourage students to imagine themselves going hiking (line 114).

In line 120, teacher A switches to Cantonese and utters ‘一開始去行山 (when you walk up to the hill at the beginning)’ in order to continue to establish the imaginary context of going hiking. Teacher A simultaneously moves his index finger along the slanting line (upward) from low to high position to indicate the walking direction of the hand-drawn person. Momentarily, the triangle on the blackboard, which was previously created prior to Extract 1, figuratively represents a hill. Teacher A then adopts a smiley voice and asks whether students will feel happy when they go hiking (line 120). By adopting the smiley voice and enacting a running gesture (figure #6), Teacher A is conveying a sense of happiness in walking up to the hill. However, student 3 provides a negative response in Cantonese and teacher A displays his disappointed facial expression by narrowing his lips while student 3 is speaking (line 122). Several students are laughing in line 124 since student 3 challenges teacher A’s prior assumption regarding the students’ reactions. In line 126, teacher A repairs student 3’s negative comment by reiterating the happiness of hiking, ‘我好開心嘅 (I am very happy). In line 128, teacher A switches footing from instructional frame to hypothetical frame by imagining himself as the person and voicing aloud his own feelings in English: ‘I am very happy I am very (0.3) positive’. Note that when teacher A utters the word ‘positive’, he moves the finger along the slanting line (upward) and this allows students to realise that teacher A’s jocular and positive feeling is associated with the mathematical meaning of positive (i.e. above zero). After a 2.6-second pause, several students are laughing (line 130) and clapping their hands (line 131) to applaud teacher A’s performance. In line 132, teacher A switches back from the hypothetical frame to an instructional frame in order to provide an explicit explanation to students by stating, ‘that’s why the slope is positive’. Teacher A also draws another slanting line going upward (figure #7), which is above the existing slanting line sloping upward, as well as moving his finger along the slanting line from low to high position in order to highlight the path that the ‘person’ is going to. This shift of footing summons students’ attention and student 3 acknowledges teacher A by repeating ‘okay’ twice with her smiley voice (line 134). Student 1 attempts to make a playful comment, ‘我唔想俾反應你 (I don’t want to respond you) hahaha’ (line 136), to tease teacher A.

Teacher A initiates a new sequence to further construct the imaginary context. In line 138, teacher A draws another person at the top of the triangle while he is uttering ‘and then after that you go
up’. Here, teacher A employs the pronoun ‘you’ to refer to the students in order to encourage students to imagine themselves at the highest point of the hill. Then teacher A draws an arrow towards bottom (figure #8), which is above the existing slanting line sloping downward, utters ‘and then go back okay’ (line 140) to illustrate the walking direction of the person leaving the highest point of the hill. In order to further facilitate students’ imagination of the context, teacher A switches to Cantonese in line 142 and initiates a question, ‘要離開嘅時候會點㗎（what would happen when you have to leave?)’. Since no one responds during the 1.5-second pause, teacher A then draws an upset emoji on the blackboard (figure #9) and encourages students to look at it, ‘你睇吓佢個樣 (you look at his/her facial expression)’. This leads to laughter from several students who treat teacher A’s drawing of an emoji as humorous. In line 146, teacher A offers a response to the question that he initiated in line 142 by saying that it’s ‘very negative’.

However, student 11 is not sure about teacher A’s interpretation which motivates him to ask ‘why’ in Cantonese (line 148). Teacher A then takes the turn (line 150) and argues that leaving the highest point of the hill is the reason why the ‘person’ is depressed, ‘點解啊因為離開啊 (.) 有啲依依不舍呀嘛 (0.6) 係咪先 (why? That’s because of leaving (.) feeling nostalgic (0.6) right?)’. Although teacher A has not finished explaining, student 3’s utterance overlaps with teacher A’s talk and she challenges the seriousness of teacher A’s interpretation by uttering ‘下認真? (is this serious?)’ which leads to several students laughing in line 152. Then student 11 echoes teacher A’s response by saying ‘會 (will be) negative’ and teacher A immediately speaks louder than surrounding talk and he repeats student 11’s response twice (line 155) and utters the acknowledgment tokens, ‘啱呀 (yes)’, twice (lines 155-156). Simultaneously teacher A points at student 11 and moves his index finger repeatedly to acknowledge the appropriateness of student 11’s response, possibly because student 11 is the only student who offers a verbal response which supports teacher A’s interpretation in line 146 in comparison to other students who either treat it as laughable or nonsense. After a 0.4-second pause in line 156, teacher A switches from speaking loudly to speaking at a normal volume and he reinforces student 11’s response again by uttering, ‘走嘅時候好 negative (it’s negative when you leave)’. By using the word ‘negative’, teacher A is attempting to link the literal meaning of ‘negative’ as a sad feeling with the mathematical meaning as less than zero. This is further exemplified in line 162 when teacher A stands next to the slanting line going downward and he holds up his thumb and points to his right-hand-side behind him while he utters ‘negative’ (figure #10). The act of pointing to the right-hand-side potentially reinforce the idea that the slanting line on the right-hand-side of the triangle represents the meaning of ‘negative’.

After introducing the whole imaginary context to the students, teacher A initiates a new sequence

130
in order to summarise the two key feelings during hiking. Here, teacher A switches the mode from playful talk to monologue direct instruction. In line 164, teacher A first summarises in Cantonese by emphasising that the first step of the hiking journey is full of happiness, ‘記住一開始呢好開心’ (remember, at the beginning stage, it’s delightful). Teacher A then closes his eyes and after a 0.4-second pause, teacher A opens his eyes and smiles at the same time while he switches to English to utter the word ‘energetic’ with an emphasis and a smiley voice (line 165). Here, it can be seen that teacher A adopts the character viewpoint, acting as if he is the hand-drawn person on the blackboard, when he opens his eyes and utters the word ‘energetic’ in order to verbally and non-verbally enact the feeling of being fresh and energetic to the students. In line 167, teacher A continues to reinforce the idea of happiness by repeating the adverb ‘very’, uttering the adjectives (‘happy’ and ‘positive’) with an emphasis, and moving his finger from low to top position of the slanting line which goes upward. Then after teacher A utters ‘and afterward (0.6) you go back’, teacher A adopts the character viewpoint of the hand-drawn person when he enunciates, ‘you feel very↓ negative↓’ (line 171). Here, it is evidenced that teacher A strategically switches his intonation when enunciating ‘very↓ negative↓’ as well as frowning at the same time in order to enact the feeling of being depressed. Eventually, teacher A concludes by uttering ‘the slope (0.3) going negative’ and doing the similar gesture that he previously did in line 169.

In this extract, teacher A translanguages through utilising various multilingual and multimodal resources, including gestures, intonations, smiley voice, facial expressions, use of Cantonese, the drawings (hand-drawn person and a triangle which represents a hill), to adopt a character viewpoint and create a congenial scenario where he walks up to the hill. This allows teacher A to connect the mathematical idea of the positive value of sloping upward with a delightful feeling. In the post-video-stimulated-recall-interview, teacher A offers his opinion regarding his use of drawings to facilitate the construction of the imaginary context:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall Interview Selected Excerpts</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>107 (2.4) T: the way I memorize the slope um +T picks up red-colour chalk from the BB tray +T moves his index finger along the slanting line (dipping upwards) from low to high position</td>
<td>01 K: 喂你係個壁報板幅度係畫埋公仔，仲畫埋個食物沙拉塊子 (tr. So, you were drawing action figures on the blackboard and you even drew a backpack too)</td>
<td>02 T: um hm</td>
<td>03 K: and 即使我覺得係好，呢個係一個好 everyday life 咪 example，但同時間成又是 咪 visual 咪去 illustrate 到俾啲學生去吸收呢樣嘅野咁樣 (tr. And I think that it is a very nice example (i.e. going up the hill) which reflects the everyday life. But at the same time, you attempted to visually illustrate it so that students could understand it easily)</td>
</tr>
<tr>
<td>Line</td>
<td>Text</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>119</td>
<td>(0.5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 120  | T: +一開始去行山$+$你係咪好開心$+$啊  
     | (tr. before you walk up to the hill are you excited)  
     | +T moves his index finger along the slanting line (upward) from low to high position  
     | +Enacting a running gesture (holding his elbow at 90 degree and hold a small fist and swinging his arms forward) #6 |
| 121  | (0.5) |
| 122  | S3: +唔開心  
     | (tr. not happy)  
     | +T stares at S3  
     | +T narrows his lips |
| 123  | (1.0) |
| 124  | S3: hahaha |
| 125  | (0.2) |
| 126  | T: +喺你未得時間去咗行山(...) +你好開心喲  
     | (tr. you haven't had the time to go hiking) (tr. I feel very happy)  
     | +T looks at S3  
     | +T points at the person on BB |

<table>
<thead>
<tr>
<th>Line</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>127</td>
<td>(0.4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Line</th>
<th>Text</th>
</tr>
</thead>
</table>
| 06  | T: +=勻數學文字多呀嘅，數字有多呢，啲所以有哪啲圖畫，圖像化左係數字會清晰啲啲嘅  
     | (tr. There are lots of words and numbers in the mathematical discourse. By having pictures to visualize the concept to students, students would find it easy to follow)  
     | Using pictures could visualize the mathematical concept to the students and facilitate their understanding. |
| 07  | K: um |
| 08  | T: 然後，即係話呢我  
     | 畫得，畫得 hahaha：畫得  
     | 畫唔盡畫唔盡的，我收  
     | 到個效果都係，係休  
     | good嘅  
     | (tr. And. If I drew it hahaha. If I drew it beautifully or drew it badly, the outcome that would be positive)  
     | 09  | K: um! |
| 10  | T: 因為，因為個點都  
     | 會鍾意嘅  
     | (tr. that's because, because the students would like it) |
128 T: okay I am very happy I am very (0.3) *positive
   +T moves his index finger
   along the slanting line
   (upward) from low to high
   position

129 (2.6)
130 Ss: hahaha
131 + (2.2)
   +Students clapping their hands
132 T: okay (0.5) that’s why the slope is *positive
   +T draws a line going upward #7
   +T moves his index finger along
   the slanting line (upward) from
   low to high position

133 (0.9)
134 S3: Sokay Sokay
135 (0.6)
136 S1: 我唔想你反應你 hahaha
   ((tr. I don’t want to respond you))
137 (0.9)
11 K: um
12 T: 即係呢個老師畫畫唔
   係係係 VA 畫畫嘅嘅呢，
   好鍾意，haha，係，所
   以係係係會，嘅，又係
   留心你畫嘅，畫得著
   又會話你，啊樣，不過
   嘅係係係話係係會，
   即係係係知道全部留意
   繁呢件事嘅，係係就
   嘅，所以，係係畫畫
   嘅有趣
   (tr. that means, when the
   non-visual arts teacher
   was doing some kind of
   drawings, the students
   would like it. Haha. So,
   they would be like wow.
   They would pay attention
   to what you were
   drawing. If your drawings
   were poor, they would
   criticize you. Yes. But at
   least they were. At least I
   know that all students
   were paying full attention
   to my drawings. So, I
   think drawing can be fun.)
T shifted the
footing by
imagining himself
as his students and
voicing out their
reactions when
they were looked
at T’s drawings

Table 5.2: Video-Stimulated-Recall-Interview (Extract 2)
The researcher first draws teacher A’s attention to his drawings on the blackboard. In the interview, the researcher is wondering whether teacher A’s illustration of an everyday life example can assist students in understanding the mathematical concepts. Teacher A then points out that since mathematical numbers dominate the mathematical discourse, using pictures can visualise the mathematical concept to the students. In particular, teacher A shifts the footing by imagining himself as his students and voicing out their reactions when they look at teacher A’s drawings: ‘所以佢哋就會，嘩，又係留心你畫啲乜’ (So, they would be like: wow. They would pay attention to what you were drawing.)’. This illustrates his expected reaction that he will receive from his students. In the MCA analysis, it is evidenced that several students are laughing while teacher A is drawing (e.g. lines 116 and 144). This indicates that the students are paying attention to his drawings and they treat it as humorous. Therefore, it can be argued that teacher A’s pedagogical goals (i.e. drawing students’ attention and visualising the mathematical concept) motivate teacher A in drawing images on the blackboard which contributes to teacher A’s translanguaging practices and the creation of a humorous context in the classroom interaction.

*Extract 3: Using a student-initiated playful comment to facilitate teaching*

Extract 3 illustrates how teacher A creatively appropriates student 13’s playful comment to draw students’ attention to the mathematical terms. It can be seen as playful talk is integrated into the teaching of content-relevant topic. This extract is extracted from the secondary four class. Prior to the extract, teacher A was explaining the mathematical question which required students to find the number of children using the quadratic equation. While teacher A was explaining, teacher A mistakenly pronounced the word ‘children’ as /ˈtʃɪln.dən/ (i.e. missing the ‘r’ sound) and student 13 identified teacher A’s mistake by repeatedly initiating teacher A’s wrong pronunciation. However, teacher A ignored student 13’s uninvited responses and he continued to carry out his teaching. In this extract, student 13 interrupted teacher A’s instruction in order to challenge his English accent.
S?: minus
02 (0.5)
T: +very good minus (0.7) okay?
  +T nods
04 +(1.0)
  +T writes ‘—’ on the BB
05 T: +冇理由加㗎嗎 (.) 減㗎嘛 okay? is okay?
  (tr. it is not possible to add right?)
  +T directs his gaze to the students
06 (1.4)
07 T: +so do you know how to construct this kind of table?
  +T walks to the LHS of the BB
08 (1.0)
09 T: +so first of all +again (0.4) okay (0.5) revise lah+
  +T rotates his RH continuously---+
  ---+

10 (0.5)
11 T: +find the number of children+ in the original group
  (/ˈtʃɪld/)
  +T points at the sentence ‘find the number of children’ on the screen ---#1
  ---+

Figure #1

12 (0.2)
13 S13: 唉↑=
14 T: =will be the unknown that l want to find
15 (0.4)
16 T: +that's why I set $x$ to be +that unknown+

+T points at the students

+T points at ‘children’ on BB #2

17 S13: =chil chil (0.2) 乜嘢

(/ˈtʃɪl/) (/ˈtʃɪl/)  

(tr. what??)

18 (0.5)
19 T: okay?
20 (0.5)
21 S13: [chil chil chil children]

(/ˈtʃɪl/) (/ˈtʃɪl/) (/ˈtʃɪl/  (/ˈtʃɪl.dən/)

22 T: [and then +try to find (0.5) something new]

+T points at the table on BB #3
23 (0.6)
24 T: related to the question
25 (0.9)
26 T: okay↓
27 (0.2)
28 S13: \[ + (\text{NAME-}T) = \]
\[ +T \text{ looks at } S13 \]
29 T: =yes?= 
30 S13: =你個印度老師仲有冇教你啊 \((\text{tr. is your Indian teacher still teaching you?})\) 
\[ + (1.5) \]
31 \[ + \text{T shifts his gaze to window} \]
32 T: +冇啦 \((\text{tr. no})\) 
33 (.)
34 S13: 你個教授 \((\text{tr. your professor})\) 
35 (0.9)
36 T: what’s wrong with him?
37 (0.2)
38 S13: 你真係獲得佢真傳 =
         ((tr. you really have acquired all the skills from him))
39 Ss: (giggling)
40 +(0.7)
     +T nods
41 T: thank you very much okay? and=
42 (0.6)
43 S13: pass 完 ah ha↑
         ((tr. finish))
44 (0.7)
45 T: $the↓ the↓ number↓ of↓ sweet↑ per↓ children↑$ (. ) okay?
         (/ˈtʃɪldən/)
46 (0.2)
47 Ss: hahaha
48 (0.2)
49 T: +something like that okay?
     +T walks to the middle of the BB
50 (0.6)
51 T: then how to solve this +problem↑?
     +T writes ‘=’ on BB
52 (0.5)
53 T: just like the previous question (0.4) fractional equation
    +T points at the ‘=’ sign on BB

54 (0.9)
55 T: fractional equations (. ) we can +convert it to become a
    +T rotates his RH

56 (0.7)
57 T: qua↓dra↓tic↓ equation?
58 Ss: =hahahaha
59 (0.3)
60 T: okay?
61 (1.1)
62 Ss: hahahaha
63 (0.3)
64 T: 得唔得先
       ((tr. is it okay))
65 (0.2)
66 Ss: hahaha
67 (0.2)
68 S13: $掉你出去$
       ((tr. throw you out))
69 +(1.5)
6+T smiling
70 T: okay? (0.5) >+make it to become quadratic equation<
    +T enacts a throwing motion (T extends his RH index finger and
    RH started from behind his right shoulder and then goes upward
    and forward all the way, arm fully stretched, towards the table on
    BB)

71 (0.2)
Note that student 13’s talk switches the mode from direct instruction to playful talk micro-context by launching a side-sequence (lines 28-69). After teacher A utters ‘okay↓’ (line 26) which potentially signals his preparation for the next turn, student 13 utters teacher A’s name (line 27) which can be seen as an attempt to open another round of talk. Teacher A responds to student 13 by uttering ‘yes?’ in line 29 which invites student 13 to initiate her question. Student 13 immediately initiates a question in Cantonese, ‘你嘅印度老師仲有冇教你啊 (is your Indian teacher still teaching you?)’ (line 30). During the 1.5-second pause, teacher A directs his gaze to the windows on his left-hand side, possibly thinking about student 13’s question. Teacher A then responds in Cantonese with a negative response, ‘冇啦 (no)’ in line 32. In line 34, student 13 repairs her question in line 30 by saying ‘你個教授 (your professor)’ in order to specify the status of the Indian teacher. Teacher A then employs English to initiate a question to student 13, ‘what’s wrong with him’ (line 36). Student 13 responds to teacher A by making a humorous comment, ‘你真係獲得佢真傳 (you really have acquired all the skills from him)’ (line 38), which immediately leads to laughter from the students (line 39). Here, it is evidenced that student 13 is indirectly criticising teacher A’s pronunciation through comparing teacher A with his Indian professor. By doing so, teacher A’s pronunciation is considered as the equivalent of Indian English pronunciation. At the same time, this also reflects student 13’s implied ideology that accents are placed on a hierarchy (e.g. Fang, 2016) and Indian-English accent is perceived by student 13 as inferior and unintelligible. Although student 13’s comment in line 38 can potentially be perceived as offensive, teacher A simply nods in line 40 and utters ‘thank you very much okay?’ in line 41 to acknowledge student 13’s comment. In line 43, student 13 takes the opportunity to make an additional comment using both English and Cantonese. Here, the literal meaning of the phrase, ‘pass 完’, refers to the completed act of passing something. However, it has a figurative meaning behind this message.
Similar to line 38, student 13’s comment aims to criticise teacher A’s pronunciation by justifying that teacher A has acquired the Indian English accent from his Indian professor. Student 13 bursts into laughter, ‘ah ha↑’ afterwards as she treats her comment as laughable. However, other participants in the class have not treated this moment as laughable as indicated in the 0.7-second pause in line 44.

From lines 45-57, it is noticeable that teacher A is not offended by student 13’s sarcastic statements regarding his ‘Indian-like’ English accent. Rather, teacher A uses this as an opportunity to create a jocular learning environment for students. In line 45, teacher A appropriates an Indian-like English accent to read out part of the mathematical question. As evidenced in line 45, teacher A alters his intonations throughout his utterance: ‘the↓ the↓ num↓ber↓ of↓ sweet↑ per↓ chil↓dren↑’. Such an intonation pattern is audibly different from the way teacher A usually pronounces English in class. For instance, teacher A adopts a normal intonation when uttering ‘the↑ num↑ber↑ of↓ chil↑dren↓’ in line 11. This translanguaging practice allows teacher A to construct a performance of Indian-like English accent in response to student 13’s sarcastic comments. The smiley voice in line 45 also shows teacher A own treatment of his pursuit as somewhat playful. Not surprisingly, teacher A’s imitation of an Indian-like English accent is received with laughter from the class (line 47).

After a 0.6-second pause (line 50), teacher A subverts the intonation again when uttering ‘pro↓blem↑’ (line 51) to elicit responses from students. Normally, teacher A pronounces the word ‘pro↑blem↓’ with rising intonation in the first syllable and falling intonation in the second syllable. Since no student responds to teacher A’s question in line 52, teacher A then provides the explanation to students using his normal tone in lines 53-55. Note that after a micro-pause in line 55, teacher A utters ‘we can convert it to become a’. Here, it becomes clear that teacher A’s utterance is considered as a designed-incomplete utterance since teacher A invites students to complete the utterance for teacher A. As no one responds in line 56, teacher A provides the answer to students in a playful manner through subverting his intonation, ‘qua↓dra↓tic↓ e↓qua↓tion?’ (line 57). Teacher A’s utterance is treated as playful by the students themselves as captured in the laughter in line 58. Although teacher A switches between codes (i.e. English, ‘okay?’ in line 60, and Cantonese, ‘得唔得先 (is it okay?)’ in line 64) to check students’ understanding, students continue to laugh in lines 62 and 66 respectively. It is also noticeable that student 13 utters in Cantonese, with a smiley voice, that she wants to throw teacher A out of the classroom, ‘$掉你出去$ (throw you out)’ (line 68). Teacher A is smiling during the 1.5-second pause in line 69 which potentially indicates that teacher A treats student 13’s comment as humorous. After initiating a pre-closing ‘okay’ in line 70, teacher A switches the pace of his talk by speaking quickly and he asks students to reduce the fractional equation to a quadratic equation. Here, teacher A adopts the
‘standard’ intonation to pronounce the phrase ‘qua↓dra↑tic↑ eq↓ua↑tion↓’ which is obviously different from line 57. By doing so, teacher A switches the mode from playful talk back to direct instruction in order to switch the focus on giving mathematical advice to students.

During the post-stimulated-recall-interview, teacher A describes his own teaching after watching the video-clip:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
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<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>36 T: what’s wrong with him?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37 (0.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38 S13: 你真難過很難過=</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>((tr. you really have acquired all the skills from him))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>39 SS:  ((giggle))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 + (0.7)</td>
<td>+ T nods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41 T: thank you very much okay? and=</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>42 (0.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43 S13: pass ☻ ah ha ↑</td>
<td>((tr:finish))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>44 (0.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45 T: the number of sweet per children $($) okay?</td>
<td>('tjfd,son')</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46 (0.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>47 SS: hahaha</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48 (0.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>49 T: something like that okay?</td>
<td>+ T walks to the middle of the BB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 (0.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51 T: then how to solve this problem ↑?</td>
<td>+ T writes '=' on BB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52 (0.5)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

T: 教呢啲 topics (pause) 我覺得做數數時候會有啲誇張，即係所以咪。加少少有趣啲就當係去囉 (tr. Oh. Teaching these topics. (Pause) I felt like it was a bit boring when I was only solving mathematical problems. So that’s why I tried to make it more interesting)

K: um

T: 唔，但係，覺得印多式極英文
| 有趣味講下印度式嗡

英文囉，但咖又聽得

明，其實我又唔會影

響到佢喇啲發音，即

係我深信啲會影響到

佢喇啲發音，hahaha

(tr. That means. They thought that Indian-like English accent was interesting. So, I tried to use Indian-like English accent in my speech. They could understand what I was talking about. And to be honest I won’t affect their acquisition of the English pronunciation. That means, I strongly believe that my English accent would not affect their acquisition of English pronunciation. Hahaha)

K: hahaha

T: 咁所以我就嘅，嘅。

咁嘅講嘅，但係，

即係佢嘅會，好，好

願意聽個字嘅，即

係，好似 quadratic
equation↑，咁樣嘅嘅

呢，佢就系，啊，佢

Additionally, he suggested that it could create a jocular classroom atmosphere so that students might not feel bored during the lesson.

T switched the footing by imagining himself as his students and voicing out their reactions
<table>
<thead>
<tr>
<th>就會好留心，如果唔係平時我就唔係</th>
<th>Highlighting his deliberate act of imitating a form of pronunciation which was audibly different from the way he usually pronounced English.</th>
</tr>
</thead>
<tbody>
<tr>
<td>highlighting an English accent as a way to draw students’ attention and create a humorous classroom atmosphere.</td>
<td>Imitating an Indian-like accent as a way to draw students’ attention and create a humorous classroom atmosphere.</td>
</tr>
<tr>
<td>(English translation: So, they would be willing to listen to this word. This means. Like quadratic equation, something like this. They would be. Oh. They would pay more attention. Otherwise if I simply pronounced it as quadratic equation, they might not pay any attention on</td>
<td></td>
</tr>
</tbody>
</table>
Table 5.3: Video-Stimulated-Recall-Interview (Extract 3)

53 T: just like the previous question (0.4) fractional equation
     +T points at the '=' sign on BB
54 (0.9)
55 T: fractional equations (.) we can convert it to become a
     +T rotates his RH
56 (0.7)
57 T: quadratic equation?=
58 Ss: hahahaha
59 (0.3)
60 T: okay?
61 (1.1)
62 Ss: hahahaha
63 (0.3)
64 T: 得唔得先
     ((tr. is it okay))
65 (0.2)
66 Ss: hahaha
67 (0.2)
68 S13: $掉你出去$
     ((tr. throw you out))
69 +(1.5)
     +T smiling
70 T: okay? (0.5) >make it to become quadratic equation<
     +T enacts a throwing motion (T extends his RH index finger and
     RH started from behind his right shoulder and then goes upward
     and forward all the way, arm fully stretched, towards the table on
     BB)
71 (0.2)

It. But no. They. They would. They would want to hear problem any
problem. Oh. Oh. So, the teacher pronounced the word problem as
problem. So at least the students would be able to recognise the
'standard' pronunciation of the two words. So, they would be interested
to know how I could do this, and they would also find it more interesting.
Yes, that's it. I tried to make the lesson not as boring as possible. Yes, I
aimed to prevent boredom. That's it.)
It is noticeable that teacher A switches the footing by imagining himself as his students and voicing out their reactions, ‘嘥 pro↑blem↓佢讀咗 pro↓blem↑嘥樣 (Oh. Oh. So, the teacher pronounced the word pro↑blem↓ as pro↓blem↑)’ in order to illustrate his belief that the students will notice teacher A’s unusual way of pronouncing the English words. Additionally, he suggests that it can create a jocular classroom atmosphere so that students may not feel bored during the lesson. As shown in lines 47 and 58 of the interaction, teacher A’s utterances are received with laughter from the students and they treat these utterances as playful. During the interview, teacher A also compares his normal pronunciations, ‘qua↓dra↑tic↑ eq↓ua↑tion↓’ and ‘pro↑blem↓’, with his imitation of Indian-like English pronunciations, ‘qua↓dra↓tic↓ eq↓ua↓tion↑’ and ‘pro↓blem↑’. This highlights his deliberate act of imitating a form of pronunciation that is audibly different from the way he usually pronounces English. As shown, teacher A’s pedagogical belief plays a role in shaping his translanguaging practices to construct the sense of playfulness in the classroom in order to achieve his pedagogical goals.

The researcher is curious whether teacher A has prior exposure to Indian English accent and teacher A is invited to explain:

“01 K: hahaha 好 (pause) 係係我都覺得好 interesting 嘅同係，你，你去嘗試去 imitate 一個 accent 出嚟，而個 accent 是，你其實識唔識印度口音啲唔啲，你係 (tr. Hahaha. Right. (pause) But I think the most interesting bit is that you were trying to imitate an accent. And that accent was. To be fair, have you actually learnt Indian-English accent? Or do you simply…)

02 T: 唔識嘅，唔係，但係但係，以前因為，即係大學嘅時間有啲有啲 professor 印度人喺喺嘅 (tr. I don’t really know Indian English accent. But when I was at university, there were several Indian professors)

03 K: 真嘅 ? (tr. really?)

04 T: 真嘅 (tr. of course)

05 K: hahaha
In this interview excerpt, teacher A justifies that he had some exposure to Indian English, and he has identified some features of Indian English when he was a university student listening to an Indian professor’s lecturing. It is noticeable that teacher A imitates the way his Indian professor pronounced English words: ‘do↓ you↓ un↓der↓stand↑’. His prior exposure to Indian English shapes his belief that as long as the intonations are mixed up in a word or sentences, then it will be considered as Indian English. In this case, teacher A brings in his acquired knowledge of the Indian-English accent and appropriates it in the lesson in order to create a humorous effect.

Hence, it is noticeable that the EMI teacher’s and students’ translanguaging practices adopt specific interactional features, such as appropriating Indian-like English accents, switching between ‘standard’ and ‘non-standard’ intonations and imitating teacher’s English pronunciation, which shapes the creation of the playful talk.

5.4 Playful Talk for Promoting Meaningful Communication

In the whole dataset, three instances are identified which involves the teacher and students engaging in extended discussions which may not have direct relevance to the content subject. The playful talk in Extracts 3 and 4 are typical examples which reflect this feature. Extracts 4 and 5 are also extracted from the secondary three mathematics classroom dataset and this class was taught by teacher A. These extracts are different from the playful talk which were analysed in the previous extracts since the interactions in the previous extracts have the pedagogical goals of promoting content-related learning. Rather, the pedagogical goals in the following examples aim to promote communication with the students so that the interaction values the students’ ideas and expressions of their life experiences.
Extract 4: Drawing on the limited linguistic knowledge of Mandarin

Prior to the extract, teacher A read out the mathematical question that students needed to solve. After reading aloud the question, teacher A initiated a question by using rhyming words at the end of each sentence to create a rhyming effect. However, when he uttered the last sentence, he could not think of an appropriate rhyming word/phrase that could be used at the end of the sentence. This led to students’ laughter in the classroom. Student 12 then asked teacher A whether he was able to pronounce ‘我覺得不行 (I don’t think so)’ in Mandarin. In this extract, it is evidenced that teacher A and students are engaging in discussions about teacher A’s ability in pronouncing a Mandarin phrase.

54 T: 我 (1.0) haha 俾我谂谂先(.) 俾我冷靜啲先(.) +要讀個普通話=

((wō))

((tr. I)) ((tr. let me think about it)) ((tr. let me claim myself down)) ((I need to say it in Mandarin))

+T holds his arms in parallel
+T moves his arms upward and downwards horizontally---->+ #8
55  T: =我唔可以諗+ (0.2) 我一諗我唔識讀
    
    ((tr. I can’t think)) ((tr. If I think about it then I can’t pronounce it))
    
    --->+

56  (0.4)
57  T: +我覺 (0.3) 我 (0.2) [我+]
    
    ((wó jue)) (( wó)) (( wó))
    
    ((tr. I think)) (tr. I) ((tr. I))
    
    +T points at S1-->
    
    --->+

58  Ss:
    [+hahahahaha]

59  (0.7)
60  T: + (NAME=S3)

    ((pronouncing S3’s name in Mandarin))
    
    +T looks at S3 and points at S3

61  +(1.2)

    +T first points at S3 and then moves his index finger towards himself #9
62 S3: 什麼
((shén me))
((tr. what))
63 (0.8)
64 T: 告訴我
((gào sù wǒ))
((tr. tell me))
65 (0.2)
66 S3: 我覺得不行啊
((wǒ jué de bù xíng ā))
((tr. I don’t think so))
67 (0.4)
68 T: +我 (.) 我覺得 (0.5) 不行
((wó))
((tr. I))
((tr. I don’t think so))
+T turns his body to face directly at S3
69 (0.3)
70 S3: 我覺得不行
((wǒ jué de bù xíng))
((tr. I don’t think so))
71 T: 我 (0.2) +我 (0.2) [+我 (0.5) +我 (0.3) +覺得]
((wó))
((wó))
((wó))
((wó))
((juě de))
((tr. I))
((tr. I))
((tr. I))
((tr. think))
+T raises his RH upward to his face
+T extends his index finger and points to the top #10
+T raises his RH upward, above his head
+T raises his RH to his face, index finger pointing to his left
+T moves his RH across his body to his left #11
+T slants his index finger downward towards his left #12

72 S3: [我覺得不行]
((wǒ jué de bù xíng))
((tr. I don’t think so))
In response to student 12’s question, teacher A attempts to use Mandarin by saying ‘我 (wǒ) (i.e. I)’ (line 54). However, teacher A discontinues uttering his responses and he then switches back to Cantonese to explain to the students that he needs time to process the Mandarin pronunciation. Although teacher A attempts to utter in Mandarin in line 57 to respond to student 1’s comment, teacher A fails to construct a proper sentence as evidenced in the repetition of ‘我 (wǒ)’ and the short pauses in between the utterances, ‘我覺 (wǒ jue) (i.e. I think) (0.3) 我 (i.e. wǒ) (I) (0.2) 我 (wǒ) (i.e. I)’ (line 57). As shown in line 58, teacher A’s truncated Mandarin utterances are received...
with laughter from students.

However, teacher A has not given up on using Mandarin in the classroom. Teacher A specifically selects student 3 as the next speaker by announcing her name in Mandarin in line 60 and pointing at student 3 (figure #9, line 61). It is important to note that student 3’s first language is Mandarin, and she and her family are migrants from mainland China (Teacher A’s pre-interview). Teacher A then makes a request to student 3 in line 64 by saying ‘告訴我 (tell me)’ in Mandarin. By asking student 3 to inform him the correct way of uttering ‘我覺得不行’ in Mandarin, teacher A is treating student 3 as the linguistic expert who has the ability to repair his Mandarin pronunciation. In line 66, student 3 responds to teacher A’s request by offering the correct Mandarin pronunciation of the phrase, ‘我覺得不行啊 (wǒ jué de bù xíng ā)’. Teacher A takes the next turn and attempts to repeat student 3’s pronunciation in order to display his understanding in lines 68 and 71.

Notice that teacher A points to the top and raises his right-hand upward to his face when he utters ‘我 (wǒ)’ in line 71 (figure #10) in order to visually illustrate the high intonation of this word. Instantaneously, student 3 repeats the correct pronunciations again while teacher A is speaking in order to provide corrective feedback to teacher A (line 72). Teacher A continues to mispronounce ‘我’ and coincidentally employ an iconic gesture to represent the first tone in Mandarin (figure #11) (i.e. a horizontal line above the vowel). After a 0.3-second pause, teacher A slants his index finger down towards his left (figure #12) when he utters ‘覺得 (juě de)’. This iconic gesture is possibly referring to the fourth Mandarin tone (also known as a falling tone) but teacher A does not enunciate the words, ‘覺得 (juě de)’, in the fourth tone. Teacher A’s attempt at using Mandarin is immediately received with laughter from the students. Simultaneously, teacher A recognises his failure in enunciating the correct Mandarin pronunciations through smiles and bending over the desk (figure #13).

Based on teacher A’s self-reflection during the pre-interview, teacher A considers that his Mandarin proficiency is below average. In this extract, it can be seen that teacher A is translanguaging as he draws on his limited linguistic knowledge of Mandarin, accompanied by various gestures, to construct a humorous atmosphere in the classroom. He takes this opportunity to invite student 3, who has linguistic expertise in Mandarin, to participate in the classroom interaction. Typically, the linguistic codes (Cantonese and English) are mostly employed in the classroom. Hence, allowing student 3 to translanguage (i.e. drawing on her familiar language, Mandarin) in the classroom makes the meaning-making process much more inclusive and honours the diverse communicative resources available in the classroom. During the post-video-stimulated-recall-interview, teacher A comments on his use of Mandarin in the classroom:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
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<th>Teacher's Perspectives</th>
<th>Analyst's Interpretations of the Teacher's Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>54 T: 我 (l.o) hahaha 佢有個啲機○ 佢冇冇啲機○ →要講個普通話= ((w6)) ((tr. I)) ((tr. let me think about it)) ((tr. let me claim myself down)) (i need to say it in Mandarin) T holds his arms in parallel and downwards horizontally---&gt; #8</td>
<td>01 T: 完全係同個位，講幾句話，呢個位係 (tr. At that moment, I was having lots of fun with my students)</td>
<td>T's first impression was that he was having fun with his students at the moment of the classroom interaction.</td>
<td></td>
</tr>
<tr>
<td>02 K: hahaha</td>
<td>03 T: 應該，呢個位係 double lesson 未啊？ (tr. I think that was a double lesson, right?)</td>
<td>The pedagogical goal was to provide a break time for students.</td>
<td></td>
</tr>
<tr>
<td>04 K: 咁你咪呀 (tr. Yes yes)</td>
<td>05 T: 咁，所以就要有啲放 break 位；等個休息下，喺啦，應該喺佢一段時間先去發生呢啲事嘅，所以就同個位，輕鬆一下等個，轉轉腦筋啊 (tr. Right so that was why it was necessary to have a breaktime in order to allow them to take a rest. Right. I think it should have happened after a while. So that was why I tried to allow them to relax)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>06 K: ahh</td>
<td>07 T: 咁啦，啲啦，喺個位同個位玩下啲諸葛 (tr. Yes and that's why I was playing with them)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 5.4: Video-Stimulated-Recall-Interview (Extract 4)

T acknowledged the fact that students enjoyed teasing his Mandarin pronunciations.

T often used the phrases such as ‘take a break’ and ‘rest’ in Cantonese to reinforce the need for the students to take a break.

T seemed to understand his students’ ability as they could not focus doing mathematics throughout the whole double lesson.

T allowed students to laugh at him and used it as a strategy to befriend with his students and promote a jocular classroom environment.
Teacher A comments that he is having fun with his students and suggests that his pedagogical goal is to provide a break time for students. It is noticeable that teacher A often uses phrases, such as ‘take 過 break (take a break)’ and ‘休息 (rest)’, in Cantonese to reinforce the need for the students to take a break. This is possibly because the students in this class are low performers in mathematics. Teacher A seems to understand his students’ ability as he is aware that the students will not be able to concentrate during the mathematics double lesson which lasts for 90 minutes. Hence, taking a break can allow students to momentarily move away from mathematics. Additionally, teacher A acknowledges the fact that students enjoy teasing his Mandarin pronunciations. Particularly, teacher A’s words, ‘咁所以我咪比佢哋笑下，開心下 (So, I allowed them to laugh at me and enjoyed the laugh)’, further reiterate his casual attitude towards the students’ laughter. Hence, it is possible that teacher A’s motivation to befriend his students contributes to the creation of a translinguaging space which allows students to engage in translanguaging, and promotes a jocular classroom environment for students to relax.
Extract 5: Raising the issue of Linguistic Discrimination

Extract 5 is the immediate continuation of Extract 4. After the students’ laughter in line 76, teacher A switches back to English and draws students’ attention back to part b of the mathematical question (line 78). In this extract, teacher A notably translanguages by drawing on his full linguistic repertoire (i.e. imitating a foreigner’s Cantonese accent, using his limited Mandarin proficiency and L1 Cantonese) to construct a humorous classroom environment which does not only promote genuine communication with students, but also promote the examination of social issues including linguistic discrimination.

77 (2.7)
78 T: +唉 sh↑(0.3) coming back (0.2) +okay [(0.2) b]
       ((tr. ugh))
     +T looks at the screen
     +T points at the question on the screen

79 S1:
     年來西亞嘅普通話
     ((tr. Malaysian-style Mandarin))

80 (0.3)
81 T: +乜嘢馬來西亞啊 (1.3) +本土係咁樣嘅啦
       ((tr. what do you mean by Malaysian)) ((tr. this is how a local speaks))
     +T looks at S1
     +T points at S1

82 (1.5)
83 S1: 對↑啊↑ (0.5) 不↑行↑ 啊↑
       ((duì ā)) ((bù xíng ā))
       ((tr. yes)) ((tr. not okay))

84 (0.4)
85 T: +係囉 (0.4) +香港人講普通話就係咁嘅啦
       ((tr. yes)) ((tr. this is how Hong Kong people speak Mandarin))
     +T looks at the question on the screen
     +T looks at the students

86 (1.2)
87 T: +okay (0.4) +你哋唔會笑啲外國人講中文嘅
       ((tr. you guys won’t laugh at the foreigners speaking Chinese))
     +T looks down and looks at the computer
     +T looks up and points at the students

88 (0.6)
89 T: +我哋都唔知
       (([o1] [di6] [do1] [m4] [diː/])
       ((tr. we have no idea))
     +Imitate foreigner’s Cantonese accent

90 (0.2)
91 T: 佢哋你哋覺得好可愛嘅喎
       ((tr. you guys think that they are very cute))

92 (0.2)
While teacher A is specifying the sub-question ‘b’, student 1 speaks concurrently and criticises teacher A’s Mandarin as ‘馬來西亞啲普通話 (Malaysian-like Mandarin)’. Student 1 continues
to criticise teacher A’s Mandarin in line 83 by switching his speech to Mandarin and uttering the words with high intonation, ‘對啊↑ (yes) (0.5) 不行↑啊↑ (not okay)’, possibly in order to imitate teacher A’s flawed Mandarin pronunciation. In line 85, teacher A justifies his Mandarin pronunciation by explaining that ‘香港人講普通話就像咁嘅啦 (this is how Hong Kong people speak Mandarin)’. Subsequently, teacher A makes a comment in Cantonese, ‘你哋唔會笑啲外國人講中文嘅嘅 (you guys won’t laugh at the foreigners speaking Chinese)’ (line 87). By criticizing the students’ views, teacher A switches the focus of the discussion (i.e. teacher A’s Mandarin discussion) to students’ perceptions about the way foreigners speak Chinese.

Interestingly, teacher A creatively imitates a foreigner’s Cantonese accent by altering his Cantonese intonations, ‘我哋都唔知 (we don’t know) (Yale Cantonese Romanization: [o1] [dei6] [do1] [m4] /dʒiː/’) (line 89), in order to portray himself as a foreigner who does not speak Cantonese. Such an appropriation of a foreigner’s accent is obviously different from the way teacher A normally speaks Cantonese in the lessons. Teacher A continues his talk in line 91 by voicing aloud the students’ perception, ‘佢哋你哋覺得好可愛嘅嘅 (you guys think that the foreigner’s Cantonese accent is cute)’. Through creating a performance of an ‘acceptable’ Cantonese accent in line 89, teacher A aims to allege accent discrimination. In line 93, teacher A initiates a rhetorical question to prompt students to reflect on their perceptions of different accents, ‘點解你哋唔可以用另外一個方法你覺得好可愛呢? (why can’t you try to use another way to perceive that as cute?)’. After a 0.2-second pause, teacher A utters the Mandarin phrase, ‘我覺得不行’, again and he mispronounces 我(wó) in this instance. By uttering the Mandarin phrase in this way, teacher A is possibly affirming his HK Mandarin accent. However, student 3 uses Cantonese to criticize teacher A for not being ‘cute’ from her perspective (line 101). Teacher A immediately turns his body to face at student 3 and asks ‘為什麼啊 (why)’ in Mandarin. Teacher A’s utterance is also marked with a loud voice as well as the exaggerated non-verbal gesture of dropping his hand (figure #14) in order to playfully enact his frustration towards student 3’s criticism. Teacher A’s reply is treated by the class as laughable, as shown by the laughers in the next turn (line 103).

As demonstrated in Extract 5, the playful talk momentarily becomes a translanguaging space which encourages open discussions between teacher A and the students to identify their own biases and critically reflect on them. During the post-video-stimulated-recall-interview, the researcher is wondering what motivates teacher A to have the classroom discussion about linguistic discrimination:
<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>77 (4.5) T: +eh (0.3) coming back (0.5) +okay (0.3) b</td>
<td>01 K: I knew you didn't understand. You didn't understand why I was asking you questions when I was speaking. You were speaking to me, but my questions were not clear. The teacher had not explained the question on the screen. He was pointing at the question on the screen. T looks at S1.</td>
<td>Other than promoting a jocular classroom atmosphere, did the teacher have another pedagogical goal in mind?</td>
<td></td>
</tr>
<tr>
<td>78 T: +eh (0.3) coming back (0.5) +okay (0.3) b</td>
<td>02 T: Sometimes, when I don't understand something, I will ask my classmates. So, when I didn't understand the question, I asked my classmates.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>79 S1: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>03 K: I think the teacher was trying to be humorous, but the students didn't understand the joke. The students were pointing at S1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80 (0.3) T: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>04 K: I think the teacher was trying to be humorous, but the students didn't understand the joke. The students were pointing at S1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>81 T: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>05 K: I think the teacher was trying to be humorous, but the students didn't understand the joke. The students were pointing at S1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>82 (2.5) T: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>06 T: At the moment when the students were trying to achieve something, other than making jokes, do you think the students had another goal in mind? That is, did you want your students to understand this issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>83 S1: 不 (0.5) not (0.5) +行 (0.5)</td>
<td>07 T: At the moment when the students were trying to achieve something, other than making jokes, do you think the students had another goal in mind? That is, did you want your students to understand this issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>84 (0.4) T: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>08 T: At the moment when the students were trying to achieve something, other than making jokes, do you think the students had another goal in mind? That is, did you want your students to understand this issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>85 T: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>09 T: At the moment when the students were trying to achieve something, other than making jokes, do you think the students had another goal in mind? That is, did you want your students to understand this issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>86 (1.2) T: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>10 T: At the moment when the students were trying to achieve something, other than making jokes, do you think the students had another goal in mind? That is, did you want your students to understand this issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>87 T: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>11 T: At the moment when the students were trying to achieve something, other than making jokes, do you think the students had another goal in mind? That is, did you want your students to understand this issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>88 (0.6) T: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>12 T: At the moment when the students were trying to achieve something, other than making jokes, do you think the students had another goal in mind? That is, did you want your students to understand this issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>89 T: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>13 T: At the moment when the students were trying to achieve something, other than making jokes, do you think the students had another goal in mind? That is, did you want your students to understand this issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90 (0.2) T: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>14 T: At the moment when the students were trying to achieve something, other than making jokes, do you think the students had another goal in mind? That is, did you want your students to understand this issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>91 T: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>15 T: At the moment when the students were trying to achieve something, other than making jokes, do you think the students had another goal in mind? That is, did you want your students to understand this issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>92 (0.2) T: +馬來西亞語 (0.3) +本土語 (0.5)</td>
<td>16 T: At the moment when the students were trying to achieve something, other than making jokes, do you think the students had another goal in mind? That is, did you want your students to understand this issue?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 93 | T: +點解你咁啱可以用另外一個方法你覺得好啲喃? ++
   | ((tr. why can't you try to use another way to perceive that as cute))
   | +T cups RH and moves slightly upwards and downwards repeatedly -->
   
| 94 | (0.2) |
| 95 | Ss: hahahah |
| 96 | (0.5) |
| 97 | T: +係咪先
   | ((tr. right))
   | +T’s RH palm faces upward |
| 98 | (0.2) |
| 99 | T: 我覺得冇行
   | ((tr. I don’t think so))
   | ((wǒ jué de bù xíng)) |
| 100 | (0.3) |
| 101 | S3: +係咪你話可愛啲喃= 
   | ((tr. but you are not cute))
   | +T smiles and looks at S3 |
| 102 | T: =為什麼啊=
   | ((wèi shén me ā))
   | ((tr. why))
   | +T turns his body, facing S3 #14
   | +T drops his hand from his waist level to his leg position #14 |

---

| Figure #14 |

103 | Ss: hahahahaha=

---

T also briefly recounted his experience of being teased because of his poor Mandarin proficiency.

---

T shifted the footing by imagining himself as his students and voicing out their reflections.

---

own biases.

discrimination.

T cited an example of a foreigner speaking Chinese

T’s shift of footing was possibly imitating the words
Table 5.5: Video Stimulated Recall Interview (Extract 5)

| 05 K. 男人閹了  
(tr. you will be criticized too) | 06 T. 是嘛，真是有咁，歧视  
(tr. Yes. That’s really. That’s discrimination. Right?) |
| 07 K. 你呀  
(tr. Yes) | 08 T. 是嘛，歧视，所以所以，   
(tr. Discrimination. Yes. That’s why. Yes. You guys needed to think about this issue. I believe.) |
|  | and people tended to appreciate their effort in speaking Chinese as their L2.   
that were enunciated by the person that he knew and the ‘friend’ that he mentioned was possibly the friend of that unknown person → portraying the positive perception that typical people had on foreigner speaking Cantonese. |
In order to make sense of teacher A’s pedagogical goals, the researcher asks teacher A to explain whether he has another pedagogical goal in mind for having a class discussion about his ‘non-standard’ Mandarin pronunciation. Teacher A then states that he wants to prompt students to reflect upon their own biases. Such a reflection confirms the MCA analysis that teacher A creates playful talk in order to allow students to reflect on the issue of accent discrimination. Teacher A also briefly recounts his experience of being teased because of his poor Mandarin proficiency. Such an incident motivates him to think about the issue of linguistic discrimination. It is noticeable that teacher A shifts the footing by imagining himself as his students and voicing out their reflections: ‘咁樣笑我都好似唔係好合適喎 (Oh. Laughing at me in this manner. It might not be the most appropriate action)’. This shift of footing illustrates teacher A’s expectations that his students will reflect upon their behaviour. In the interview, teacher A shifts to an unknown person’s voice when he says: ‘我朋友好有趣呀講，學人講廣東話 (My friend is so interesting. He is trying to speak Cantonese)’. By imitating an unknown person’s voice, teacher A attempts to portray the perception that people typically hold about foreigners speaking Cantonese. Hence, it is argued that the translanguaging space, which is created by teacher A, is shaped by teacher A’s personal experience and his own reflection regarding this social issue.

5.5 Summary

In this chapter, the analysis of the extracts has revealed that translanguaging can be used as a critical resource for constructing playful talk which allows the teacher to achieve his pedagogical goals. The sequential analysis of the interactions has demonstrated that playful talk can be constructed for facilitating content learning (Extracts 1, 2 and 3) and promoting meaningful communication between the teacher and students (Extracts 4 and 5). In all cases, playful talk is oriented to by the classroom participants as humorous (Waring, 2013). A range of specific pedagogical goals can be achieved through playful talk, including establishing an imaginary context, circumventing possible limitations in comprehending abstract or complex explanations and discussing social issues. Similar to prior studies (e.g. Broner and Tarone, 2001; Warner, 2004; Waring, 2013; Tai and Brandt, 2018), interactional features in playful talk are identified in this paper which includes adopting an informal register, exploiting unusual lexical items, laughers and playfully initiating uninvited responses. In Extract 1, the teacher creatively employs linguistic resources, including Cantonese rhyming words, repetition and an English technical term, to form a mnemonic and deploys gestural resources to visually illustrate the meaning of the mnemonic to the students. In Extract 2, the teacher skillfully shifts footing in order to enact a discourse identity (i.e. the imagined person going hiking) which creates an imaginary context to facilitate students’
understanding of the mathematical concepts. In Extract 3, teacher A draws on the student-initiated playful comments to create a humorous effect to facilitate his content teaching. Engaging in playful talk at that moment of interaction allows the teacher to adopt various interactional features, such as bantering register, exploiting unusual English accents, to create a jocular classroom atmosphere, highlight key technical terms and develop positive rapport with students. In Extract 4, the teacher deploys his limited Mandarin repertoire to respond to the student-initiated playful comments as a way to offer a space for students to take a break from doing mathematical questions. Extract 5 also demonstrates how teacher A and students engage in extended discussions about accent discrimination. Particularly, teacher A shifts footing to facilitate his portrayal of a discourse identity as a foreigner who cannot speak Cantonese in order to promote the examination of this social issue.

With regard to how does the teacher make sense of his use of translanguaging in creating playful talk, the analysis of the video-stimulated-recall-interview has demonstrated that translanguaging does not only enable the teacher to bring together multiple linguistic and multimodal resources to construct meaning. It enables the teacher to bring his prior life experience as a student (Tables 5.1, 5.2 and 5.3), his personal interest in adopting particular linguistic features (Extracts 1 and 3) and his prior experience of being teased (Table 5.5) into the playful talk which contributes to the creation of translanguaging spaces in the classrooms (Li, 2011; Li, 2018). In addition to bringing along the teachers’ personal interests and his prior life experience to the classroom interactions, the findings further highlight that the teacher brings his various pedagogical knowledge and beliefs (e.g. knowledge of students’ academic and linguistic backgrounds, knowledge of scaffolding strategies and understanding of students’ personality traits) into his teaching. These are crucial factors to be considered in order to understand how the teacher creates a translanguaging space to achieve a range of pedagogical goals in playful talk.

Throughout the chapter, I have demonstrated that playful talk in the EMI classroom helps to create a translanguaging space which allows classroom participants to bring in a range of linguistic and multimodal resources and different kinds of knowledge into the lessons. It moves away from the typical view to EMI mathematics classrooms which provide limited opportunities for students to interact with the teacher (Tollefson and Tsui, 2014; Lo, 2014). Through playful talk in EMI classrooms, the participants transform the traditionally teacher-fronted interaction to negotiate a space for voicing their thoughts and create a more dynamic and contingent environment to facilitate students’ participation.
Chapter 6 — Analysis: Connecting Students’ Out-of-School Knowledge and Experience through Translanguaging

6.1 Introduction

This chapter contributes to a well-established line of applied linguistics research in educational contexts on how teachers can make connections between their students’ out-of-school knowledge and experiences and what they learn in school in order to promote students’ classroom participation and facilitate understanding of the content (e.g. van Lier, 1996; Cazden, 2001; Young and Miller, 2004; Markee, 2005; Baynham, 2006). In order to conceptualise the act of the teachers bringing the accumulated knowledge into the design of the teaching materials, Moll et al. (1992, p.133) use the term ‘funds of knowledge’ to refer to the ‘historically accumulated and culturally developed bodies of knowledge and skills essential for households and individual functioning and well-being’. Such funds of knowledge entail rich cultural and cognitive resources that can be deployed by the teacher in order to offer culturally responsive and effective pedagogical practices. Both the teacher and students can make use of these funds of knowledge in the classrooms in order to make the classroom more inclusive and engage in real-life meaning-making. Teo (2008) is one of the earliest scholars who builds on the idea of ‘funds of knowledge’ and adopts the notion of ‘outside-in’ in classroom discourse which involves the teacher bringing outside knowledge into the classroom interaction. Teo’s case study of English and social studies lessons in Singapore secondary schools shows that using various textual resources to connect the students’ background knowledge and experience with content knowledge can deepen the students’ understanding of the academic knowledge and make schooling a more meaningful experience.

A number of studies on English-for-Speakers-of-Other-Languages (ESOL) classrooms have also examined the benefits of ‘bringing the outside in’. Cooke and Wallace (2004), for example, provide evidence of the cultural, linguistic and life experience resources that ESOL learners bring with them into the classroom that facilitate learning and meaning-making. Likewise, Baynham’s (2006) analysis of adult ESOL classrooms illustrates that the students initiate uninvited responses and bring in their outside knowledge into the classroom, prompting the teacher to open up interactional space to the students and to respond to their needs accordingly. Similarly, Simpson (2011) explores the construction of identity in adult ESOL classrooms and his analysis demonstrates that creating a space for bringing outside knowledge into the classroom allows the students to affirm their identities and claim control of classroom discourse. A recent study by Tai and Brandt (2018) examines how an ESOL teacher employs embodied enactments to contingently explain vocabulary
to learners in an adult beginner-level ESOL lesson. The analysis illustrates that the teacher offers a verbal and physical representation of an imagined outside-of-the-classroom context, which helps students in the class to understand how the specific vocabulary items can be employed in specific contexts and thus bridging the gap between classroom interaction and real-life L2 use.

This chapter aims to expand the existing research on bringing the outside into the classroom to facilitate learning by examining EMI classes in HK, and with particular focus on how translanguaging practices (e.g. Garcia and Li, 2014) afford opportunities for teachers to bring the outside into the EMI classroom in order to support the students’ learning of new academic knowledge. This chapter argues that drawing on students’ familiar linguistic and multimodal resources and funds of knowledge through translanguaging enables the teacher to integrate the everyday life space into the EMI classroom learning space. It turns the classroom into a lived experience and broadens students’ perspectives. This chapter will first present the analysis of two extracts demonstrating how creating real-life scenarios are done through translanguaging (Extracts 1, 2 and 3). The chapter will then examine examples of utilising metaphors (Extracts 4 and 5) in order to bring outside knowledge into the classroom for facilitating content explanation.

6.2 Creating Real-Life Scenarios

In the dataset, seven instances are found which demonstrate how the EMI teacher draws on the shared knowledge between the teacher and the students, alongside with the multilingual and multimodal resources, to explain the mathematical meaning. Extracts 1, 2, and 3 are typical cases which reveal this interactional phenomenon. These extracts are drawn from the secondary three mathematics classroom dataset and the class was taught by teacher A (T).

Extract 1: Using Students’ Familiar Example to Construct an Imaginary Context

Extract 1 is an example of how teacher A deploys translanguaging to connect the real-life scenario of playing war games in order to assist students in understanding the mathematical question. Prior to the extract, teacher A read out the question in English which was projected on the screen (Image 2). This question requires the students to determine whether the aircraft will be detected by the radar within 50 kilometres. In this extract, teacher A translanguages and activates students’ prior understanding of computer war games through the use of English, Cantonese and multimodal resources (gestures and projector). In lines 30-45, teacher A mainly deploys colloquial Cantonese to engage in verbal talk with students in order to create a hypothetical scenario related to computer games. In lines 49-55, teacher A switches back to English to initiate a question and teacher A subsequently uses Cantonese to clarify the scenario with the students (lines 58-73). Teacher A
redirects the talk back to the question and draws on English and deictic gestures to connect the hypothetical scenario of a war game with the mathematical question.
30 T: 點樣先會 detect 到先=
   ((tr. how can it be detected))
31 S1: =係個範圍裏面
   ((tr. within the area))
32 (1.0)
33 T: 價啦 (0.4) 你哋打機打得多啲啦
   ((tr. yes (0.4) you guys often play computer games))
34 (0.2)
35 T: 個敵人行入你個圈喺範圍入邊你咪攻擊到佢啦係咪
   ((tr. when the enemy walks into your territory, you will then be able to attack them right?))
36 (0.4)
37 S3: 你有冇打邊啲呀?
   ((tr. have you attempted to play any computer games))
38 (0.5)
39 T: 哦姐 (0.3) 嘴嘅 (0.3) 嘴嘅 (0.2) 你哋打塔都係架
   ((tr. oh like (0.3) the (0.3) the (0.2) it's like you guys destroying the tower))
40 (0.4)
41 T: 你哋打 lol (0.7) 嘭 (.) 推塔
   ((tr. you guys were playing LOL (0.7) right (.) demolishing the tower))
42 (.)
43 S3: 我唔玩 lol 嘱
   ((tr. I don't play LOL))
44 (.)
45 T: 玩傳說嘅啲
   ((tr. playing games like Arena of Valor))
46 (0.2)
47 S3: 我唔玩傳說啲
   ((tr. I don’t play Arena of Valor))
48 (.)
49 T: 推塔嘅时候點啲 (0.4) okay? you will not walk okay
   ((tr. what do you do when you demolish the tower))
50 (0.5)
51 T: inside the
52 (1.2)
53 T: inside the circle of a tower right?
54 (0.5)
55 T: you will not walk inside right?
56 (0.5)
57 S9: "佢哋會用槍攻擊你喎喎"
("tr. they will use guns to shoot you")
58 T: =+[我知] ▲ 你會搵啲兵仔俾佢
("tr. I know you will deploy your army and let them")
+T looking at S9
59 S9: [hahaha]
59 (0.3)
60 T: $俾佢去食咗先$ (0.2) [然後你係 (0.2) 然後人去 (0.2) 佢任打] 你
("tr. let them be eaten first (0.2) then you (0.2) then go in (0.2) the enemy will continuously attack you")
61 S12: [阿 sir 你有玩㗎 (0.4) 你係唔係有玩㗎]
("tr. sir, have you played it before (0.4) have you played it before")
62 (1.0)
63 T: [佢係 (0.2) 多謝]
("tr. but (0.2) thank you")
64 S3: [佢有玩啦]
("tr. he has played it before")
65 (1.1)
66 S1: +*再唔係佢會打你先*
("tr. or else they will attack you")
+T looking at S1
67 (0.3)
68 T: 我知 (.) 唉=
("tr. I know (.) urgh")
70 S3: =我明白點玩啲
("tr. I know how to play it")
71 (0.2)
After teacher A accepts student 1’s response, teacher A makes a comment in Cantonese by predicting the students’ hobbies, ‘你哋打機打得多啲啦’ (you guys often play computer games) (line 33). By doing so, teacher A potentially signals to the class that his forthcoming verbal talk will relate to computer games. Teacher A then initiates a yes-no question (line 35) and such a question encourages students to imagine the situation where an enemy is invading their territories. In line 39, teacher A makes a comment about the nature of the war games which involves destroying a tower, ‘你哋打塔都係架’ (it’s like you guys destroying the tower). Teacher A continues his turns by providing examples of the war game, such as League of Legends (LOL) in
line 41 and Arena of Valour in line 45. By doing so, teacher A illustrates his awareness of the popular war games that are played by the students. Teacher A continues to elaborate on the real-life scenario by initiating a display question in Cantonese, ‘推塔嘅時候點啊 (what do you do when you demolish the tower) (line 49)’ in order to encourage students to foresee what will happen when they demolish a tower. After a 0.4-second pause, teacher A switches the linguistic code from Cantonese to English, probably because teacher A is orienting towards the English-only norm in the EMI classroom. He provides a yes-no question to prompt students’ thinking, ‘you will not walk okay’ (line 49) and ‘inside the circle of a tower right’ (line 53). This implies that when demolishing a tower, the students should not send their game characters into the war zone.

In line 57, student 9 raises an issue to identify the flaw of teacher A’s question, ‘佢哋會用槍攻擊你嘅 (they will use guns to shoot you)’. Such a statement challenges teacher A’s assumption that staying outside the circle of a tower does not guarantee safety since the enemy can use guns to attack the students’ respective characters in the game. Teacher A immediately deploys Cantonese to explain that students will use their army to defend themselves, ‘你會搵啲兵仔俾佢 (you will deploy your army and let them)’. In line 60, teacher A continues to use Cantonese to explain the strategies for dealing with the enemy. Note that teacher A also uses the metaphor of being eaten, ‘$俾佢去食咗先$ (let them be eaten first)’, in order to refer to the purpose of sending the army to the dangerous zone.

In lines 72-73, teacher A indicates his plan to redirect the topic of the talk back to the mathematical question. In line 77, teacher A draws the students’ attention to the radar on the screen by pointing at it (figure #1) when he utters ‘the tower’. By doing so, teacher A metaphorically compares the radar with the tower in the computer war games. Here, teacher A encourages students to draw on the real-life scenario, which was established in lines 30-70, in order to make sense of the mathematical question. In line 79, teacher A switches back to Cantonese to further construct the real-life scenario to facilitate understanding. Teacher A first encourages students to imagine the tower as a dangerous entity which will attack the students in the aircraft, ‘呢個塔會攻擊你嘅 (0.8) 駕機係出邊飛過 (this tower will attack you (0.8) an aircraft is passed by)’. After a 0.7-second pause, teacher A raises a yes-no question which prompts students to think about whether the tower will be able to attack the aircraft (line 79).

During the post-video-stimulated-recall-interview, teacher A comments on the purpose of using war games in Extract 1. Based on the teacher’s interpretations, it is evidenced that the teacher draws on his pedagogical belief and his awareness of youth culture in order to construct such a real-life scenario.
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall Interview Selected Excerpts</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 2: 學校在哪個 are detected? When?</td>
<td>01 K: 因為你其實，你其實</td>
<td>(tr. how can it be detected?)</td>
<td>The researcher was trying to make sense of the reason why T employs the example of computer games to facilitate content explanation</td>
</tr>
<tr>
<td>31 51: 什麼 當然 都會發生</td>
<td>01 K: 因為你其實，你其實，你其實同學學生嘛個年齡都唔係真係爭</td>
<td>(tr. what happened when?)</td>
<td>(tr. That is because the age difference between you and your students is not that wide. So, do you think that using this example can allow you to bridge the gap?)</td>
</tr>
<tr>
<td>32 (1.0)</td>
<td>好。</td>
<td>02 T: 會啊會啊。拉近啲距離好重要，係呀，即係佢，係會，係會，係會</td>
<td>(tr. it will. Bridging the gap is very important. Yes. So that they, they will understand. Oh so you actually know what we are doing?)</td>
</tr>
<tr>
<td>33 2: 佛啦 (0.9) 你錯打機打咗啲啲</td>
<td>03 K: um</td>
<td>(tr. you often play computer games)</td>
<td></td>
</tr>
<tr>
<td>34 (0.2)</td>
<td>(tr. yes (0.1) you always play computer games)</td>
<td>03 K: um</td>
<td></td>
</tr>
<tr>
<td>35 2: 鄰居大行人口你個個間隔近日你係攻擊介啲啲啲</td>
<td>(tr. when the enemy walks into your territory, you will then be able to attack them right?)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 (0.4)</td>
<td>02 T: 會啊會啊。拉近啲</td>
<td>(tr. you guys were playing LOI (0.7) right (2) - demolishing the tower)</td>
<td></td>
</tr>
<tr>
<td>37 53: 你有打機啲啲</td>
<td>02 T: 會啊會啊。拉近啲</td>
<td>(tr. play computer games)</td>
<td></td>
</tr>
<tr>
<td>38 (0.5)</td>
<td>距離好重要，係呀，即係</td>
<td>01 K: 因為你其實，你其實，你其實同學學生嘛個年齡都唔係真係爭</td>
<td>(tr. I don’t play LOL)</td>
</tr>
<tr>
<td>39 7：聽話 (0.3) 唸啲 (0.3) 唸啲 (0.2) 你耍打機都係係</td>
<td>(tr. oh like (0.3) the (0.3) the (0.2) it’s like you guys destroying the tower)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 (0.4)</td>
<td>02 T: 會啊會啊。拉近啲</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41 2: 你啲打 LOL (0.7) 唸啲 (.) 擊退</td>
<td>( (tr. you guys were playing LOI (0.7) right (2) - demolishing the tower) )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42 (.)</td>
<td>02 T: 會啊會啊。拉近啲</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43 29: 我咁玩 LOL</td>
<td>02 T: 會啊會啊。拉近啲</td>
<td>(tr. I don’t play Arena of Valor)</td>
<td></td>
</tr>
<tr>
<td>44 (.)</td>
<td>02 T: 會啊會啊。拉近啲</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45 2: 為個係ok呀</td>
<td>(tr. when do you do when you destroy the tower)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46 (0.2)</td>
<td>02 T: 會啊會啊。拉近啲</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47 3: 我係嘅係係係</td>
<td>(tr. I don’t play Arena of Valor)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48 (.)</td>
<td>02 T: 會啊會啊。拉近啲</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49 7: 指揮官係為係 (0.4) okay? you will not walk okay</td>
<td>03 K: um</td>
<td>(tr. playing games like Arena of Valor)</td>
<td></td>
</tr>
<tr>
<td>50 (0.5)</td>
<td>(tr. what do you do when you destroy the tower)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51 3: inside the</td>
<td>03 K: um</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52 (1.2)</td>
<td>03 K: um</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53 3: inside the circle of a tower right?</td>
<td>03 K: um</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
53 (0.5) 54 (0.5) 55 (0.3)
56: you will not walk inside right?
57: "You will use guns to shoot you?"
58: [I know you will deploy your army and let them]
59: T looking at S9
60: [hahaha]
61 (0.3)
62: [tr., have you played it before (0.4) have you played it before]
63 (1.0)
64 (0.3) 65 (1.1)
66: [tr. he has played it before人居环境]
67: T looking at S1
68 (0.3) 69 (0.2)
70: [I know] (urgh)
71 (0.1)

04 T: reinforced the implication for using the example of computer war games.

05 K: um

06 T: Students to understand the importance of doing revision

Potentially allowed students to link the students’ computer games with the content subject potentially makes it more interesting and easier for students to understand

T’s motivation to T imitated students’ voice: predicting their reactions when they learn that T will also play computer games.
Table 6.1: Video-stimulated-recall-interview (Extract 1)

T as the role model who will play computer games and do revision.

Encouraging students to realise the importance of doing revision.

T is portraying himself as a role model who will study hard, but he will also play computer games as a hobby.
The researcher believes that the reason why teacher A chooses to use the example of computer war games to facilitate content explanations is because teacher A aims to bridge the social gap between the teacher himself and his students. Such a prediction is acknowledged by teacher A and he also reinforces the importance of bridging the social gap with the students in order to show his awareness of the current youth culture. In particular, teacher A shifts the footing by imagining himself as his students and voicing out his students’ reactions when they learn that teacher A knows their hobbies, ‘啊原來你，都知我哋做緊乜嘢 (oh so you actually know what we are doing)’ (line 2). Teacher A further employs a simile of being naked, ‘好似赤裸裸地 (like being naked)’, as a way to refer to his ability to see through his students’ hobbies. It is important to note that this mathematical question is classified as an advanced question. Since the students in this class are not high achievers in mathematics, it can be suggested that teacher A brings his knowledge, in terms of the strategies for mastering computer war games, into the classroom for facilitating the explanation of the mathematical questions. Teacher A also clearly states that using computer war games as an example can implicitly show to the students that computer games can be related to academic knowledge, ‘即係 academic 都可以 apply to games (this means that academic subjects can also be applied to games)’. By doing so, the teacher is bringing the students’ everyday life experience into the classroom space where he can facilitate his explanation of the mathematical question and bridge the social gap between himself and the students.

Extract 2: Continued Construction of the Imaginary Context

Extract 2 is the subsequent part of the interaction in Extract 1, approximately five minutes after Extract 1. Prior to the extract, teacher A read out the key information of the question in English and he drew out the diagram (Image 3) which was similar to the diagram displayed on the screen (Image 2). Teacher A then employed Cantonese to ask students to determine when would the aircraft be detected. However, the students could not offer an answer to teacher A.
133 T: +點一處會被detected yes (7.4) + so many points right?

(Tr. so at which point will it be detected)
+T draws several small 'x' on the line --> #2

134 0.5

135 T: when the +plane fly along this line okay +like this?
+T curved his ring and middle fingers and had the thumb, index and little fingers straightened out #3
+T moves his LH hand along the line from low to top position along the straight-line

+T walks to his LHS
+T curved his
ring and middle
fingers and had the
thumb, index and
little fingers
straightened out --> #4
136 \((0.3)\)
+T moves his RH hand along the line from the top to low position along the straight-line

\[\text{---}\]

137 T: okay?+

\[\text{---}\]

138 \((0.7)\)

139 T: +which point \((0.5)\) it +will be +detected?
+The school bell rings

\[\text{---}\]

+T moves his arm backwards and moves his RH
from low to top position along the straight-line #5
+T moves his RH from top to low
position along the straight-line
+T moves his arm backward and moves his RH from low to top position along the straight-line

T: +會唔會中到呢△ (2.0) okay?
((tr. will it be attacked))
+T moves his RH from top to low position along the straight-line #6

--->△

(1.2)
T: +我將您第問題條解開嗎你等 (0.5) 如果你有個機師
          (tr. or let me rephrase my question (0.5) if you have a pilot)
        +T pointing to himself using his index finger

S1: 五十一嗎呀
        (tr. 51 right)

T: +五十一 (1.7) 確實你呢個概念+  
        (tr. 51 (1.7) it’s a correct concept)
        +T points at S1-->

T: +佢係咪唔係五十度先 (0.6) +你有嘅影響係呢 =
        (tr. so 50 degree is our fixed value (0.6) the aircraft cannot be moved to another
direction)
        +T points at point B

T: +那隻手由指頭開始 (0.2) +有呀有呀 =
        (tr. do not think that the aircraft will move in various directions (0.2) it won’t it
won’t)
        +T curved his ring and middle fingers and had the thumb, index and little fingers
straightened out #7

T then moves his hand from top (point B) to low position along the
straight-line

T shakes his right hand continuously

Figure #7

Figure #8
In line 233, teacher A rephrases his question in Cantonese and asks students to consider at which point the aircraft will be detected. While he is uttering, teacher A is drawing several small ‘x’ along the straight line (figure #2) in order to visually illustrate the possible moments when the aircraft will be detected. After a long pause, teacher A repeats his questions in English, ‘so many points right?’, which possibly allows students to better understand his question. However, no student responds to teacher A’s question during the 0.5-second pause in line 134. In line 135, teacher A continues to build on the previous imaginary context, which was constructed in Extract 1 in order to encourage students to imagine ‘when the plane fly along this line’. While he is providing the English explanation, teacher A curves his ring and middle fingers and straightens out his thumb, index and little fingers out in order to imitate the shape of an aircraft (figure #5). He then moves his right-hand along the line from low to top position in order to visually illustrate the movement of the aircraft. After teacher A utters ‘okay like this’, teacher A enacts the same gesture from lines 136-141 to visually illustrate the shape of the aircraft (figure #6). While teacher A initiates a question in line 139, he moves his hand from low to top position and quickly switches the movement of his hand from top to low position in order to visually illustrate the aircraft going up.
and down. By doing so, teacher A is multimodally creating an imaginary context of an aircraft flying along the path and it allows the students to consider at which moment the aircraft will be detected by the tower.

Since no student responds to teacher A’s question, teacher A repeats his question in Cantonese in lines 141 and 142 which possibly aims to make his question more comprehensible to the students. As such a repair does not lead to any students’ response, teacher A rephrases his question and encourages students to imagine themselves having a pilot, ‘如果你有個機師 (if you have a pilot)’. Teacher A then continues to construct the imaginary context by asking students to imagine the situation when they do not wish their pilots to be detected by the tower, ‘唔想俾佢 detect (you do not wish the aircraft to be detected)’ (line 146). Simultaneously, teacher A points at point A on the blackboard in order to visually specify the location of the tower. After constructing the context, teacher A launches a question by asking students to predict how far the pilot needs to distance the aircraft from the tower (line 146). After a 0.5-second pause, student 1 provides an answer (i.e. fifty-one) in Cantonese (line 148) and such an answer is accepted by teacher A in line 150.

In this extract, it shows that teacher A heavily draws on the multilingual (Cantonese and English) and multimodal resources (i.e. drawings on the blackboard and gestures) to create the hypothetical context of a pilot preventing him/herself from being detected by the tower. Such translanguaging practices provide scaffolding that supports students’ understanding of the mathematical problem. During the post-video-stimulated-recall-interview, the researcher is interested to understand the rationale of teacher A’s use of gesture to visually illustrate the shape of the aircraft and move his hand along the straight line on the blackboard for indicating the movement of the plane:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall Interview Selected Excerpts</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>133 T: +你這一點會讓人 detect 到 (7.4) + so many points right? (br. so at which point will it be detected) +T draws several small 'x' on the line --&gt; #2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Figure #2</td>
<td>01 K: um 伸有一個好 interesting 個位像呢，你指著呢幾手指呢，像這樣 ((extending thumb, middle and last fingers, index and ring fingers pointing downwards))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>134 (0.3)</td>
<td>02 T: 咱們係 ((extending thumb, middle and last fingers, index and ring)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
t’s recall of the cartoon that he used to watch in the past → Motivated T to consider other ways of pointing

Researcher’s doubt about the reason why T used such hand gesture to illustrate the shape of the plane

Questioning T and prompted him to consider other ways of pointing
<table>
<thead>
<tr>
<th>140</th>
<th>+ (2.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+T moves his arm backward and moves his RH from low to top position along the straight-line</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>141</th>
<th>( \text{T: } + \text{會吧會中到呢} \Delta (2.9) \text{ okay?} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>((\text{it will be attached}))</td>
<td></td>
</tr>
<tr>
<td>+T moves his RH from top to low position along the straight-line #6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>09 K: Hahahaha</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 T: 真後悔，即像個 macross 嗜個系列，趁時要 嗜個系列，話飛機呢</td>
</tr>
<tr>
<td>11 K: 嗨嗨系列表話</td>
</tr>
<tr>
<td>12 T: Macross seven，等我 search 俾你 haha macross 日本咁卡逼片 嗜，er 日本שים 動漫咁系 macross seven</td>
</tr>
<tr>
<td>T is searching a photo via his phone</td>
</tr>
</tbody>
</table>

| 13 T: 然後個人選啦，因為 我標冇呢個，話個個飛機呢 |
| T is searching a photo via his phone |

| 14 T: 因為個個飛機呢個個 像呢，真係類似咁樣呢，我 有鐘意嘅一箇劇集，唔所 |
| T expressed his personal interest in this cartoon |

<table>
<thead>
<tr>
<th>Specifying the name of the cartoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>T expressed his personal interest in the plane which appeared in the cartoon</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>143</td>
</tr>
<tr>
<td>144</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>145</td>
</tr>
<tr>
<td>146</td>
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<td></td>
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<td></td>
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<tr>
<td></td>
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<tr>
<td>147</td>
</tr>
<tr>
<td>148</td>
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<tr>
<td></td>
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<td>149</td>
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<tr>
<td>151</td>
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<tr>
<td>152</td>
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<td></td>
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<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
</tbody>
</table>

**Table 6.2: Video-stimulated-recall-interview (Extract 2)**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>K:</td>
<td>喔你都，你都好 follow 呢啲嘅，你真係</td>
</tr>
<tr>
<td>16</td>
<td>T:</td>
<td>細個播卡通片嘅時成日睇</td>
</tr>
<tr>
<td>17</td>
<td>K:</td>
<td>哦</td>
</tr>
<tr>
<td></td>
<td>T is searching a photo via his phone</td>
<td></td>
</tr>
</tbody>
</table>

Clearly stated that this cartoon was part of T's childhood memory

T stated that the cartoon inspired him to use gestures to represent the feature of this particular plane from the cartoon

T’s personal interest in this particular plane and this cartoon shaped his use of gesture in representing a plane in the classroom

T’s childhood memory shaped his use of gesture in representing a plane in the classroom
The researcher first questions teacher A’s rationale for using that particular gesture (i.e. figure #5) to illustrate the shape of the aircraft. This is because the researcher believes that using an index finger to point at the straight-line on the blackboard could also draw students’ attention to the straight line. Teacher A then mentions a cartoon called ‘Macross Seven’ that he previously watched. ‘Macross Seven’ is a Japanese science fiction and the theme of this cartoon is about the space war. Particularly, he is impressed by the plane in the cartoon and this motivates teacher A to use gesture to adopt the shape of the plane, ‘因為我鍾意呢個啲個飛機呢 (because I really like the plane)’ (line 13). Teacher A also further comments that such a cartoon was part of his childhood memory, ‘細個睇卡通片時成日睇 (I always watched this cartoon when I was a child)’ (line 16). Hence, it can be argued that teacher A’s particular interest in the plane and his childhood memory with this cartoon inspires him to use gesture to imitate the shape of the plane. This also explains why teacher A chooses to use this gesture to represent a plane, ‘我每次要用飛機我都會用呢個形式 (whenever when I need to illustrate a plane, I will use this gesture to represent it)’. It is observable in the MCA analysis that teacher A makes use of his thumb, middle and last fingers to visually illustrate the shape of an aircraft which is similar to the plane in Macross seven (Image 4). Teacher A extends his thumb and last fingers in order to mirror the wings of the aircraft and the middle finger represents the aircraft’s fuselage. Thus, such a creative use of gesture plays a role in shaping the construction of the imaginary context of a pilot driving an aircraft. It can be argued that creating this imaginary context provides a translinguaging space for teacher A to bring his personal interest in the cartoon and his childhood experience into the classroom. It is a social space which allows classroom participants to reveal their knowledge and experience of the social world in order to negotiate and create new meanings.

Extract 3: Explaining the meaning of a technical vocabulary item
The MCA analysis in Extract 3 has shown how teacher A has employed multilingual (e.g.
colloquial Cantonese, L2 English) and multimodal resources (e.g. deictic gestures, drawings on the blackboard) to create several real-life scenarios for explaining the technical term ‘shortest distance’. Prior to Extract 3, teacher A was reading aloud the mathematical question on bearings (image 5). Question (a) requires students to find out the distance of the dotted line (CD). In line 6, teacher A draws students’ attention to the term ‘shortest distance’ (lines 7-9) which is the target technical term that teacher A is attempting to explain from lines 13-57. In this extract, teacher A first makes use of Cantonese translations of the mathematical terms, English utterances, gestures and the drawings on the blackboard to construct a scenario of a person walking across the road (lines 1-26). From lines 27-43, teacher A deploys English if-clauses, Cantonese translation of the house-estate and gestures to activate students’ knowledge regarding the actual geographical locations of the infrastructure near the school (i.e. the house-estate, tunnel, zebra-crossing) in order to facilitate his construction of a real-life scenario.

(Image 5, Chan et al., 2008: 10.45)
01 T: okay? (0.5) you need not something new
02 (0.5)
03 >okay?< +part a
   +T looks at the screen from the T's desk
04 (1.1)
05 T: let k kilometer (0.4) be the shortest distance c d
06 (0.6)
07 T: er +by +the way
      +T looks at students
      +T walks to the screen
08 (0.2)
09 T: do you know +why this is +the shortest distance+
      +T points at the triangle on the screen
      +T moves his finger from the left to right repeatedly
      along the dotted line CD--->
       ---+  
10 (4.4)
11 T: +do you know why
      +T looks at the students
12 (3.8)
13 T: okay (0.2) +for a triangle like this (1.0) okay
      +T draws a rotated triangle on the BB
14 (0.7)
15 T: +if you (0.3) if you are (standing) here (1.0) okay?
      +T draws a person on the BB ((next to a corner point of a triangle)) #2
16 (0.2)
17 T: if you want to +cross the road (0.7) +to reach this +line
   +T moves his index finger from the ‘person’ to the vertical line
   +T moves his index finger up and down along the straight line
   +T looks at students

18 (0.6)
19 okay?
20 (0.8)
21 T: how to get there will be (0.5) er (0.9) the time spent=
22 T: =will be the shortest
23 (0.9)
24 S1: 直行
   (tr. go straight)
25 (0.6)
26 T: yes +very good (0.2) 直行
   (tr. go straight)
   +T draws a horizontal dotted line on the triangle #3
27 (1.1)
28 T: +just like imagine if +you really need to go to 洪福村
   
   +T walks to the windows on his LHS
   
   +T raises up his RH at chest level, stretches out his
   
   RH arm, extends his index finger to point at his LHS
   
   #4

29 (0.7)
30 T: okay (0.8) directly
31 (0.9)
32 T: +if we can cross the road+ directly
   +T points at his LHS and moves his elbow backward and then moves forward--->
   --->+
33 (0.3)
34 T: it will be the shortest right? (0.5) okay?
35 (0.4)
36 T: so (0.3) er
37 (0.3)
38 T: otherwise we we +need to go to the tunnel= 
   +T uses his chalk to first point at the ‘person’ then moves his RH
downward along the slanting line #5

Figure #5

39 T: =and +then go to the (0.3) um (0.3) +zebra-crossing
   +T raises up his RH along the straight-line
   +T first points at the ‘person’ then
   moves his RH upward along the slanting line #6
In line 13, teacher A first utters ‘for a triangle like this’ and draws a rotated triangle on the
blackboard, which is the same as the triangle in classwork 10.22 (Image 5). Teacher A then draws a person next to a corner point of the triangle in line 15 (figure #2). He further utters ‘if you want to cross the road’ in line 17 and concurrently moves his finger from the hand-drawn person to the vertical line to enact the act of ‘walking’. Here, it is noticeable that teacher A is creating a real-life scenario of a person walking across the road.

After constructing the scenario, teacher A asks another display question ‘how to get there will be (0.5) er (0.9) the time spent will be the shortest’ (lines 21-22) to scaffold students’ understanding of the ways for searching for the distance. In line 24, student 1 responds to teacher A’s display question in Cantonese by uttering ‘直行’ (‘go straight’). Although student 1’s Cantonese utterance deviates from the local institutional norm (i.e. using English in the classroom), teacher A echoes student 1’s Cantonese response ‘直行’ and concurrently draws a horizontal dotted line on the triangle in order to reflect the distance between the hand-drawn person and the vertical straight line (figure #3).

Afterwards, teacher A constructs another real-life scenario by referring to the physical locations of the infrastructures around the school. In line 28, teacher A asks students to ‘imagine if you really need to go to 洪福村 (Hung Fok Estate)’ (line 28). The distance between the school and the estate is approximately ten minutes. Simultaneously, teacher A walks towards the windows on his left-hand side and he stretches out his right arm and extends his finger to point at the windows (figure #4). This is possibly because the estate is on teacher A’s left-hand side (fieldnotes). Hence, by pointing to the window on his left-hand side and switching to Cantonese to announce the name of the house estate (‘洪福村’), he is activating the students’ knowledge regarding the location of the estate to students.
In line 32, teacher A constructs another if-clause to encourage students to imagine if they cross the road directly to the estate, ‘if we can cross the road directly’. Since no one responds to teacher A’s display question in line 34, teacher A continues to explain the alternative route if students cannot cross the road directly to the house-estate (lines 38-43) and he mentions the tunnel and the zebra-crossing. These are the infrastructures which are located near the school (Image 6). Notably, teacher A uses his chalk to first point at the hand-drawn person on the blackboard and moves his right-hand downward along the slanting line (figure #5) when teacher A explains that the alternative way of arriving at the estate is to go to the tunnel (line 38). Teacher A then moves his right-hand upward along the slanting line (figure #6) when teacher A explains that the walking path to the zebra-crossing (line 39). Subsequently, in line 43, teacher A visually illustrates the walking path from the zebra-crossing to the estate by moving his right hand downward along the slanting line (figure #7). Teacher A then points at the middle point of the vertical line (figure #7) when he says ‘then reach there’ in order to visually and metaphorically represent the location of the estate.

In lines 45-47, teacher A continues to establish a real-life scenario by uttering another if-clause, ‘so if we can walk it (1.4) perpendicular to our target’. Simultaneously, teacher A points at the hand-drawn person in order to metaphorically refer to the hand-drawn person as the classroom participants in the class (line 45). Teacher A then moves his finger to the middle point of the vertical line in order to visually represent their walking path to the estate (line 45). In line 49, teacher A completes his construction of the conditional sentence by offering the main clause, ‘then it will be the shortest distance’.

As shown, in Extract 3, teacher A draws on the knowledge related to the infrastructures near the school and it is familiar to all students, whereas in Extracts 1 and 2, teacher A utilises the knowledge of computer war games and that is related to students’ hobbies. Despite the differences, both extracts illustrate that teacher A utilises various multilingual and multimodal practices to connect students’ prior knowledge and experience in order to create a real-life scenario and assist students to understand the mathematical question.

During the post-video-stimulated-recall-interview, teacher A comments that bringing the knowledge of the geographical locations into the lesson can facilitate students’ understanding of the concept. It can be argued that teacher A’s construction of the real-life scenario is based on students’ common knowledge about the geographical locations of the infrastructures nearby the school. This contributes to the creation of an integrated translanguaging space which bridges
students’ familiar experience and the mathematical content.
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
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<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure #3</td>
<td></td>
<td></td>
<td>Interpreted T’s use of examples as a strategy for activating the shared knowledge between T and his students.</td>
</tr>
<tr>
<td>27 (1.1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28 T: *just like imagine if you really need to go to 慶福村 (f.r. Hung Fok Estate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+T walks to the windows on his LHS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+T raises up his RH at chest level, stretches out has RH arm, extends his index finger to point at his LHS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Figure #4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 (0.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 T: okay (0.8) directly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31 (0.9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32 T: *okay (0.8) directly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33 T: *okay (0.8) directly</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01 K: *你其實當時係咪喺嘅學校周圍出邊嘅 infrastructure 嘅嘅 physical locations (tr. At the moment, are you referring to the locations of the infrastructure that are near the school area)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02 T: *係 (tr. Yes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03 K: *來做一個</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
04 T: 嘿呀啲呀
(tr: Yes. Yes)

05 K: 嘿啲，即係呢一種 knowledge 係，你同
學生都係共同係擁有
(tr: Yes. So that’s the
knowledge which is
shared between you and
your students.)

06 T: 嘿，要接近佢喺
啲，即係佢喺會易啲
代入到件事，咁樣佢
喺就易明白啲啲，
雖然喺個直接啲關
係，即係類似啲，即
係中文類比論證咁
樣，即係蔗啲接近啲
啲 ha ha 例子喺同佢啲
解釋啲個，啲個
concept 啲”
(tr: Yes, it has to be
relevant to them. This
means that they can
easily be immersed in
the context, so that they
could easily understand.

Explicitly stated his
goal for facilitate
their understanding
of the mathematical
concept of ‘shortest
distance’. Reference
of analogical argument
indicates
his understanding
of the importance
of connecting
similar examples
together.
Table 6.3: Video-stimulated-recall-interview (Extract 3)

<table>
<thead>
<tr>
<th>Figure #6</th>
<th>Figure #7</th>
<th>This is the equivalent of the idea of analogical arguments in Chinese. It refers to the use of any objects that are bound to be similar in some ways in order to explain the concept.)</th>
</tr>
</thead>
</table>
| 40 (0.4)              | 44 (0.6)              | T: and then  
41 T: we need to walk so many road and then reach there  
+T first points at the ‘person’ then moves his RH downward along the slanting line  
+T points at the middle point of the vertical line #7  
42 (0.5)              | 45 T: okay so +if we can walk it  
+T points at the ‘person’  
+T then moves his index finger to the LHS to the midpoint of the triangle  
43 T:             | 46 (1.4)              |  

In the interview, the researcher interprets teacher A’s use of examples (e.g. tunnel and house estate) as a strategy for activating the shared knowledge between teacher A and his students. Teacher A explicitly states that his goal of drawing on examples, which are familiar to the students, is to allow students to understand the real-life scenarios constructed by teacher A. This, in turn, can facilitate their understanding of the mathematical concept of ‘shortest distance’. Teacher A’s explicit mention of analogical argument in the interview, 即係中文類比論證 (this is the equivalent of the idea of analogical arguments in Chinese), indicates his understanding of the importance of connecting similar examples together. By drawing on his own pedagogical belief, the teacher is creating a translanguaging space where he integrates the everyday life shared knowledge into the classroom space in order to facilitate his explanation of the mathematical term ‘shortest distance’.

### 6.3 Using an Everyday Life Metaphor to Scaffold Content Learning

In the dataset, four instances are identified which illustrate how teacher A uses everyday life metaphors to facilitate his mathematical explanations. Extracts 4 and 5 are typical cases which demonstrates this feature.

*Extract 4: Using an Everyday Life Metaphor to Address Student-initiated Questions*

Extract 4 is drawn from the secondary three mathematics class which was taught by teacher A. Prior to Extract 4, the students have completed the question, teacher A provided the correct answer on the blackboard which allowed students to check their own work. The question provides four coordinates: P (-3, -5), Q (h, 1), R (0, -8) and S (2, -7) and students need to find the value of ‘h’ if slope PQ is parallel to slope RS. In this extract, teacher A draws on English to respond to a student initiation (lines 8-32). In lines 40-44, teacher A employs various Cantonese colloquial registers in his utterances to construct the metaphor of cooking. Then in line 52, teacher A makes use of colloquial Cantonese phrases, gestures and spatial positions to vividly enact the movements of chopping and frying food in the wok in order to figuratively explain how the mathematical steps can be combined within an equation.
01 T: can you find the same answer
02 (4.0)
03 T: can you find the same answer=
04 S6: =nine=
05 T: =[nine (0.3) +okay?]

+T looks at S1
06 S1: [唔係(0.2) 其實可唔可以]直接搵咗個(0.6)搵咗 rs 先會唔會方便啲?

((tr. no (0.2) actually is it possible] to directly find the (0.6) find rs first so that it will
become more convenient?))
07 +(1.6)

+T looks at the steps at the BB
08 T: +okay lah

+T points at the equations (mpq=mrs)--->

09 (0.3)
10 T: if you directly find the slope of rs (0.7) first
11 (1.2)
12 T: and then okay you can separate the the steps+

--->

13 (0.3)
14 S6: why
15 (0.2)
16 T: okay? (NAME-S1) +suggests

+T draws a straight line on the BB
17 (0.6)
18 T: +can we find the slope of rs first
       +T writes ‘mrs=’
19 (0.3)
20 T: after +er er er er er er +something like this
       +T writes several dots on the BB
       +T writes ‘1/2’ on BB #9

21 (0.7)
22 T: +okay? (0.6) after calculations find this pattern+
       +T points at 1/2 on BB--->
       --->+

23 (0.6)
24 T: and then (1.7) connecting this value (0.8) +equal to
       +T points at the
equation ‘mpq=1/2’ on BB

25 (0.8)
26 T: one over two (0.8) okay?
27 (0.2)
28 T: you can also do it in this way (0.7) okay?
29 (0.2)
30 T: but er +to save time
       +T points at the equation ‘mpq=mrq’
31 (0.6)
32 T: I just use this method directly (0.7) okay?

+T uses his index finger to point at the beginning of the solution #10

+T tilts his head to his LHS and shrugs his shoulder and moves his RH and points at the middle part of the solution #11

33 (0.2)

34 T: 呢個係慳時間啫( • ) + 同埋慳墨水啫我自己啊

((tr. here I am just saving time (•) and saving the ink too))

+T moves his index finger from the top of the step to the middle part of the step

35 (0.6)

36 T: 得唔得啊

((tr. okay?))
37 (0.6)
38 T: okay?
39 (0.3)
40 T: 不過如果你+鍾意拆件 (0.2) +冇問題 (0.5) +預先準備好個材料 (tr. but if you like to detach it (0.2) that’s fine (0.5) prepare the ingredients in advance))
+T moves his index finger from the top of the step to the middle part of the step
+T extends his index finger and shakes it from left to right
+T moves his RH to his waist level, palm facing upward #12

Figure #12

41 (0.4)
42 T: `+先至一齊落鑊
(tr. then put them together in the wok)
`+T makes rotation around the equation `mpq=1/2` #13

43 (0.3)

44 T: 冇問題 (0.7) okay? +我呢個一齊喺個鑊入邊 (0.9) +斬埋件咁樣
(tr. no problem (0.7) okay? here I put them all together in the wok (0.9) chopping them too)

+F points at the equation `mpq=mps` on BB #14

45 (1.3)

46 S1: $係個鑊入邊斬件$
(tr. chopping the food in the wok)

47 (0.4)
48 T: +you eh (0.3) you understand
    ((tr. you eh (0.3) you understand))
    +T points at S1
49 (0.2)
50 S1: 你估真係 Gordon Ramsay
    ((tr. you think you are Gordon Ramsay))
51 (0.4)
52 T: +你係嘅嘅+你度+切 (0.5) +一路嘅度炒呀嘛
    ((tr. yes, chopping the food in the wok and frying the food at the same time))
    +T walks to the teacher’s desk
    +T extends his right arm and locates his RH above the box cover
    (exercise books on the surface), T’s RH fingers are extended, and the
    palm is flat
    +T enacts a chopping gesture by moving his RH rapidly, moving
    up and down repeatedly #15
    +T holds up his fist
    +T enacts a gesture of frying food by moving his
    fist from right to left rapidly, making a small rotation #16
In line 6, student 1 asks whether it is possible to look for the coordinates of slope RS first before searching for the value of ‘h’ (line 6). In lines 10-28, teacher A explains that student 1 can look for the value of slope RS first and then look for the value of slope PQ. Both values should be one over two and since they are equal, it can be suggested that both slopes, PQ and RS, are parallel lines.

In line 40, teacher A first explains to students that it is acceptable to first prove that slopes mRS is equal to mPQ before moving on to look for the value of ‘h’, ‘不過如果你+鍾意拆件(0.2)+冇問題 (but if you like to detach it (0.2) that’s fine)’. Note that the Cantonese vocabulary item, ‘拆件’, literally means detaching something into pieces. After a 0.5-second pause, teacher A introduces a metaphor of cooking by explaining to the students that they have to first prepare the cooking ingredients in advance, ‘預先準備好個材料 (prepare the ingredients in advance)’, and teacher A holds up his right-hand with his palm facing upward (figure #12). By enacting this iconic gesture, Teacher A is possibly pretending to hold the ingredients on his right hand. Then in line 42, teacher A utters ‘先至一齊落鑊 (then put them together in the wok)’ and make a rotation around the equation ‘mpq=1/2’ (figure #13) on the blackboard. The ‘ingredients’ are metaphorically referring to the values of slope PS and PQ and by putting these ‘ingredients’ into the wok, this figuratively
refers to the use of these values to search for the final answer. In line 44, teacher A points at the equation ‘\( mPQ = mPS \)’ on the blackboard (figure #14) and verbally explains that he coincidentally puts all the ingredients into the wok, ‘我呢個一齊喺個鑊入邊 (here I put them all together in the wok)’, and chops up all the ingredients, ‘斬埋件咁樣 (chopping them too)’. Here, teacher A continues to employ these Cantonese vocabulary items to figuratively justify how he combines the steps together into one rather than separating them into several steps.

In line 50, student 1 initiates an uninvited turn in Cantonese to question teacher A’s response by asking whether teacher A thinks that his cooking skills are comparable to Gordon Ramsay, who is a famous British chef. In line 52, teacher A agrees with S1’s statement by first saying, ‘係呀 (yes)’ and then explains to student 1 that he chops off the ingredients into pieces in the wok, ‘一路係個鑊度切(chopping the food in the wok)’. It is noticeable that when teacher A utters the noun ‘鑊 (wok)’, he extends his right arm and locates his right-hand above the box cover on the teacher A’s desk. It can be seen in figure #15 that the box is filled with students’ exercise books. It is possible that the box cover is momentarily being represented as a wok and his right hand represents a knife. When teacher A utters the verb ‘切 (chop)’, teacher A enacts the chopping gesture by moving his right-hand up and down rapidly (figure #15) to reinforce the act of chopping. After a 0.5-second pause, teacher A utters ‘一路喺度炒呀嘛 (frying the food at the same time)’, and enacts a gesture of frying food by moving his fist from right to left rapidly in order to make a small rotation (figure #16). Teacher A is possibly enacting the act of holding a spatula for frying the food in the wok. These translanguaging practices allow teacher A to reinforce the message (i.e. combining the skipped steps into a single step) that he intends to provide through using a cooking metaphor in line 44.

In the post-video-stimulated-recall-interview, teacher A is invited to comment on his rationale in using the metaphor of cooking. Based on teacher A’s interpretations, it is evidenced that the translanguaging practice is shaped by his prior learning experience which motivates him to bring in everyday life examples into the classroom in order to facilitate students’ understanding of the approaches for describing mathematical steps.
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall Interview Selected Excerpts</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 T: I just use this method directly (0.2) okay?</td>
<td>01 K: um! Interesting 咱你覺得呢你用 cooking metaphor 離去 activate 學生個 like 嘱個 Prior knowledge 佢喺肯定知 cooking 個像嘅啦，係咪 assume 佢喺一個 metaphor 頭先你就話，可以用來 show 個 step 出嚟，但喺係容易，都一定係會容易啲去明白你 (English translation: um! Interesting. So, do you believe that using the cooking metaphor to activate students’ prior knowledge. Will the students understand the meaning of cooking? Are you assuming that the metaphor, can be used to illustrate the mathematical steps? So that students will find it easier to understand your explanation?)</td>
<td></td>
<td>Allowed students to make sense of the mathematical procedures that</td>
</tr>
<tr>
<td>33 (0.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 T: +呢間我係個時間唔係 (.) +簡單開啲住我自己啊 (in here I am just saving time (.) and saving the sub tool)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35 (0.6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 T: 得唔得啊 (in. okay?)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Figure #10</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Figure #11</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
37 (0.6) T: okay?
39 (0.8) T:  

40 (0.4) T: 不過如果學會事前有就準備好材料
(tr. but if you like to detach it (0.2) that's fine (0.5) prepare the ingredients in advance)
+T moves his index finger from the top of the step to the middle part of the step

+T extends his index finger and shakes it from left to right

+T moves his RH to his waist level, palm facing upward #12

02 T: 我覺得會明，易
恆明白，因為，可，
可能佢同學讀數呢啲唔
知點入手啊，即係唔知
點樣去，開始去寫第一步，嘅所以我先至，諗
一啲方法幫佢拆件做
嘅，然後先至合理一齊
嚟
(English translation: I think it’s a yes. Students would find it easier to understand. It is because some students might not know what to do at the beginning. This means that they might not know how to describe the first mathematical step. So, this motivates me to think of a way to help students to understand that they have to look for different pieces of information first and then combine these pieces of information together.)

03 K: um!

they had to follow in order to solve the question.

Helped students to realise the need to: 1) find the information that are necessary for solving the mathematical problem. 2) utilise the gathered information to form coherent steps in solving a mathematical problem.

T was reflecting his struggle in writing essays and he compared such experience with his students‘ struggle in describing the mathematical steps.

T’s prior struggle in mastering English writing skills potentially allowed him to better understand students’ needs in having a concrete step-by-step guide to support
42 T: 先至一齊撈撈
(tr. then put them together in the wok)
+T makes rotation around the equation ‘mpe=1/2’ #13

04 T: 即係好似我，我唔識做唔識點落手
咁嘅 haha (English translation: So, it’s similar to my
situation. I don’t know how to write essays.
Haha.)

05 K: haha

06 T: 然後之後，哦，
原來我做數係咁樣落手
嘅，咁我就，我就揾一
啲類似嘅嘅，咱但係唔
類似嘅嘅有理由話做數
啲樣嘅嘛
(English translation:
Then, oh, so when I did
mathematics, I followed
that approach to describe
the mathematical steps.
So, then I try to find
similar examples. But
then these examples, you
can’t use mathematics as
an example, right?)

07 K: um hm

08 T: 咁我就揾其他啲
生活啲嘅例子來講，就

Bringing in students’ familiar
everyday examples into the
classroom for scaffolding
content learning and
increasing students’
motivation.
Table 6.4: Video-Stimulated-Recall-Interview (Extract 4)

(English translation: So, I draw on some everyday life examples to facilitate my explanation. So, then I, I think using everyday life examples would be preferable. Haha. The students would probably find it more interesting. It won’t be boring. Hahahaha.)
Teacher A justifies that introducing the metaphor of cooking into the classroom allows students to make sense of the mathematical procedures that they have to follow in order to solve the question. Teacher A suggests that some students may not know how to describe steps when solving equations. This inspires him to think of a metaphor, which has to be drawn from students’ everyday life experience, in order to help students to realise the need to: 1) find the information that is necessary for solving the mathematical problem, 2) utilise the gathered information to form coherent steps in solving a mathematical problem.

It is important to note that teacher A reflects on his struggle in writing essays and he compares such an experience with his students’ struggle in describing mathematical steps. In fact, teacher A mentions in the pre-interview that he struggles in mastering the skills of English composition because he finds it quite abstract and there are no ‘rules’ or ‘theory’ which he can employ as a reference. It is noticeable that in line 6 of the post-interview, teacher A switches the footing by voicing out his own reflection, ‘哦，原來我做數係咁樣落手嘅 (oh, so when I did mathematics, I followed that approach to describe the mathematical steps)’, to explain his realisation regarding the way for describing mathematical steps. Thus, teacher A’s prior struggle in mastering English writing skills potentially allows him to better understand his students’ needs in having a concrete step-by-step guide to support their learning. Such a prior learning experience shapes teacher A’s translanguaging practices and affords the opportunity for teacher A to bring the outside knowledge of cooking into the classroom space.

*Extract 5: Using a Metaphor for Giving Mathematical Advice*

Extract 5 is an example of how the teacher employs gestural resources to visually illustrate the mathematical steps and students have to guess the mathematical step that teacher A is implicitly referring to. The extract is are drawn from the secondary four class which was taught by teacher A. In Extract 5, the teacher’s pedagogical goal is to get students’ idea about the ways for solving a mathematical equation. Prior to the extract, teacher A was explaining a mathematical question to students which required them to solve a mathematical equation with unknowns (e.g. x or y). While teacher A was writing the mathematical steps on the blackboard, several students were chatting. As there were quite a number of students chatting simultaneously, most of their private conversations were not audible and therefore could not be transcribed. Teacher A ignored the students and he continued to write the steps on the blackboard.
T: ((writing on the whiteboard))

T: +okay (1.0) done?
       +T looks at students

S13: oh my goodness 我竟然計 (錯)

T: +T walks to the LHS of the classroom

T: okay (0.4) um please notice +that the second step
       +T draws a star next to the arrow

T: +and the third step
       +T draws another star next to the arrow

T: +l skip some steps
       +T draws an extra start next to the 2nd arrow #1

T: I try to combine them together (0.8) okay?

T: 你自己睇吓我做咗啲乜嘢 (0.7) 我跳左好多步 (0.4) 睇下你自己識唔識做
       (tr. have a look at what I have done here (0.7) I skipped lots of steps (0.4) have a look
       and see whether you can do it by yourself)

T: okay? (0.6) 希望你做得到啦 (0.5) okay?
In line 7, teacher A utters ‘okay’ to regain the floor and signals his preparation for the next turn to the class. Teacher A asks students to pay attention to ‘the second step (0.4) and the third step’ (lines 7-9). Notably, teacher A draws a star next to the second and the third steps respectively to potentially draw students’ attention to these two steps. Since no one responds to teacher A’s pre-closing ‘okay?’ during the 0.5-second pause in line 14, teacher A self-initiates another turn, and he switches to Cantonese to explain how he combines the steps together (lines 15-25). In line 15, teacher A first asks students to look at his hand-written solution on the blackboard and check whether they are able to do it by themselves, ‘你自己睇吓我做咗啲乜嘢 (0.7) 我跳左好多步 (0.4) 跳吓呢自己識唔識做 (have a look at what I have done here (0.7) I skipped lots of steps (0.4))’.
have a look and see whether you can do it by yourself’. It is interesting to note that the final words of the second and third sentences, ‘步 (step)’ (bou6) and ‘做 (do)’ (zou6), are rhyming words and teacher A may possibly use these rhyming words to draw students’ attention on the mathematical steps. After a long 1.0-second pause (line 20), teacher A utters a pre-closing ‘okay?’ twice in line 17 to invite students to raise any questions before moving on. As no one takes up the turn in line 18, teacher A extends his explanation in Cantonese (line 19). This is demonstrated when he says ‘冇記錯我中學嗰陣都做到嘅呢啲 (1.0) 跳步 (as far as I remember when I was a secondary school student, I was able to do this (1.0) skipping steps)’ as well as using his thumb and his index finger to point at the second and third steps respectively (figure #2). Here, it is noticeable that teacher A draws on his prior experience as a secondary school student to set up an expectation for his students (i.e. skipping mathematical steps). In line 21, teacher A continues and explains that it is important to be cautious when skipping mathematical steps, ‘但係記住 (0.7) 跳步 (0.6) 唔好跳樓 (0.8) 小心嘅做 (but remember (0.7) skipping steps (0.6) do not commit suicide (0.8) do it carefully)’. It is important to note that after teacher A utters the vocabulary item ‘跳步 (skipping steps)’, teacher A offers a piece of awkward advice to students, ‘唔好跳樓 (do not commit suicide)’. Here, teacher A is creatively using the same Chinese character ‘跳 (jump)’ to form two different Chinese vocabulary items. By connecting the Chinese word ‘跳步’ with ‘跳樓’ (commit suicide), teacher A is metaphorically emphasising the importance of being watchful when attempting to skip mathematical steps in solving the equations as it may lead to a wrong answer. In line 25, teacher A further reinforces this metaphor of jumping in Chinese when he encourages students to try skipping several mathematical steps, ‘你可以試多啲跳步嘅 (0.8) 試吓呢就會穩陣架喇你跳得 (you can try to skip more steps (0.8) have a go and then you will be able to jump (i.e. skip the mathematical steps) safely)’. Note that the literal meaning of this Cantonese phrase ‘穩陣架喇你跳得’ means that one can jump carefully and safely. By using the metaphor of jumping to refer to the act of skipping steps, teacher A offers implicit advice to his students by reinforcing the consequence of failing to skip mathematical steps properly.

As demonstrated in Extract 5, teacher A has creatively employed rhyming words and the metaphor of jumping and drawn on his personal learning experience to give content-related advice to students. By using the metaphor of jumping and the combination of Chinese character ‘跳’(jump) to form two Chinese vocabulary items ‘跳步’(skipping steps) and ‘跳樓’(commit suicide), teacher A is employing a more creative way to draw students’ attention on the consequence of failing to skip steps properly. Importantly, teacher A’s metaphor of jumping is indexed with mathematical meaning which refers to the idea of skipping mathematical steps when presenting the full solution. Such translanguaging practices become multidimensional gestural, visual and embodied practices which afford the opportunity for teacher A to bring the everyday life knowledge about committing
suicide and jumping into the classroom space for facilitating understanding of the complex mathematical solution. In the post-video-stimulated-recall-interview, teacher A attempts to explain what has happened in the classroom interaction:
<table>
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</tr>
</thead>
<tbody>
<tr>
<td>01 T: (writing on the whiteboard))</td>
<td>01 K: 呀你快問你當時，當時係發生咩咩事呢， 你描述 下啊？ (tr. So, can you tell me what was happening there? Can you describe it?)</td>
<td>T realizes that the students may not be able to process the mathematical equations properly.</td>
<td>T understands the weaknesses of his students’ mathematical level.</td>
</tr>
<tr>
<td>02 (2.4)</td>
<td>02 T: and the third step</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03 T: okay (1.6) done</td>
<td>03 T draws a star next to the arrow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>04 (2.4)</td>
<td>04 T: + the second step</td>
<td></td>
<td></td>
</tr>
<tr>
<td>05 S1: oh my goodness 我竟然說錯</td>
<td>05 T draws another star next to the arrow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>06 (2.1)</td>
<td>06 Ti +l skip some steps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07 T: okay (0.4) um please notice +that the second step</td>
<td>07 T draws an extra star next to the 2nd arrow #1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>08 (0.4)</td>
<td>08 Ti + the third step</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09 Ti +l the third step</td>
<td>09 T draws another star next to the arrow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 (0.6)</td>
<td>10 Ti +l skip some steps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Ti +l skip some steps</td>
<td>11 T draws an extra star next to the 2nd arrow #1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 (0.4)</td>
<td>12 Ti: I try to combine them together (0.6) okay?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 (0.4)</td>
<td>13 Ti: I try to combine them together (0.6) okay?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 (0.5)</td>
<td>14 Ti: I try to combine them together (0.6) okay?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 Ti: I try to combine them together (0.7) I didn’t know... (0.4)</td>
<td>15 Ti: I try to combine them together (0.7) I didn’t know... (0.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 (1.0)</td>
<td>16 Ti: okay? (0.6) 希望你做得到啦 (0.5) okay?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 Ti: okay? (0.6) 希望你做得到啦 (0.5) okay?</td>
<td>17 Ti: okay? (0.6) 希望你做得到啦 (0.5) okay?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 (3.6)</td>
<td>10 (3.6)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
19 T:  +行就話中學跳步都跳到咁咁咁咁 (1.0) 跳步
(tr. as far as I remember when I was a secondary school student, I was able to do this
(1.0) skipping steps)
→ T extends and spreads his RH fingers ((as a bracket)) to point at the 2nd and 3rd steps.
→ 2

20 (1.0)
21 T:  係你記住 (0.7) 跳步 (0.6) 嘅嘅條條 (0.8) 小心點做 (0.5) 係呀?
(tr. but remember (0.7) skipping steps (0.6) do not commit suicide (0.8) do it carefully)
22 (0.5)
23 T:  手指多啲 (0.5) 係呀?
(tr. do more practice)
24 (0.2)
25 T:  做多 (0.4) 你可以整多條跳步 (0.8) 剔條條 (0.8) 就起就可以了(係你咁做)
(tr. do more (0.4) you can try to skip more steps (0.8) have a go and then you will be able to
jump (i.e. skip the mathematical steps) safely)
26 (0.4)

or two level, can be quite weak. So, I want them to be careful and invite students to pay close
attention on the steps.)

03 T:  係啊啦，所以我就跳步，不過，我自己最尾
又心軟又，又再解比佢
係聽，其實我做，做到
多咁啲啲嘅人邊嘅樣
塊，應該就，係嘅嘅，
即係我想係嘅可以，好
似我，我以前中學就
係，睇住個 step 我唔知
發生緊咩事，然後之
後，做完個老師跳
步，跳左好多步
(tr. yeah so, I skip the
steps in order to invite
students to notice the steps
that I have skipped.
However, I was lenient,
and I decided to offer
further explanations to
them. It's like when I was
a secondary school
student, I was so confused
when the math teacher was
skipping mathematical
steps. After that I was like:

Originally T wants to
give a chance for
students to identify
the steps that are
skipped. However, T
eventually decides to
point out the steps
for the students.

T recounts his
experience when he felt so confused

This motivates T to
enhance his
students’ mathematical
ability by drawing
his students’
attention to
skipping
mathematical steps.

T’s decision of
using the metaphor
of jumping or
committing suicide
can be inspired by
his prior experience
when he was
learning
mathematics as a
secondary school
student.
<table>
<thead>
<tr>
<th>T</th>
<th>oh, the teacher skipped the steps. He skipped many steps.)</th>
</tr>
</thead>
</table>
| 04 T:  | 即係然後，佢係後尾我就解釋返呢啲唔喺聽，啲其實我跳咗步架呢度，咁樣啲，佢就做咗呢件事，呢個唔係好，課本上啲知識，所
|  | 以我就決定用廣東話去講呢件事，係啲，因為都係啲好，好額外其他啲啲，我呢啲啲，係啲 啦，（tr. And after that I gave an |
|  | explanation to them. I was like: see? I have skipped several steps here. So yeah. To be fair, this is not the kind of knowledge that you can find in
|  | the textbook. That’s why I have decided to use Cantonese to explain this to the students because it is considered as an ‘extra’ knowledge to students.
|  | That’s why.) |
| since his teacher | since his teacher skipped mathematical steps. He hopes that his students will be able to identify the steps that are skipped in this situation. |
|  | T points out that the idea of skipping mathematical steps cannot be found in the textbook. This motivates him to offer an explanation to the students in Cantonese. |

**Table 6.5: Video-Stimulated-Recall-Interview (Extract 5)**
In the interview, teacher A realizes that the students may not be able to process the mathematical equations properly. This motivates teacher A to enhance his students’ mathematical ability by drawing his students’ attention to skipping mathematical steps. By doing so, this displays teacher A’s understanding of the weaknesses of his students’ mathematical level and his motivation to improve his students’ mathematical problem-solving skills. Originally teacher A wants to give a chance for the students to identify the steps that are skipped. However, teacher A eventually decides to point out the steps for the students so that they can immediately recognise the steps that are missing on the blackboard. This is reflected in the MCA analysis where teacher A directs students’ attention to the mathematical solution on the blackboard (line 15). However, as no student responds to teacher A’s question, the teacher offers a mathematical explanation in Cantonese (line 19). As teacher A points out, the idea of skipping mathematical steps cannot be found in the textbook and this motivates him to explain to the students in Cantonese.

Notably, teacher A utilises the metaphors of jumping and committing suicide to refer to the consequence of failing to skip mathematical steps accurately (lines 21-25). In the interview, teacher A recounts his prior experience when he felt confused since his teacher skipped mathematical steps. Particularly, teacher A shifts the footing by voicing out his reaction when he witnessed his mathematics teacher skipping mathematical steps: ‘哦完來個老師跳步，跳左好多步 (oh, the teacher skipped the steps. He skipped many steps)’. Hence, he hopes that his students will be able to identify the steps that are skipped in this situation. It is noticeable that the teacher also recounts a similar prior experience in the classroom interaction which is exemplified in line 19 as he refers to his ability in skipping mathematical steps when he was a secondary school student. It can be argued that teacher A’s decision of using the metaphors of jumping and committing suicide can potentially be inspired by his experience when he was learning mathematics as a secondary school student. Through drawing on his prior learning experience, the teacher is creating a translanguaging space where he brings the outside knowledge of physical actions, including jumping and committing suicide, into the classroom to figuratively refer to skipping mathematical steps as jumping and the consequence of failing to skip mathematical steps accurately as committing suicide.

6.4 Summary

This chapter has shown how translanguaging is used as a resource for bringing relevant out-of-school knowledge into the classroom to support knowledge construction and content learning. Extracts 1 and 2 reveal how teacher A deploys translanguaging to create a real-life scenario context
of playing computer war games in order to assist students in understanding the complex mathematical question. Extract 3 illustrates how teacher A creates real-life scenarios through translanguaging to mirror the actual walking route from the school to the house-estate. By bringing students into the everyday life world through translanguaging, it enables students to imagine and experience the specific situation as richly as they would in a multi-sensory environment. In Extract 4, teacher A deploys a variety of registers, multimodal and spatial resources to construct the metaphor of cooking for facilitating his content explanation. In Extract 5, it is noticeable that the teacher aims offer mathematical explanations to students by constructing metaphors of jumping and committing suicide. Teacher A’s translanguaging practices are bridging the gap between what students learn in class and their outside knowledge because teacher A employs the metaphors of ‘cooking’, ‘jumping’ and ‘committing suicide’, which are common knowledge that students will know, to explain the necessity to construct every mathematical step in order to solve the question.

This chapter demonstrates that the teacher creates an integrated translanguaging space (Li, 2011) by including the everyday life space in the EMI institutional learning space in order to transform the classroom into a lived experience. Such a translanguaging space does not only allow the teacher to switch between everyday language and academic register (subject-specific terms or expressions) for facilitating meaning-making processes (Lin, 2019). It affords opportunities for the teacher to bring his funds of knowledge to the forefront, including his pedagogical knowledge, linguistic knowledge, cultural and life experiences, in order to make the academic knowledge more relatable and relevant to the student’s life experience. It is vital to note that the analysis does not show any direct evidence that bringing outside knowledge through translanguaging can lead to content and language learning. Nevertheless, it is possible that integrating students’ real-life knowledge into the EMI classroom through translanguaging can potentially serve to advance students' understanding of the mathematical concepts and broaden the students’ perspective as they recognise the meaning and value of the academic knowledge beyond instructional context.
Chapter 7 — Analysis: Creating a Technological Mediated Space through Translanguaging

7.1 Introduction

This chapter illuminates the role of a technological device in creating a translanguaging space and expanding EMI teacher’s semiotic and spatial repertoires by enabling him to carry out his teaching in creative ways. There has been a surge of interest in recent years exploring the use of mobile digital devices, such as iPads, smartphones and tablets, for facilitating student’s language learning processes and how teachers integrate such devices into the pedagogical practices in order to maximise the students’ learning opportunities and engagement (e.g. Liu and Chao, 2017). Some argue that the use of mobile digital devices makes students’ learning ‘more meaningful, motivating, and rooted in the personal interests of students’ (Warschauer and Cook, 1999: 32). Moreover, teachers employ different strategies of using mobile digital devices in different classroom contexts for different purposes (Warschauer, 1999). Understanding the teachers’ pedagogical strategies in utilising such devices in the particular context is therefore very important.

In the L2 teaching and learning field, research has shown that mobile devices can facilitate students’ L2 reading and listening skills, increase students’ motivation in learning an L2 (Oberg And Daniels, 2013) and enhance their L2 oral proficiency (Lys, 2013). Additionally, studies have explored examples of how one specific type of technology can support teaching and students’ learning (e.g. Chao, 2006; Roush and Song, 2013). Most of the existing studies focus on the students’ use of mobile devices in or outside the L2 classrooms for developing their L2 proficiency. There is a clear need for empirical studies that investigate how teachers utilise mobile devices to maximise learning opportunities and construct engaging learning experiences for students.

As previously argued in previous chapters, translanguaging seems to be at odds with the one-language-only and one-language-at-a-time EMI policy and practice. Translanguaging embraces multimodality; translanguaging pedagogies include the use of digital technologies as part of the meaning-making repertoire. This chapter aims to expand the existing literature on the role of mobile digital devices, such as iPads, to facilitate content teaching and learning in EMI mathematics secondary classes in HK. It focuses on how the use of the iPad extends the semiotic and spatial repertoires to enable the EMI teacher in constructing a translanguaging space for supporting students’ content learning and participation.
7.2 Use of Mobile Devices in L2 Classrooms

The integration of mobile digital technologies in language classrooms for promoting L2 teaching and learning has been well documented in the existing literature. This includes the application of technological devices as instant response systems (e.g. Rodriguez and Shepard, 2013) and mobile devices like iPad, mobile phones and tablets (Engin and Donanci, 2015). Within this broader context, the field of mobile-technology-assisted language learning has attracted the applied linguists’ attention (e.g. Kukulska-Hulme and Shield, 2008; Godwin-Jones, 2011). Researchers are interested to explore the affordances of mobile technology and how students can benefit from these affordances to enhance their L2 proficiency (e.g. Harmon, 2012; McClanahan et al., 2012; Kinash et al., 2012; Oberg and Daniels, 2013; Lys, 2013). For instance, Lys (2013) examines the impact of the use and integration of iPad for facilitating the L2 German students’ oral proficiency. The findings reveal that iPads are useful for providing additional speaking practices for advanced level students. This results in an increase in the amount and quality of the students’ oral production.

A significant number of studies on mobile-assisted language learning has been focusing on how mobile devices foster students’ agency and autonomy, i.e. learning L2 on their own without direct instruction of teachers. To date, there is little empirical work that qualitatively examines how mobile devices are used by the teachers and learners in the classrooms for achieving L2 teaching and learning. Engin and Donanci (2015) examine the impact of the use of iPad in promoting dialogic teaching in the English for Academic Purposes classes in an EMI university in the United Arab Emirates. The findings illustrate that iPad both affords and restricts opportunities for the teacher in engaging in dialogic teaching. The authors argue that the creations of dialogic teaching depend on the teacher’s and students’ attitudes to the iPad as a pedagogical device. However, the author does not provide a detailed analysis of the classroom interaction which prevents the readers from understanding how iPads can possibly create or hinder opportunities for dialogic teaching. Liu and Chao (2017) investigate the English teacher’s practices of using various technological tools, including computer, projection screen and mobile phones, in fostering learner agency in a university English-as-a-second-language class. The analysis reveals that the teacher’s use of technological tools creates an equal and non-threatening classroom environment for the students to participate and exert their agency in class. The authors emphasise the importance of the teacher’s role in orchestrating the technological affordances for maximizing learning opportunities and encouraging student agency.

The present chapter aims to contribute to the current literature on translanguaging and EMI teaching and learning by investigating the role of the iPad in creating a translanguaging space for
achieving the teacher’s oriented pedagogical goals. As argued by Ho and Li (2019), the ways in which individuals strategically mobilise diverse resources for achieving their desired learning outcomes have to be better accounted in order to allow researchers to understand the impact of mobile devices on learning. Hence, this reinforces the need for analysts to focus on how technological tools affect the action and activities in classroom interactions.

7.3 Use of iPads for Facilitating Content Learning

We now analyse examples of the teacher’s use of the iPad for facilitating content learning (Extracts 1 and 2) and constructing a humorous classroom environment for promoting student engagement (Extracts 3 and 4).

In the dataset, 50 instances are identified which demonstrate how the teacher utilises the iPad for explaining the mathematical concepts. Extracts 1 and 2 are typical examples that illustrate this interactional phenomenon.

Extract 1

Prior to the extract, teacher C (T) requested the class to complete a mathematical question which required them to solve the value of ‘v’. After a short while, teacher C took an image of student 1’s work as well as student 1’s appearance via his iPad. Teacher C then projected student 1’s appearance to the screen in front of the whole class (will be analysed in Extract 3). This led to students’ laughter in the class and teacher C later uploaded student 1’s work to the screen through his iPad and asked students to keep quiet so that they could attend to teacher C’s instruction. In this extract, teacher C is evaluating the accuracy of student 1’s work.
39 T: thank you (0.5) okay now this is e r (NAME S1) work
40 (1.0)
41 S10: ugly (NAME- S1)
42 (1.4)
43 T: +now of course >you’d be like< ↑sir um
   +T points at the screen
44 (0.7)
45 T: +mine (0.6) is slightly different=
   +T uses index and middle finger to point at ‘4x’ and uses ring and little fingers to point at ‘2u+v’ #3

46 T: =+my this side is on the +right side=
   +T stretches all his fingers to point at “4x (2u+v)”
   +T moves his RH to his RHS #4
   +T stretches all his fingers and points at “5(u-2u)”
   #4
47 T: =and then this side is on the +left side=
   +T moves back to LHS
   +T extends all his fingers and points at
   "4x(2u+v)"

48 S5: =same thing=

49 T: =does it make a difference?

50 (0.2)

51 SS: nc=

52 T: =it's the +same thing right? (0.5) so
   +T raises up his RH, palm facing upward

53 (0.6)

54 T: +u:m (0.9) make sure you add a +bracket=
   +T points at "(2u+v)"
   +T extends his index and little fingers
   and points at the bracket of "(2u+v)" #5
55 T: =to indicate clearly
56 (0.4)
57 T: which one you are doing (0.2) +and then
58 (0.5)
59 T: +four times +u
60 (0.3)
61 T: +eight +u (0.3) +four times +v (0.2) +four *v
       +T points at '3', which is part of the equation 8u+4v
       +T points at 'u', which is part of the equation 8u+4v
       +T points at '4', which is part of the equation 4x (2u+v)
       +T points at 'v', which is part of the equation 4x (2u+v)
       +T points at 4v, which is part of the equation 8u-4v
62 + (0.7)
63 +T points at '5(u-2v)' and '5u-10v'
63 T: alright correct (0.3) + so you get one mark
   +T enacts a tick gesture
64 + (1.2)
   +T looks down on his iPad
65 T: now =
66 S2: = + ° is it negative fourteen? °
   +T looks up and glances at S2
67 (1.1)
68 T: u:m (0.4) ° we will discuss later °
69 (0.7)
70 T: okay (0.6) now + and then (0.4) we realise
   +T points at ‘8u+4v’
71 (0.5)
72 T: +u is here (0.5) +u is here
   +T uses yellow highlighter to highlight ‘8u’ #6
   +T uses yellow highlighter to highlight ‘5u’ #6
73 + (3.7)
   +T uses blue highlighter to highlight ‘4v’ and ‘-10v’ #6
74 T: we have to make (0.4) v as the subject =
75 T: =so what did (NAME S1) do was=
76 T: =he +moved the negative ten +v +to the?
    +T uses index and little fingers to point at "-10v" #7
    +T moves his RH to the LHS
    +T points at the equation '4v+10v' #8
In line 43, teacher C draws students’ attention by pointing at student 1’s work, which is projected
on the screen in front of the whole class. At the same time, teacher C is adopting a student’s voice by imagining himself as a student who initiates a question. Such a student voice is created as he utters in a quick pace and places high intonation on the word ‘sir’: “you’d be like< ↑ sir um”. He continues to enact the student voice as he utters: “mine (0.6) is slightly different” (line 45). Teacher C’s imitation of a student’s voice appears that he is trying to predict the problem that students may face when working on this mathematical question. In lines 46 and 47, teacher C points out the potential issue that students may face: “my this side is on the right side=“ and then this side is on the left side”. Particularly, teacher C first points at “4x(2u+v)” and then moves his right hand to his right-hand side (figure #4), pointing at “5(u-2u)”, as he explains the situation when “4x(2u+v)” is positioned on the right-side in line 47. Teacher C then moves his right-hand back to LHS, pointing at “4x(2u+v)”, as he explains that the formula “5(u-2u)” is positioned on the left-side. Here, teacher C attempts to create a hypothetical situation where the students may have placed the two formulas in different directions.

In lines 54-69, teacher C is going through student 1’s mathematical solution step by step with the students. In line 70, teacher C opens a new sequence and draws the students’ attention to the second step of student 1’s solution by pointing at “8u+4v” in line 70. Teacher C then deploys the yellow highlighter function on his iPad to highlight the value ‘8u’ on the right-side, while he utters ‘u is here’ in line 72. Teacher C then repeats the same sentence and highlights the value ‘5u’ on the left-side (figure #6). By doing so, teacher C is emphasizing the positions of the value of ‘u’ on both right and left sides since the goal is to mathematically remove ‘u’ in order to find out the value of ‘v’. This interactional phenomenon is similar to the observation made by Majlesi (2018) where the teacher projects the material on the screen through the viewgraph. By using the yellow highlighter, all students can see how the teacher highlights the key part under focus at the time of the interaction. During the 3.7-second pause, teacher C switches the highlighter colour from yellow to blue via his iPad and highlights ‘4v’ and ‘-10v’ on the right and left sides respectively (figure #6). Unlike line 72, it is interesting to note that teacher C does not verbally mention the position of ‘v’ in this case, such as uttering ‘v is here’. It is possible that the students are now paying attention to teacher C’s highlighting on the screen. In fact, teacher C makes it clear to the students that ‘we have to make (0.4) v as the subject’, which helps students to understand why the mathematical values, ‘4v’ and ‘-10v’, are highlighted in a different colour.

From lines 75-88, teacher C relies on the use of gestures and points at the relevant parts of student 1’s mathematical solution which are projected on the screen via the iPad. In line 75, teacher C initiates a designedly incomplete utterance (DIU) (Koshik, 2002) in line 76, ‘he moved the negative ten v to the?’. When teacher C utters the word ‘move’, he points at “-10v” that is
highlighted in blue colour (figure #7). He then moves his right-hand to the left-hand side, pointing at the equation “4v+10v”, as he constructs the DIU (figure #8). By doing so, teacher C’s prior highlighting in line 73 allows him to provide a hint for students through his hand movement and also inviting students to complete the utterance for teacher C so that they can work out how the mathematical value ‘-10v’ can be made as a subject by moving it to the left-hand-side. Although student 5 displays his uncertainty of the answer in line 78, a couple of other students enunciate ‘left’ in line 79. Such a response is being acknowledged by teacher C as he repeats the correct answer in line 81. Similar to line 76, teacher C first initiates a DIU by stating, ‘and then he moves the eight u to the?’ (line 84). As teacher C utters the word ‘and’, he repeats the same gestures. Teacher C first points at “8u”, which is highlighted in yellow colour (figure #9), and subsequently moves his right-hand to the right-hand side and points at the equation “5u-8u” (figure #10) to offer a hint for the students so that they will realise that the value ‘8u’ has to be moved to the right-hand-side. Teacher C’s self-repeated gesture (Hauser, 2019) eventually motivates a number of students in uttering ‘right’ in line 86. The student’s responses are confirmed by teacher C as he first repeats the correct answer and provides a verbal positive assessment ‘correct’ in line 88.

In this extract, it is revealed that teacher C exploits the iPad as a projector which allows him to take a photo of student 1’s work and upload it on a big screen where students can witness the way S1 attempts to solve the mathematical formula. Teacher C is also given the opportunity to make use of gestural resources to point at the screen for drawing the students’ attention to the content of the lesson. The iPad whiteboard app also allows teacher C to highlight parts of student 1’s work in different colours so that students can pay attention to the mathematical part under focus at the time of speaking (Goodwin, 1994; Majlesi, 2018). These pedagogical strategies result in students’ uptake, as evidenced in the accurate student responses in lines 79, 83 and 86. During the video-stimulated-recall-interview, teacher C is invited to comment on the affordances that the iPad provides:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall Interview Selected Excerpts</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>39 T: thank you (0.5) okay now this is e x (NAME S1) work</td>
<td>01 K: Do you mind just quickly um do you mind telling me what were you trying to do at that moment?</td>
<td>By taking a photo of a student’s work, T aims to allow other students to evaluate that student’s work, which is projected on the screen.</td>
<td>T is able to make use of the camera function on the iPad which allows the students to visually see that particular student’s work on the screen.</td>
</tr>
<tr>
<td>40 (1.0)</td>
<td>(short pause)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41 S10: ugly (NAME S1)</td>
<td>02 T: Wanna go through the question answer so instead of me explaining I went and take a picture of the student’s work and through the students work. I sort of probe our students’ skills on whether check whether their classmates' steps are correct. So, this way, they will pay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42 (1.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43 T: +now of course &gt;you’d be like&lt; +tsir um +T points at the screen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>44 (0.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>45 T: +nine (0.6) is slightly different= +T uses index and middle finger to point at ‘4x’ and uses ring and little fingers to point at ‘2u’ #3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>46 T: =+my this side is on the right side= +T stretches all his fingers to point at “4x (2u+u)” +T moves his RH to his RHS #4 +T stretches all his fingers and points at “5(u-2u)” #4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure #3
T: and then this side is on the left side=
   +T moves back to LHS
   +T extends all his fingers and points at “4x(2u+v)”

S5: =same thing=
49 T: -does it make a difference?
50 (0.2)
51 S5: no=
52 T: =it’s the +same thing right? (0.5) so
   +T raises up his RH, palm facing upward
53 (0.6)
54 T: +u:m (0.9) make sure you add a +bracket=
   +T points at “(2u+v)”
   +T extends his index and little fingers and
   points at the bracket of “(2u+v)” #5

extra attention on finding out mistakes if there are any. And so, I just go step by step. And also, letting the student know where the student will get mark. So, yeah.

03 K: I find it very interesting. Because of, you know, the use of technology that affords you to take photos of student's work. And so, in your opinion, why is it necessary to what is the rationale of taking photos, instead of asking students to tell you the steps.

04 T: Um, well,

T believes that students will pay attention to the screen and spot any mathematical errors.

The researcher is curious to understand the real purpose of taking a photo of student’s work. T could have asked the students to write the steps on the blackboard.
actually, there are a lot of um advantage. Number one, um normally in the classic approach traditional approach you after students are done working, you would ask them to um go out and write it on a blackboard. So, they repeat what they write on their paper. And during that time, you know, you're losing essentially time. Because you have to wait for those students to write on the blackboard and then go back. But this allows me to quickly be able to evaluate their

T points out the disadvantage of asking students to come out to the blackboard and write down the mathematical solution on the board. It wastes a lot of time.

T points out that iPad allows T to be able to quickly evaluate student's

It is possible that due to COVID-19 pandemic, the lesson time was shortened. T has to ensure that time should not be wasted on such matter. T may need to ensure that all students could learn as much as they could during the face-to-face lesson.

55 T: = to indicate clearly
56 (0.4)
57 T: which one you are doing (0.2) and then
      + T points at the equation “8u+4v”
58 (0.5)
59 T: + four times + u
      + T points at ‘8u’, which is part of the equation of 4x (2u+v)
      + T points at ‘2u’, which is part of the equation of 4x (2u+v)
60 (0.3)
61 T: + eight + u (0.3) + four times + v (0.2) + four + v
      + T points at ‘8’, which is part of the equation 8u+4v
      + T points at ‘u’, which is part of the equation 8u+4v
      + T points at ‘4’, which is part of the equation 4x (2u+v)
      + T points at ‘v’, which is part of the equation 4x (2u+v)
      + T points at ‘2v’, which is part of the equation 8u+4v
62 + (0.7)
      + T points at ‘5(2u-2v)’ and ‘5u-10v’
63 T: alright correct (0.3) + so you get one mark
     +T makes a tick gesture
64 + (1.2)
   +T looks down on his iPad
65 T: now=
66 S2: =+"is it negative fourteen?"
   +T looks up and glances at S2
67 (1.1)
68 T: um (0.4) "we will discuss later"
69 (0.7)
70 T: okay (0.6) now + and then (0.4) we realise
   +T points at '8u+4v'
71 (0.5)
72 T: +u is here (0.5) +u is here
   +T uses yellow highlighter to highlight '8u' #6
   +T uses yellow highlighter to highlight '5u' #6
73 + (3.7)
   +T uses blue highlighter to highlight '4v' and '-10v' #6

Figure #6

74 T: we have to make (0.4) v as the subject=

work and another purpose of this is I can quickly highlight. I can use it as a record keeping on my iPad. I can highlight, I can um amend I can put remarks over there where other students can also see immediately. So, and I really like um students to see other students work. So, it makes everything more authentic instead of my work. Um so they can at least view student at their classmates' work on me and the person who I took the picture of this students work at least that student work.

T can also quickly highlight student's work.

T also keeps a record of the student's work on his iPad.

T believes that allowing students to witness their peer's work can make the learning experience more authentic.

Highlighting student's work via iPad allows students to visually notice the errors or parts of the solution that worth paying attention to.

T is trying to exploit authentic material for facilitating mathematics teaching.
75 T: =so what did (NAME S1) do was=
76 T: =he moved the negative ten +y +t+o the?
    +T uses index and little fingers to point at "-10v" #7
    +T moves his RH to the LHS
    +T points at the equation "4v+10v" #8

will also feel sign to kind of achieve a certain sort of achievement that he was allowed to be you know his work was being taken picture of so that's why I think it just bits and pieces and then another important part is um it allows others to visually see what's going on on the screen. You know, I can use highlighters to emphasize on certain things I can use different colors to put remarks so allow different types of learners visual or not to know exactly what I'm talking about. What's the

Allowing students to gain a sense of achievement and recognition from T.

iPad allows T to use different colours to highlight important things. This can cater to different students’ learning needs.

Specifically, iPad affords T to draw on different highlighting colours to indicate key things for the students to focus on. This can be beneficial to students who are visual learners.
Table 7.1: Video-Stimulated-Recall-Interview (Extract 1)
After watching the video-clip, teacher C comments on the rationale for him to take a photo of student 1’s work via his iPad. By utilising the camera function afforded by the iPad, teacher C is able to provide an opportunity for other students to evaluate student 1’s work, which is subsequently projected on the screen in front of the students. Students can visually see student 1’s work on the screen and teacher C believes that this can encourage students to spot any mathematical errors made by student 1. This, in turn, creates a learning environment where students can interact with authentic material.

It is possible that teacher C could have asked student 1 to write the steps on the blackboard and other students could still be able to view student 1’s step-by-step mathematical solution on the blackboard. In line 3, teacher C justifies that it will waste a lot of teaching time if teacher C asks students to come out and write down the mathematical solution on the board. It is important to note that due to the COVID-19 pandemic, the HK government announced that teachers and students were only allowed back on campus for half-day classes in June 2020. Due to the school suspension from January to May 2020, teacher C had to rely on Zoom for conducting mathematics teaching and a lot of teaching content could not be covered in great detail with the year 10 students. In order to save face-to-face lesson time, teacher C decides to publicly display student 1’s work through projecting it on the screen so that he can quickly assess, highlight, amend, put remarks and save a record of the student’s work.

Additionally, teacher C believes that allowing students to witness their peer’s work on the screen can make the learning experience more authentic (line 4). It can be argued that the iPad affords teacher C to exploit authentic material for facilitating mathematics teaching. Through taking a picture of student 1’s work, it offers a sense of recognition for student 1 and it also gives an opportunity for teacher C to use different colours to highlight important things. This illustrates that the iPad affords teacher C to draw on different highlighting colours to indicate key things for the students to focus on, which can potentially be beneficial to students who are visual learners.

**Extract 2**

Prior to this extract, teacher C required students to solve a mathematical equation and after a short while, a couple of the students yelled out the answer. However, student 4 uttered ‘I got ten’ and teacher C questioned whether student 4 copied his answer from other students. After student 4 denied teacher C’s accusation, teacher C took a photo of student 4’s work and projected it on the screen. In this extract, teacher C invites other students to evaluate student 4’s solution and identify any errors (lines 27 and 29).
27 T: +lah l didn't say it's correct bah? (.) have a look
   +T points at the screen
28  +{1.0}
   +Some students are chatting privately
29 T: +anyone sh: <can +find (0.3) his>
   +T points at the screen
   +T repeatedly moves his RH upward and downward
30  (0.2)
31 T: sh:
32 S5: oh ah:
33  (0.3)
34 T: +hold on let me complete my sentence
   +T extends his right arm, RH palm facing students, all fingers extended #5
35  (0.2)
36 S1: hahahaha
37  (0.9)
T: anyone can find now I will give you

T kneels down slightly

T extends his right arm, RH palm facing students, all fingers extended

S4: [oh shoot] it's minus

S4 stands up and points at the screen

T: okay so

T points at S4

S4: it's a minus

S4 stands up and extends his fingers, pointing at the screen #6

Figure #6
47 T: 像啦 (+NAME-S4) found his own mistake
((hai ah))
((tr. yeah))
+T points at S4, extending all his fingers
48 (.)
49 T: +what's the problem
+T zooms into S4's work
50 (0.2)
51 S5: sir sir sir there's a problem I think
52 (0.2)
53 S5: oh no no no
54 +1.2)
+T circles ‘+’ sign next to ‘3.5’, using red colour pen via iPad #7

55 S8: +the answer is nine
+T zooms out and shows S4’s full writing
+T underlines the + sign using red colour pen via iPad #8
56 (2.0)

57 T: okay very good (0.8) + so that's why guys

+ T walks to students’ seats, between the 3rd and 4th rolls

#9

58 (1.0)

59 T: guys (0.8) that's why I keep telling you

60 (0.5)

61 T: after you + get the answer (0.3) + please double check

+ T cups RH as if holding a ball #10

+T turns his body, facing students on
the 1st, 2nd and 3rd rows #11
62 (0.7)
63 T: because some of you +will make mistake like this
+T points at the screen #12

64 (0.5)
65 T: and +this already costed him cost him +two marks
+T turns his body, facing students on the 4th, 5th and 6th rows
+T extends his index and middle fingers #13
66 (1.7)
67 T: +because of this mistake
   +T extends his right arm and points at the screen #14

68 (1.1)
69 T: okay? so that's why +(. ) +yes (1.4) which one (0.4) seven
   +S5 raises up his hand
   +T walks to S5

70 (0.2)
In line 29, teacher C is constructing a sentence which aims to invite students to search for mistakes in S4’s work. However, teacher C’s utterance is being interrupted by several students’ private chats. Teacher C repairs his utterance and decides to give an instruction to students, ‘now I will give you (0.6) five seconds’ (lines 38-40).

In line 41, student 4 suddenly interrupts teacher C’s talk by uttering an informal expression, ‘oh shoot’ to express his realisation. Student 4 then stands up and points at his work on the screen.
while explaining that ‘it’s minus’. In line 47, teacher C first acknowledges student 4’s answer by offering a positive assessment in Cantonese, ‘係啦’ (yeah). Teacher C then switches back to English, ‘(NAME-S4) found his own mistake’, as well as pointing at student 4, to recognise his response. Teacher C then initiates a question, ‘what’s the problem?’ and zooms into student 4’s work via his iPad in order to give a hint to students so that they can easily identify student 4’s error (line 49). Despite offering such a hint, students in the class fail to offer any responses to teacher C’s question. This is shown through student 5’s self-realisation of his inaccurate response (line 53) and a long pause in line 54. During the 1.2-second pause, teacher C circles the ‘+’ sign in red colour via his iPad (figure #7) in order to give an additional hint to students to guess the error that student 4 has made. Possibly because of the visual hints offered by teacher C, this motivates student 8 in offering an answer to teacher C, as he says, ‘the answer is nine’ (line 55). While student 8 is speaking, teacher C zooms out the screen and displays student 4’s full solution to the students via the iPad. Simultaneously, teacher C uses his Apple pencil to underline the ‘+’ sign in red colour (figure #8) to visually indicate the mistake that student 4 has made. After a long pause, teacher C offers a positive assessment by saying, ‘okay very good’, in line 57 which possibly provides feedback to student 8’s response.

When teacher C pre-empts the provision of advice for students, as he enunciates ‘so that’s why guys’ (line 57), teacher C walks along the short pathway which is located between the 3rd and 4th rows of the students’ seats (figure #9). While teacher C is walking, he continues to offer advice to students in line 59. Particularly, teacher C cups his right-hand, as if holding a ball, when he utters ‘get the answer’. Such an iconic gesture allows students to imagine teacher C is holding an ‘answer’ on his right-hand (figure #10). Teacher C then turns his body, facing students sitting on the 1st, 2nd and 3rd rows (figure #11), as he reminds students to ‘double check’ (line 61) their work. By doing so, teacher C is potentially establishing eye contact with students who are sitting on the back of the teacher’s left-hand-side of the classroom so that students will potentially attend to teacher C’s talk. In line 63, teacher C further elaborates on the need for students to check their work. As he utters the word ‘will’, teacher C points at the screen while gazing at the students in order to indicate that there is a chance for students to make a similar careless mistake like student 4, as displayed on the screen. Interestingly, teacher C turns his body and this time he is facing students on the 4th, 5th and 6th rows (figure #13) while he emphasises the fact that such a mistake has cost student 4 two marks. Here, teacher C is possibly trying to engage students who are sitting on the back of the right-hand-side of the classroom. Teacher C reiterates the consequence of losing marks in line 67 by extending his right arm and pointing at the screen again to point at student 4’s mistake (figure #14).
After the provision of the mathematical advice to students, teacher C checks the correct answer with S5 in line 69. As teacher C receives a wrong answer from student 5, this motivates teacher C to first apologise to the students and repair his answer, ‘ah sorry three yes’ (line 75). While he is speaking, teacher C continues to walk towards the screen, and he uses his Apple pencil to cross out ‘10’ and write down ‘3’ in red colour (figures #15 #16). This allows students to notice the correct answer which is projected on the screen.

Similar to Extract 1, teacher C makes use of his iPad to project student’s work on the screen and allow students to notice teacher C’s annotations on the screen. However, in this extract, it is evidenced that teacher C deploys additional semiotic features that the iPad affords, including using a red colour pen to circle and underline key mathematical values, crossing out the wrong answer and using the pinch gesture to zoom in and out on specific parts of student’s work in order to encourage students to work out the answers by themselves. Importantly, this extract also illustrates the potential of the iPad for facilitating teacher C’s walking trajectories since teacher C is able to annotate student’s work via his iPad while he is walking around the classroom to ensure that all students are paying attention to teacher C’s mathematical advice. During the video-stimulated-recall-interview, teacher C is asked to make sense of his pedagogical actions at this moment of interaction:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall Interview Selected Excerpts</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
</table>
| 27 T: *inh. I didn't say it's correct ha? (. .) have a look*  
   28 + (0.3)  
   +Some students are chatting privately  
   29 T: *<sigh> oh <len> (0.2) <sigh>*  
   +T points at the screen  
   +<T repeatedly moves his Rth upward and downward>  
   30 (0.2)  
   31 T: ah;  
   32 25: oh ah;  
   33 (0.3)  
   34 T: *hold on let me complete my sentence  
   +<T extends his right arm, Rth palm facing students, all fingers extended>  
   35 (0.3)  
   36 21: hahaha  
   37 (0.3)  
   38 T: *<sigh> (0.3) can find* (0.3) *now I will give you  
   +<T pauses down slightly>  
   +<T extends his right arm, Rth palm facing students, all fingers extended>  
   39 (0.6)  
   40 T: *[five seconds]*  
   41 24: [oh about] *it's minus*  
   +S4 stands up and points at the screen  
   42 (0.2)  
   43 T: *okay so*  
   +<T points at S4>  
   44 (0.3)  
   45 24: *it's a minus*  
   +S4 stands up and extends his fingers, pointing at the screen #6  
   46 (0.2) | 01 K: Okay, so what do you think you're trying to do there?  
02 T: I think um again, pointing out the fact that, you know, student's work and then I would like them to see if they agree with his method. And if they found that it's, you know, different than what they have done on their work. I would like them to, you know, find the difference between their work and the student's work and see if they can, you know, find out a very very small mistake. And I wanted to emphasize that doing something simple confident about it. It's always always | T aims to project the S4’s work on the screen via his iPad in order to allow other students in the class to check whether they agree with S4’s method. | T utilises iPad to take a photo of S4’s work and project it visually on the screen so that it is publicly available to all students.  
T hopes that students will be able to point out the “small mistake” that S4 has made.
easy to make less mistakes when you're doing work. So, the emphasis was. And I think the key takeaway was always to double (check the work no matter how) simple it looks. Er to, you know, reduce the chances of losing crucial marks or task.

[...]

03 T: yeah um so after you know S4 realizes his own mistakes and then you walk back to the classroom and point out, you know, ask students to pay attention to the screen. And you're also pointing at the screen.

04 T: um hm

05 K: I was, I was wondering um what is T reinforces the need for students to double check their mathematical steps in order to avoid making any trivial mistakes.

Year 10 students are undertaking the senior secondary curriculum and the syllabus is preparing students to take the Hong Kong Diploma of Secondary Education (HKDSE) examination in 2022. Therefore, T keeps reinforcing the need for students to check their work carefully in order to avoid losing marks.
the purpose of, you know, walking around while you're doing the mathematical explanation to the class.

06 T: mm um um I don't want them to feel that. I feel like I'm more comfortable walking around. So, I know that, you know, everyone is paying attention to my voice. And not only that, they know that I'm walking around and asking questions. So, it is like a discussion, rather than um you know, and lecture-based things. So, you know I am walking around and asking questions. It just makes things more um I would say comfortable to me, actually. I really feel

T explains that walking around the classroom allows him to “feel more comfortable” and “feel good”.

T can also ensure that “everyone is paying attention” to his voice and “it is like a discussion” rather than a traditional lecture-based approach where the teacher stands in front of the screen/blackboard.

The researcher is interested to understand the pedagogical goals of walking around the classroom during the interaction.
good and um I just hate standing in front of the screen and just repeating just talking. It's just loses the fun. I think. So yeah. It is just. At the beginning, I think we were with the, without the iPad, I think 90% of the time, but with the iPad. I don't have to confine myself into the front of the classroom. I can walk around and explain you know make sure everyone is, you know, on on task. And also, you know, make them also feel like they can hear my voice throughout the classroom because sometimes when you're at the back of the classroom, the volume might not be

T attributes to the affordances of iPad which provides him opportunities to walk around the classroom where he can ensure that all students are on task.

T aims to create a classroom environment where himself and students can feel comfortable in engaging in a class discussion.

iPad as a resource for extending T's spatial repertoire. By offering him the autonomy to walk around the classroom to check student's progress, this allows T to enact inclusive practices (i.e. including all students on the same tasks and ensuring that all students can listen to T in the classroom).

Being able to walk around the classroom can also allow students to be able to hear T's voice throughout the interaction.
Table 7.2: Video-Stimulated-Recall-Interview (Extract 2)

<table>
<thead>
<tr>
<th>T:</th>
<th>so the answer should be?</th>
</tr>
</thead>
<tbody>
<tr>
<td>T:</td>
<td>walks towards the screen</td>
</tr>
<tr>
<td>Ss:</td>
<td>three</td>
</tr>
<tr>
<td>T:</td>
<td>sorry three yes</td>
</tr>
</tbody>
</table>

T crosses out '10' and writes down '3' in red colour pen via iPad while walking

When students witness T walking around the classroom, this may motivate their interest in learning and make the learning process to become more “entertaining”.

It is possibly because T is wearing a surgical mask to conduct his teaching due to the COVID-19 pandemic and less sound gets through to the front of the mask.
In line 6, teacher C explains that walking around the classroom allows him to transform the interaction into a classroom discussion instead of a traditional lecture-based approach where the teacher typically stands in front of the screen/blackboard during the lecturing. Such a traditional pedagogical approach will potentially demotivate students’ interest in learning as teacher C explains that: “it’s just loses the fun”. Teacher C then attributes to the affordance of the iPad which provides him opportunities to walk around the classroom. This, in turn, enables him to ensure that all students are “on task” and allow students to be able to hear teacher C’s voice throughout the interaction. It is possibly because teacher C is wearing a surgical mask to conduct his teaching due to the COVID-19 pandemic and less sound gets through to the front of the mask. Throughout the classroom observation period, the researcher notices that teacher C needs to speak loudly in the class in order to ensure that all students can hear his voice (fieldnotes).

Hence, it can be argued that the iPad plays a role in extending teacher C’s spatial repertoire as teacher C is able to walk around the classroom to monitor students’ progress while he is carrying his iPad with him. This also allows teacher C to enact inclusive practices (Trussler and Robinson, 2015) as he can include all students into the classroom interaction through ensuring that all students can hear the volume of his voice. He can also immediately mark down the correct answer on the iPad for ensuring that all students can notice the answer on the screen.

Extract 3

Extract 3 is another typical example that illustrates how the teacher draws on English as a common language and other technological and multimodal resources to facilitate students’ understanding of the mathematical question.

Prior to the extract, teacher C projects the mathematical equation on the screen via his iPad and invites students to discover ways to solve the equation (Image 7). Several students realised that they needed to combine two variables into one variable, but the other students had no idea how to solve it. In line 51, teacher C decides to give an example so that all students can understand how they can solve the equation. In this extract, teacher C’s translanguaging practices can be observed through his use of iPad for writing down the mathematical formula, in conjunction with his verbal instruction in English (e.g. lines 53-57, 80, 84), using metaphoric gestures with speech to facilitate the mathematical explanation (e.g. lines 57, 80, 82), using both verbal speech and different colours of highlight pens, a function that is afforded by iPad, to help students to notice the salient mathematical variables, such as $a^2$, in lines 80 and 91.
T: +okay l will +give you a hint (1.5) +alright? +T looks at students +T picks up his iPad +T zooms into a blank page

T: um +(10.2) if l have to solve a +T writes down an equation via iPad #10

T: now they are two separate As +T writes “=1” +T curls his thumb and index finger to form a c-shaped gesture and closes the gap between fingers

T: what do l have to do next (2.1) +can l combine them?

SS: ya:=
SS: =no=
T: =why not

(0.2)

(0.4)

(1.1)
SS: because of $b$
S5: $=y$ou will have $b$
T: because they are $+un-$

$+T$ extends his right arm, palm facing upward

(T extends his right arm, palm facing upward)

S5: $=y$ou will have $b$

T: because they are $+un-$

$+T$ moves his RH in circular motion

(T moves his right hand in a circular motion)

S5: $=y$ou will have $b$

T: alright $+they$ are not like terms

$+T$ moves his RH backward and forward repeatedly

(T moves his right hand backward and forward repeatedly)

T: $=s$o we cannot combine them so is there anyway $=$

T: $=t$o combine the two a square? $=$

T: $=s$o we cannot combine them so is there anyway $=$

T: $=t$o combine the two a square? $=$

S5: take out the $b$

S2: take out the common factor

T: $+v$ery good $0.7$ $+i$nstead of $+f$ocusing on $+a$dding $+t$hem

(T points at S2)

$+T$ highlights the common term ‘$a^2$’ with yellow highlighter

via iPad

(T highlights the common term ‘$a^2$’ with yellow highlighter via iPad)

(T curls his thumb and index finger to form a c-shaped gesture)

(T closes the gap between thumb and index finger #11)

(T highlights the another common term ‘$a^2$’ with yellow highlighter)
81 (0.6)
82 T: we focusing on taking out the common factor
   +T stretches out his right arm, palm facing downward #12
   +T moves his right arm towards his face #13

83 (0.3)
84 T: so in this case this will become a square=
   +T writes down a² (      ) via iPad, with an empty bracket #14
T: =what is that behind?

SS: b

S2: b plus one

T writes down the new equation via iPad #1

+T highlights ‘$a^2$’ in green colour via iPad #16
In line 51, teacher C uses his iPad and zooms into a blank page which signals to the class that teacher C is going to provide hints on the page. He then writes down an equation ‘a^2b+a^2’ via his iPad (figure #10, line 53) and describes the nature of this equation, ‘now there are two separate As’ (line 55). Teacher C then curls this thumb and index finger to form a c-shaped gesture and closes the gap between fingers while asking students whether he can ‘combine’ the two variables in order to solve ‘a’. Momentarily, his thumb and index fingers represent the two mathematical variables ‘a^2b’ and ‘a^2’ respectively. This leads to several students’ responses in lines 59 and 60. Teacher C asks students to explain why it is not acceptable to combine them together (line 61). Although several students attempt to come up with the right answer, such as ‘because of b’ in line 63 and ‘you will have b’ in line 64, these responses are not considered as acceptable. This leads to teacher C’s follow-up response as he gives a hint to students, ‘because they are unlike terms’ (line 66). Note that teacher C’s utterance is a DIU since teacher C does not immediately provide a response to the students and teacher C is inviting them to complete the utterance for him. Since student 5 provides the wrong answer (line 68), teacher C then makes it clear that the two variables are ‘unlike terms’ and therefore they cannot be combined (lines 70-73).

Teacher C then moves on and asks whether there is any way to combine the a^2 in the equation (lines 73-74). This leads to several responses from student 5 and student 2. Student 5 suggests teacher C to take out the ‘b’ in the equation and student 2 argues for taking out the common factor ‘a’. Both answers are deemed as appropriate by teacher C, indicated by his positive assessment ‘very good’ in line 80. After a 0.7-second pause, teacher C further elaborates student 5’s and student 2’s responses to other students so that other students will understand the logic behind it.
Teacher C first explains ‘instead of focusing on adding them’ and concurrently enacts the metaphoric gesture of ‘combining’ by curling his thumb and index finger to form a c-shaped gesture and then closing the gap between them (figure #11). Teacher C also highlights the two variables ‘$a^2$’ with the yellow highlighter via iPad (figure #11) to assist students in noticing them (line 80). Teacher C then continues and explains that ‘we focusing on taking out the common factor’. When teacher C utters ‘take’, teacher C synchronises his speech with his action of moving his right arm towards his face, which enacts the movement of taking something (figure #13, line 82). Here, teacher C’s use of metaphoric gestures in lines 80 and 82 reiterate the fact that students need to take out the common factor from the equation rather than combining them. In line 84, teacher C writes down a new equation which reflects the removal of the variable, $a^2$, (figure #14) and simultaneously he verbally states that ‘this will become a square’. Notes that teacher C has left the bracket empty and teacher C invites students to fill in the gap for him, ‘what is that behind?’ (line 85). Several students offer incomplete responses in line 87. Student 2 takes the turn and utters ‘$b$ plus one’ in line 89 which results in teacher C’s non-verbal acknowledgement. Such an acknowledgement is shown in line 90 when teacher C writes down ‘$b+1$’ on the screen (figure #15) to complete the equation. In lines 91-92, teacher C initiates another sequence and he invites students to note that they can now convert the original equation ‘$a^2b+a^2$’ which involves two ‘$a^2$’ into one ‘$a^2$’ in the new equation, ‘$a^2(b+1)$’. In particular, teacher C switches the yellow highlighter to green highlighter and highlights ‘$a^2$’, which is a variable in the new equation (figure #16), in order to indicate ‘$a^2$’ as the common variable. After that, teacher C explicitly asks students to remember the steps that teacher C has gone through with students as they ‘will use similar technique’ (line 95) to address the question that students fail to solve prior to the extract.

Similar to Extracts 1 and 2, in this extract, teacher C is orienting towards the English-only norm in the EMI classroom and no other named languages, such as Cantonese, are used. This is also reflected in the semi-structured interview which was conducted before the classroom observation. In the interview, teacher C is asked to comment about his use of language in his year 10 EMI mathematics class with SA students only:
Teacher C explains that he will ‘definitely’ use English in the full EMI class since there are no Chinese students in the class and he does not feel the need to use other languages other than English to carry out his teaching. He compares it with his former mixed EMI science class where he needs to draw on both Cantonese and English so that both groups of students (SA and Chinese students) can fully participate in the science lessons. Although Extract 3 does not illustrate how teacher C makes use of multilingual resources to scaffold students’ learning when teaching full EMI class, it is argued that teacher C has skilfully deployed translanguaging which allows him to mobilise multimodal resources to scaffold his use of English in the classroom. This extract has shown that multimodal resources (e.g. use of iPad writing, switch of different colours of highlight pens, use of metaphoric gestures) that synchronise with teacher C’s English utterance which involves mathematical discourse that is different from everyday language. Such a translanguaging behaviour affords opportunities for teacher C to convey the most relevant mathematical steps in a clear manner to his students.

**Extract 4**

Prior to the extract, teacher C was going through the mathematical steps for solving an exponential function. After presenting the steps through writing on his iPad, teacher C then invites students to review the answer and initiate any questions that they do not understand (line 2).
01  + (3.0)
    +T zooms in and displays the question via his iPad
02  T: +anyone does not get this part
    +T points at the screen #1

03  (1.1)
04  S4: huh?
05  (1.2)
06  S4: I don't get how [one plus one over three] equals to four
07  S5: [oh my god (NAME S4) doesn't get it]
08  (0.4)
09  S?: use calculator=
10  SS: haha=
11  S5: +=sir (NAME S1) doesn't get it haha
    +T frowns, closes his eyes, and holds his head in his RH #2
12 (1.4)
13 S?: use calculator
14 (0.4)
15 T: okay calculator +yes=
   +T points at S?
16 T: =but he wants to +understand the logic behind it
   +T moves his RH in circular motion
17 (1.6)
18 T: okay no problem back to primary (0.4) four
19 (0.3)
20 S1: four or five
21 (0.4)
22 T: primary three=
23 S4: sir: l got it (.). yes sir +please (2.0) +l got it like
   +T moves to a blank page
   +T starts writing via iPad
   (1+1/3)
25 T: now (0.5) if I have +one piece of cake=
  +T draws a circle on his iPad #3

26 SS: =hahaha=

27 T: =+plus (0.5) +one third of the cake
  +T draws a plus on his iPad
  +T draws a triangle on his iPad #4

28 (0.8)
29 T: how many cakes do I have?
    +T draws a ‘=-’ sign on his iPad
30 SS: -hahaha
31 (10.0)
    +T uses a blue colour pen to draw the pieces of cake via iPad #5
32 T: but this cake has been split into?
    +T points at the pieces of cake #5

Figure #5

33 (0.2)
34 SS: three
35 (.)
36 T: three (0.5) +so in total how many pieces do I have
    +T points at the triangle
37 (.)
38 T: +small ones=
    +T curls his thumb and index finger to form a c-shaped gesture #6
39 S5: =FOUR PIECES=
40 S4:  =+oh: yeah yeah yeah
        +T writes down 4/3 on his iPad #7

41 (0.5)
42 SS: (clapping)=
43 SS:  =+hahaha
        +T tilts his head towards the answer on the screen #8
44 (0.2)
45 T: okay=
    T erases the writings on the iPad
46 SS: =+hahaha
    T switches back to the page with the mathematical question #9

47 (0.4)
48 T: it's it's it's nice to see
49 (1.8)
50 SS: sh:
51 (0.5)
52 T: it's nice to see nearly um five years or six years=
53 T: =after your primary you finally +understood this
    +T points at the screen
54 (0.5)
55 SS: hahahaha
In line 4, student 4 utters a discourse marker ‘huh?’ in high intonation which indicates his uncertainty of the mathematical solution. He then goes on and explains his doubt: ‘how one plus one over three equals to four’ (line 6). This immediately leads to responses from students in the class, as shown in line 7 when student 5 utters an exclamation ‘oh my god’ to reveal his surprise and student’s laughter in line 10. As student 5 continues to criticize student 4’s inability to grasp the answer (line 11), teacher C frowns, closes his eyes and holds his head in his right-hand (figure #2), which potentially indicates his disbelief and astonishment of student 4’s inability to understand the simple mathematical steps.

A student repeats his utterance ‘use calculator’ in line 13 to reinforce the fact that using a calculator can enable student 4 to solve his doubt. However, teacher C first acknowledges the student’s contribution and points out the issue that student 4 wishes to understand. Teacher C then attempts to close the prior sequence and make a transition to the new sequence (as suggested by his use of ‘okay?’, line 18). Teacher C then utters ‘no problem back to primary (0.4) four’ (line 18) which ironically suggests that teacher C has to deal with primary four level mathematics question. This prompts student 1 to say, ‘four and five’ (line 20), which adds to teacher C’s response and suggests that it’s either at primary four or five level. Teacher C then replies student 1 by saying ‘primary three’ (line 22) in order to further highlight the simplicity of student 4’s mathematical question. Student 4 immediately initiates a response and repeatedly justifies that he understands the issue, ‘I got it (.) yes sir please I got it’ (line 23). It is possible that student 4 is trying to save his face and avoid teacher C doing the mathematical explanation in front of the class since it may embarrass him. Nevertheless, while student 4 is uttering, teacher C moves to a blank page and starts writing on his iPad.

In line 25, teacher C initiates a new sequence, as indicated by his use of ‘now’. While teacher C is uttering an if-clause ‘if I have one piece of cake’, teacher C concurrently draws a circle on his iPad (figure #3), which figuratively represents the cake. Here, it is evidenced that teacher C switches from using mathematical language to everyday life language when forming the if-clause. Teacher C’s action immediately leads to students’ laughter, which is treated as playful by the class. Teacher C continues with his construction of the if-clause and draws a plus sign and a triangle on his iPad (figure #4) while saying ’plus (0.5) one third of the cake’ (line 27). Here, the triangle metaphorically refers one third of a cake. Teacher C then asks students to identify ‘how many cakes do I have’ (line 29). Although such a question is not challenging to students, no student responds to teacher C’s question. In fact, several students are laughing which potentially indicates the simplicity of this mathematical question (line 30). During the 10.0-second pause, teacher C
changes his colour pen from red to blue colour to divide the circle into pieces of small triangles (figure #5). By doing so, teacher C is drawing students’ attention to the cake which is divided into several pieces.

After offering scaffolding to students through drawings, teacher C then initiates a designedly incomplete utterance, ‘but this cake has been split into?’ to invite students to complete the sentence for teacher C (line 32). Several students respond ‘three’ in line 34 which is acknowledged by teacher C in line 36. This leads to another guided question initiated by teacher C, ‘so in total how many pieces do I have?’ (line 36). By now, students can look at the drawings on the screen in order to answer teacher C’s question. Expectedly, students are able to offer an answer, ‘three’, which is confirmed by teacher C in line 36. Teacher C then initiates a final follow-up question, ‘so in total how many pieces do l have’ and he provides a hint to the students by pointing at the screen (line 36). Student 5 utters the answer in loud volume as he says: ‘FOUR PIECES’ (line 39) which prompts student 4 to utter a change-of-state-token ‘oh’ and several acknowledge tokens ‘yeah yeah yeah’ which indicate his awareness of the correct answer. Simultaneously, teacher C writes down 4/3 on his iPad in blue colour to make sure all students can notice the correct answer on the screen. Several students are clapping (line 42) and laughing (line 43) which possibly treats student 4’s realization of the accurate answer as laughable. In lines 48 and 52-53, teacher C makes an ironic comment by teasing student 4 that he eventually understands this simple mathematical solution. This again leads to laughter in the classroom (line 55).

In this extract, it is evidenced that teacher C’s use of the iPad allows him to perform several actions for addressing student 4’s initiations: drawing images (circle and triangle) to represent specific mathematical values, pointing at his drawings on the screen to offer hints to students and using different colour pens to distinguish his drawings. The employment of these resources is also apparent in Extracts 1, 2 and 3. Noticeably, teacher C uses a cake as an everyday life example. This illuminates how teacher C uses the iPad to facilitate the process of bringing this everyday life knowledge into the mathematical explanation for drawing student’s attention and scaffolding student 4’s understanding of simple fractions. During the video-stimulated-recall-interview, teacher C is invited to comment on his pedagogical strategies in attending to student 4’s question and using drawings to scaffold learning:
<table>
<thead>
<tr>
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</tr>
</thead>
</table>
| T: +3.0  
  +T zooms in and displays the question via his iPad  
  02 T: +anyone does not get this part  
  +T points at the screen #1  
  (a) $a \times \sqrt{a}$  
  $= a \times a$  
  $= a^2$  
  03 (1.1)  
  04 S4: huh?  
  05 (1.2)  
  06 S4: I don't get how [one plus one over three] equals to four  
  07 S5: (Oh my god NAME S4 doesn't get it)  
  08 (0.4)  
  09 S7: use calculator=  
  10 S8: haha=  
  11 S5: =+sir (NAME S1) doesn't get it haha  
  +T frowns, closes his eyes, and holds his head in his RH #2  
| 01 K: So, during this moment you are trying to address a student's question. And then it's dealing with basic primary level mathematics. What do you feel at that moment, because that student was asking a kind of like a low-level question. How were you feeling at that moment?  
  02 T: I think um at the beginning of the year of my teaching, I would get frustrated but then you know what I've learned throughout these years is if a student is even asking the most simplest of all |  | The researcher is interested to understand why T bothers to address the student’s primary level question. |
12 (1.4) 13 S7: use calculator 14 (0.4) 15 T: okay calculator +yes=
+T points at S7 16 T: but he wants to understand the logic behind it
+T moves his RH in circular motion 17 (1.6) 18 T: okay no problem back to primary (0.4) four 19 (0.3) 20 S1: four or five 21 (0.4) 22 T: primary three=
23 S4: sir: I got it (.) yes sir +please (2.0) +I got it like
+T moves to a blank page +T starts writing via iPad (1+1/3)

even primary level question and I dismissed it in front of the whole class. It's not going to be a good impression on the student because the student has confidence to even ask such a question. That means you're she's feeling safe and, you know, I don't really care what type of question is because I've created an environment where they're okay with asking any questions so I have to make sure I live up with it. And even if it's a simple question, I will explain it, even if it will take some time. You know, I usually add humour in it to you know make it less boring so um yeah i feel i think that's just my way of keeping a

T believes that it is important to address student’s questions in order to create a safe space of learning for the students.

T admits that he will add humour when addressing students’ simple questions.

It is noticeable that T’s pedagogical belief (aiming to create a space in the classroom) motivates him to respond to S4’s simple mathematics questions.

This is reflected in the MCA analysis as T enacts gestural actions and makes ironic comments to tease S4’s inability
24 (0.6)  
25 T: now (0.5) if I have one piece of cake=  
+T draws a circle on his iPad #3

26 SS: =hahaha=  
27 T: =+plus (0.5) one third of the cake  
+T draws a plus on his iPad

+T draws a triangle on his iPad #4

28 (0.8)

classroom principle and my principal way of doing it. Yeah, I think, because I hate dismissing students. That it might be really, really simple. And I think it's always a good way to, you know, recap on things on the simplest fractions. So, you know, maybe if they have learned, they will again have a vivid, you know, impression on this. So yeah, I mean, whenever there's an opportunity. I just take it and yeah.

03 K: Um hm. And then I also noticed that you are doing lots of drawings on the screen to explain the you know the fractions. What pedagogical effects

T emphasises that it is good for students to recap the knowledge that students have acquired before.

To solve simple fractions.

Through recapping, T aims to assist students in memorising simple mathematical knowledge.
Table 7.3: Video-Stimulated-Recall-Interview (Extract 4)

29 T: how many +cakes do I have=
   +T draws a '=' sign on his iPad
30 SS: =hahaha
31 + (10.0) +T uses a blue colour pen to draw the pieces of cake via iPad #5
32 T: +but this cake has been split into?
   +T points at the pieces of cake #5

33 (0.2)
34 SS: three
35 (. )
36 T: three (0.5) +so in total how many pieces do I have
   +T points at the triangle
37 (. )
38 T: +small ones=
   +T curls his thumb and index finger to form a c-shaped gesture #6
   are you trying to create there?

04 T: I think um I'm just trying to connect fractions are essentially what we deal with everyday and using an object that they see everyday like cakes. And converting them into numerical values or fractions is actually interchangeable. It's just they often do not make this connection. So again, reminding them the roots of math is actually, it's all everywhere around us. So, you know, using pictures to translate into numerical values or operations is actually not difficult. It's always there. So, yeah.

T believes that using everyday life objects and converting them into numerical values can help students to better understand the question.

T also wishes students to recognise that mathematics is part of our daily life.

T is attempting to bridge the gap between everyday life knowledge and academic knowledge (Tai and Li Wei, 2020b).

T is trying to connect mathematics to everyday life situations.
The researcher is interested to understand why teacher C is willing to address a simple question that is initiated by student 4. Teacher C explains that it is important to address student’s questions in order to create a safe space of learning for the students. This belief is exemplified as he says: “I don’t really care what type of questions is because I’ve created an environment where they’re okay with asking any questions, so I have to make sure I live up with it”. It can be argued that it is teacher C’s pedagogical belief which contributes to the creation of a safe learning space in the classroom for promoting mathematics learning. Teacher C further explains that he will add humour when addressing students’ simple questions which potentially allows him to build a good rapport with the students. This is reflected in the MCA analysis which reveals how teacher C utilizes facial expressions and gestural actions in line 11 and various drawings in lines 25, 27 and 31 on the iPad to simplify the mathematical question which results in laughter in the classroom.

It is noticeable that the iPad affords teacher C to utilize various colours to draw a circle and a triangle for illustrating different sizes of the cakes, which metaphorically represent the numeral values. This eventually helps student 4 in understanding the ways of solving simple fractions. Teacher C believes that using everyday life objects and converting them into numerical values can help students to better understand the question. This pedagogical belief echoes the affordances of bringing out-of-school knowledge into the classroom which bridges the gap between everyday life knowledge and academic knowledge (c.f. chapter 6, Tai and Li, 2020). Teacher C further elaborates that bringing everyday life knowledge into the mathematical explanation can assist students in recognising the fact that mathematics is part of our daily life, “so again, reminding them the roots of math is actually, it’s all everywhere around us”. Hence, it can be argued that teacher C’s educational belief about mathematics teaching and learning creates an opportunity for students to connect mathematics to everyday life situations. This contributes to the construction of a translanguaging space for students which enables them to notice the various semiotic resources, academic and everyday language that teacher C employ for promoting content learning.

### 7.4 Use of iPad for Constructing a Humorous Classroom Environment for Promoting Student Engagement

In this study, three instances are identified which demonstrate how the iPad extends teacher C’s semiotic repertoire by allowing him to create a humorous classroom atmosphere for encouraging student engagement. Extracts 5 and 6 are typical cases that illustrate this feature.

**Extract 5**

This extract occurs approximately two minutes before Extract 1. Prior to his extract, teacher C
requested students to solve a mathematical equation independently. Teacher C supervised students’ progress while students were individually completing the set task. After a short while, teacher C decided to move on and provide feedback to the class. In this extract, teacher C first takes a photo of student 1’s appearance and projects the photo on the screen, which leads to a series of playful talk in the classroom interaction.

01 T: um most of you have no problem
02 (.)
03 T: so I'm just gonna=
04 T: =quickly take a picture of (your handwriting)
05 (0.3)
06 T: +who would like to volunteer their handwriting
   +T walks towards the students
07 (0.3)
08 S4: what the
09 (0.2)
10 S5: sir me
11 (0.2)
12 S?: oh (NAME=S1)
13 +(5.3)
   +T walks towards S1 and uses iPad to take a photo of S1 #1

Figure #1
S2: oh my god
S5: hahaha=
S8: hahaha
+(5.0)

+T takes photo of S1’s work
T: okay (0.3) we have two photo of (NAME=S1) now
+(0.3)
S9: sir make them and +send it=

+T displays a photo of S1, that was taken before, on the iPad #2

S8: =hahaha=
S5: =sir send it to us=
S10: =ugly (NAME=S1)=
S5: =send it to us=

Figure #2
In lines 1-4, teacher C reveals his aim to provide feedback on the set task and he decides to do so by taking a photo of a student’s work via his iPad. In line 6, teacher C walks towards the students and initiates a question in order to invite students to volunteer their work to be shared with the class. Although student 5 self-nominates himself (line 10), a student in the class utters student 1’s name in line 12. This motivates teacher C to walk towards student 1. Presumably, teacher C will take a photo of student 1’s work. Instead, teacher C uses his iPad to take a photo of student 1’s appearance and it is visually projected on the screen (line 13, figure #1). Teacher C’s unexpected action has led to a number of student responses, including an exclamation from a student saying ‘oh my god’ (line 14) and laughter from other students (lines 16-17) in order to acknowledge the funniness of teacher C’s action.

During the 5.0-second pause, teacher C takes this moment to take a photo of student 1’s work (line 18) and teacher C recognises that “we have two photo of (NAME-S1) now” (line 19). Teacher C’s response motivates student 9 to playfully ask teacher C to share student 1’s photo (line 21), but student 9 stops finishing his sentence as teacher C displays student 1’s appearance on the screen.
through his iPad (figure #2). As shown in line 22, teacher C’s action is immediately received with laughter from students. This also results in a couple of playful comments initiated by students. This is illustrated in lines 23 and 25 when S5 asks teacher C to send the photo to the students and also in lines 24 and 26 when student 10 repeats the adjective ‘ugly’ to playfully criticise student 1’s facial appearance. In line 28, teacher C attempts to end the playful talk by asking students to pay attention to student 1’s mathematical solution which is displayed on the screen (figure #3).

As demonstrated in Extract 5, teacher C uses the iPad’s camera function to take photos of student 1’s appearance and his mathematical solution. As teacher C publicly displays student 1’s appearance on the screen, such an action is considered as playful, which is signalled by student’s reactions (e.g. laughers in lines 16-17 and 22, playful comments in lines 21, 23-26). During the video-stimulated-recall-interview, teacher C comments on the reasons for taking a photo of student 1 via his iPad.
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<tr>
<td>01 T: um most of you have no problem 02 (.)</td>
<td>01 K: I do find it very effective. You know, taking a photo of students work and then you start to do all the annotations through the iPad. I also find it interesting when you're took photo of that student's appearance and I want to know what's the rationale behind it.</td>
<td>02 T: Oh, that was just for fun. In the lesson students have been serious on you know work doing math. Sometimes it's always good to include some humor and some fun. So, one way to do that is to, you know, just take a picture of the student. So, this way, Everyone knows or</td>
<td>Other than using iPad to do annotations, highlight, zoom in and out, take photos of student's work, did the teacher have another pedagogical goal in mind when he took S1's photo?</td>
</tr>
<tr>
<td>03 T: so I'm just gonna= 04 T: =quickly take a picture of (your handwriting) 05 (0.3)</td>
<td></td>
<td>T acknowledges that T was having fun with his students at the moment of the classroom interaction.</td>
<td></td>
</tr>
<tr>
<td>06 T: +who would like to volunteer their handwriting +T walks towards the students 07 (0.3)</td>
<td></td>
<td>Through taking a photo of S1, this also</td>
<td></td>
</tr>
<tr>
<td>08 S4: what the 09 (0.2)</td>
<td></td>
<td>It can be argued that T is trying to</td>
<td></td>
</tr>
<tr>
<td>10 S5: sir me 11 (0.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 S7: oh (NAME- S1) 13 +(5.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+T walks towards S1 and uses iPad to take a photo of S1 #1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure #1
Table 7.4: Video-Stimulated-Recall-Interview (Extract 5)

Know what's happening around and you know it just makes the classroom environment more friendlier and um so that there is a formality there, but it's just it creates a safer environment for the students where you know you can joke around that's fine as long as you're doing your work. So, I don't want to give the students um the idea that, okay, it's a lesson. You have to do work. Don't talk you know, no playing fooling around, so I think once they know that I am also able to do that. So, it makes their whole classroom experience a bit more relaxed and safer.

T believes that this can create a "more friendlier" classroom environment for the students.

T recognises the need to break the pre-conceived perception of how students should behave in a lesson.

T shifts his footing by imagining himself teaching his students.

T seems to understand the need to create a jocular classroom environment for students to relax and feel safe.

Include other students in the classroom so that all students can take part in the humorous moment.
Teacher C comments that he is having fun with the students and he believes that it is a good idea for students to momentarily move away from mathematics and engage in humorous interactions. This resonates with Tai and Li’s (2021a) findings which display how the teacher creates a translanguage space for students to engage in playful talk and promote a jocular classroom atmosphere. By doing so, teacher C chooses to utilise the iPad’s camera function in order to take a photo of student 1 so that other students in the class will know what is happening around the classroom. It can be argued that teacher C is trying to include other students in the classroom so that all students can take part in the humorous moment. Hence, it is evidenced that teacher C’s use of the iPad extends his semiotic repertoire by making use of the camera function to take a photo of student 1 and projecting it on the screen. Such an action allows him to fulfil his motivation in constructing a playful environment for all students to “joke around” and relax.

Extract 6
Prior to this extract, teacher C was going through a mathematical solution with the class which involved factorisation. Teacher C pointed out that doing factorisation could be time-consuming and it would be risky to make careless mistakes. In this extract, teacher C suggests students to use a calculator to check the correct answer.

01 T: so what can we do to do it faster
02 (0.2)
03 T: so yes if you are using
04 (1.4)
05 T: um (0.4) +casio (0.9) fx +er this model fh two
    +T walks to S6’s seat
    +T projects S6’s calculator via iPad #1

06 (1.0)
07 T: then you already have a formula in your calculator
08 (0.4)
T: *um if you are using the one (NAME - S1) is *showing
+T points at S1

+T uses iPad to
project the appearance
of S1 via iPad -->#2
+T zooms in via iPad
+S1 holding up his
calculator

Figure #2

10 (1.1)
11 SS: ahaha
12 (0.5)
13 T: okay this one the old one the old silver one
14 (0.6)
15 SS: ahaha
16 (0.2)
17 T: then (0.3) you (0.3) cannot*

-->*

18 (0.3)
19 T: you have to input the formula
20 (0.2)
21 S1: yes
22 (0.2)
23 T: okay? (0.4) +so
+T points at S1
24 (0.2)
25 T: how many of you are using (NAME-S1) one again?
26 +(1.2)
+several students raising up their hands
27 S1: $legends legends legends$
28 (1.4)
29 T: *only a few of you .) that's fine
+T stretches all his fingers and points at students
30 (1.0)
In lines 1-3, teacher C pre-empts what students can do to quickly look for the answer. Teacher C then turns on his camera function and projects student 6’s calculator on the screen (figure #1). At the same time, teacher C verbally draws the student’s attention to student 6’s calculator which is the Casio fx model (line 5) and the calculator has pre-set a formula for solving factorisation (line 6). However, teacher C points at student 1 and invites students to attend to student 1’s calculator which is a different model, “um if you are using the one (NAME-S1) is showing”. Note that when teacher C utters ‘showing’, teacher C deploys his iPad to project the appearance of student 1 as student 1 holds up his calculator on the screen. Teacher C deliberately zooms in the screen so that the screen will only project student 1 rather than other students in the class (figure #2). While teacher C is projecting student 1’s appearance and his calculator from a distance, teacher C describes the features of student 1’s calculator as “the old one the old silver one” (line 13). Teacher C’s actions are received with laugher from the students in lines 11 and 15. Nevertheless, teacher C does not respond to student’s laughter and he carries on with his teaching by explaining that ‘you have to input the formula’ if students are using the old calculator model (line 19).

After student 1 produces an acknowledgement token ‘yeah’ to recognise teacher C’s explanation (line 21), teacher C initiates a new sequence in line 23. He first points at S1 (line 23) and initiates a question, ‘how many of you are using (NAME-S1) one again?’ (line 25). Several students raise up their hands in response to teacher C’s question during the 1.2-second pause (line 26) and student 1 self-initiates a response by repeating the word ‘legends’ three times in a smiley voice. Here, student 1’s use of the word ‘legend’ is considered as a slang to playfully refer to the awesomeness of the students who are using the old calculator model like himself. In line 29, teacher C ignores student 1’s utterance and carries on counting the number of students who are using the old model (line 29).

Similar to Extract 5, this extract demonstrates the way teacher C deploys the camera function afforded by the iPad to project student 1’s and student 6’s calculator and student 1’s appearance on the screen. Such actions result in laughter in the classroom (lines 11 and 15) and a playful comment initiated by student 1 in a smiley voice. During the video-stimulated-recall-interview, teacher C is asked to explain why he chooses to project students’ calculators and student 1’s appearance on the screen:
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<tr>
<td>01 T: so what can we do to do it faster</td>
<td>01 K: Okay so do you mind just briefly telling me like what was going on there?</td>
<td></td>
<td>T introduces a “cheat method” for students to look for the answer easily via calculator. This is particularly useful for the weaker students who will prefer using calculator.</td>
</tr>
<tr>
<td>02 (0.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03 T: so yes if you are using</td>
<td>02 T: A question about factorisation so they have to factorise a quadratic um polynomial. So, I was initially showing them the normal method which they can use um traffic method. I realized that was only applicable students who have certain sense, especially those weaker students will prefer using this. So, in a way, I am introducing a so call the cheat method. However, if they want to know if they want to use calculator to calculate this. First,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>04 (1.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>05 T: um (0.4) +casio (0.8) fx 4er this model fh two +T walks to S6's seat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+T projects S6's calculator via iPad #1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>06 (1.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07 T: then you already have a formula in your calculator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08 (0.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
T: +um if you are using the one (NAME - S1) is +showing
+T points at S1

T uses iPad to project the appearance of S1 via iPad ---+ #2
+T zooms in via iPad
+S1 holding up his calculator

they will need to know how to operate the calculator correctly so and then there were two models of calculators. The (most common one) is the one being shown on the screen and the other one which the silver one is what the students was holding. So instead of me, you know, going there and showing it to the students. I just use (the camera) function to zoom in his face. Depending on the mood of the students and I enjoy and yeah and XX

(a short pause)

T: So, um, so basically, I was introducing them. Like they're two calculators one calculator was,

Using the camera function to zoom into S1's calculator
⇒ T aims to save time from walking all the way to S1's seat to show the older version of the calculator to the students.

iPad affords autonomy and mobility for T so that he can choose to either walk to the student's seat or use the camera function to zoom into S1's calculator from a distance.
Table 7.5: Video-Stimulated-Recall-Interview (Extract 6)

18 (0.3)
19 T: you have to input the formula
20 (0.2)
21 S1: yes
22 (0.2)
23 T: okay? (0.4) +so
   +T points at S1
24 (0.2)
25 T: how many of you are using (NAME-S1) one again?
26 +(1.2)
   +several students raising up their hands
27 S1: $legends legends legends$
28 (1.4)
29 T: +only a few of you (. ) that’s fine
   +T stretches all his fingers and points at students
30 (1.0)

...you know, the most popular one that students use the black one. And then there are some students who use, you know, the silver one. So instead of me going there and showing the students that is the silver one. And then I just use the camera function and zoom into that person. So again, lightening the mood and then so I go to the calculator and then show them how to use the calculator to, you know, do the factorization for you.

T believes that using iPad to zoom in S1’s face can lighten the student’s mood at the moment of the classroom interaction. This is also an opportunity to show them the way to use the calculator for doing factorization.

iPad extends T’s semiotic repertoire by allowing him to make use the camera function to zoom into S1’s appearance and his calculator from a distance → Create a playful classroom atmosphere to engage student’s learning.
In the interview, teacher C explains that he deliberately uses the iPad’s camera function to zoom into student 1’s calculator so that he can save time from walking towards student 1’s seat in order to show his older calculator model to the whole class. Teacher C further elaborates on the rationale of doing so and he claims that utilising the camera and zoom in functions can allow him to lighten the student’s mood and illustrate the way to use the calculator for doing factorization. It can be argued that by exploiting these iPad functions, teacher C creates a playful classroom atmosphere in order to motivate students’ interest in learning mathematics with him. This is also exemplified in the MCA analysis which shows that teacher C’s action (projecting student 1’s appearance and his calculator) on the screen leads to student’s laughter and students’ understanding of the differences between the old and the most common models of the calculators (line 21). Hence, it is evidenced that the iPad extends teacher C’s semiotic repertoire by allowing him to make use of the iPad’s camera and zoom in functions for creating a humorous classroom context, facilitating student engagement in mathematics learning and lightening student’s mood.

7.5 Summary

The aim of this chapter is to reveal the affordance of the iPad in the EMI mathematics classroom, which involves South Asian ethnic minorized students, in HK. Specifically, it deploys translanguaging as an analytical perspective to examine how the use of the iPad extends the teacher’s semiotic and spatial repertoires for allowing him to achieve his pedagogical goals. In all the extracts, the MCA analysis reveals that the teacher is engaging in translanguaging practices despite only using English as the linguistic code. It is shown that the teacher is engaging in translanguaging practices as he synchronises his English verbal utterances with his use of the iPad which affords opportunities for him to utilise various semiotic resources (e.g. highlighting, zooming in and out, annotations, photo-taking) to facilitate the meaning-making processes in the classroom. In Extract 1, it is shown that the iPad affords the teacher to take a photo of a student’s work, project the student’s work on the screen to invite students to evaluate the accuracy of the student’s mathematical solution. Concurrently, the teacher is able to deploy different colours from the highlighting tool in order to draw students’ attention to the key mathematical variables. This allows the teacher to stimulate students’ thinking and encourage them to work out the mathematical steps by themselves. In Extract 2, the use of the iPad allows the teacher to make use of additional semiotic features, including annotating the student’s work through using the virtual colour pen and enlarging student’s work through using the zoom-in function so that all students can visually see the teacher’s annotations on the screen. iPad also extends the teacher’s spatial repertoire since the teacher is given the autonomy to walk around the classroom while carrying the iPad and annotating
the student’s work at his own will. This allows students to notice the teacher’s annotations on the screen.

Walking around the classroom also allows the teacher to make his voice audibly loud and clear to all students, particularly students sitting at the back of the classroom, which enables students to attend to teacher C’s mathematical advice, hence enhancing their mathematics learning. Similar to Extracts 1 and 2, Extract 3 reveals that teacher C is also engaging in translanguaging practices as he synchronises his English verbal utterances with his use of metaphor gestures and his use of iPad which affords opportunities for him to write down mathematical formulas and use different colours of highlight pens to indicate key mathematical variables. Extract 4 reveals how the use of the iPad affords the teacher to bring out-of-school knowledge into the classroom in order to bridge the gap between everyday life knowledge and academic knowledge. Throughout the process, the teacher employs various colours to construct his drawings of a circle and a triangle to symbolise the mathematical values and he uses a cake as an everyday life example to scaffold students’ understanding of simple fractions. In Extract 5, it is evidenced that the teacher makes use of the iPad’s camera function to take a photo of a student and project it on the screen which creates a playful classroom atmosphere for students to engage in laughter and initiate playful comments. Similarly, in Extract 6, the teacher also utilises the camera and zoom in functions to project student 1’s appearance and his calculator on the screen in order to lighten the student’s mood and draw the student’s attention to the older version of student 1’s calculator. Although both Extracts 5 and 6 illustrate that interactions between the teacher and students may not directly relevant to content learning, the pedagogical goals in these two extracts aim to promote communication with the students so that the interaction can be a safe space for students to relax and lighten their mood. Potentially, it can foster a better relationship between the teacher and students so that the students will be engaged to learn mathematics with the teacher.

This chapter demonstrates that the iPad allows the EMI teacher in extending his semiotic and spatial repertoires which enables him to create a translanguaging space (Li, 2011; 2018; Tai and Li, 2020; 2021a; 2021b; 2021c) to configure the provision of content instruction. This technology-mediated translanguaging space does not only allow the teacher to utilise multiple linguistic and embodied resources, such as gestures (e.g. Lin and Wu, 2015; Ho and Li, 2019; Wu and Lin, 2019; Sah and Li, 2020). Such a space offers flexibility for the teacher to marshal a variety of iPad functions to enhance the quality of students’ learning experience. This is reflected in the post-video-stimulated-recall-interview data which illustrates that the iPad opens up new kinds of opportunities for the teacher to publicly share, explain, reformulate, evaluate ideas in order to bridge the learning gap, facilitate the meaning-making processes and create a playful classroom.
context in the classroom (Tables 7.1, 7.2, 7.3, 7.4 and 7.5). The affordance of the iPad also shapes the teacher’s walking trajectories in the classroom, and it can be a useful resource for the teacher to achieve his pedagogical goals (Jakonen, 2020). The teacher clearly articulates that the ability for him to walk around the classroom while using his iPad allows him to enable all students, particularly the ones who are sitting at the back of the classroom, to hear his voice clearly (e.g. Table 7.2). This demonstrates that the technology-mediated space allows the teacher to orchestrate his spatial repertoire, which subsequently affords the teacher to enact inclusive pedagogical practice for addressing students’ learning needs.
Chapter 8 — Analysis: Promoting Student’s Engagement in the EMI Lessons through Translanguaging

8.1 Introduction

This chapter illuminates how a translanguaging space can be created to promote student engagement at whole class and individual levels. In L2 classrooms, one of the main pedagogical goals for teachers is to engage students in classroom learning. There has been a growing number of studies that conduct research into language learner engagement (e.g. Mercer, 2019; Mercer and Dornyei, 2020). The main lines of enquiry focus on investigating engagement with L2 (e.g. Qiu and Lo, 2016; Svalberg, 2018); engagement in task-based interaction (e.g. Philp and Duchesne, 2016; Phung, 2016; Dao et al., 2019) and positioning the concept of engagement within a broader theoretical framework (e.g. Lawson and Lawson, 2013). The general finding is that when students are engaged in L2 classroom interactions, it is likely to result in greater learning outcomes (e.g. Storch, 2008; Phung, 2016). Therefore, L2 teachers are encouraged to promote student engagement in classroom interactions through utilising various pedagogical strategies. These entail modelling (e.g. Kim and McDonough, 2011); developing student’s awareness in deploying various communication strategies (e.g. Sato and Lyster, 2012); training students to attend to the task features (e.g. Baralt et al., 2016) and designing motivating tasks (e.g. Maehr, 1984; Lambert et al., 2017).

Although the concept of student engagement has been widely used in the field of language education, what student engagement actually means is under debate. Previous studies have conceptualised student engagement in different ways, including the amount of L2 produced during task activities (e.g. Dornyei and Kormos, 2000), the ways that students engage in metalinguistic talk (e.g. Storch, 2008) and student’s effort in completing the task (e.g. Bygate and Samuda, 2009). Recent studies have also conceptualised student engagement as a multifaceted construct which involves cognitive, social, emotional and behavioural aspects (see further discussion in section 8.2). Such an inconsistency in conceptualising the notion of student engagement can be due to the top-down approach toward understanding this concept (Dao et al., 2019). From an emic perspective, engagement is not only an emotional or reflective state, but it can also be demonstrated through an in-depth analysis of the naturally-occurring social interaction (Sandlund and Greer, 2020). Since teachers are often expected to purposefully engage their students in the classroom, it is vital to understand how the teacher promotes student engagement and the teacher’s own perceptions of student engagement.
On the other hand, the notion of translanguaging celebrates the multilingual’s capabilities in drawing on their diverse and holistic multilingual, multimodal, multi-semiotic and multisensory resources for enabling the meaning-making processes (Li, 2018). Recent studies (e.g. Tai and Li 2020; 2021a; 2021b; 2021c; Sharma, 2020) on translanguaging classroom practices have demonstrated how multilingual learners deploy cross-linguistic and cultural boundaries to generate new configurations of language and pedagogical practices in order to disrupt the hierarchy of languages, create a translanguaging space for learning and enable students’ full participation in knowledge construction. This chapter aims to offer an alternative view of engagement by linking it to translanguaging and its emphasis on the mobilisation of multiple resources by the teacher in EMI classrooms, which is an under-explored research context. This chapter aims to illustrate how translanguaging can be deployed as an inclusive pedagogy to engage students for content and language learning and promote social inclusion in the EMI history classroom.

8.2 Student Engagement in Language Education

The notion of engagement is still under-explored in language education. It has been conceptualised by researchers in different ways since it is a multi-dimensional construct that entails different components. In the context of L2 interaction, student engagement is often defined as ‘a state of heightened attention and involvement, in which participation is reflected not only in the cognitive dimension, but in social, behavioural and affective dimensions’ (Philp and Duchesne, 2016: 51). Behavioural engagement refers to the student’s attention and effort which is often measured by time on task or participation (Philp and Duchesne, 2016). In SLA research, measurement of behavioural engagement entailing counting the number of words, number of turns and the amount of time on tasks (e.g. Qiu and Lo, 2017; Phung, 2017). Cognitive engagement is concerned with the student’s attention and alertness (Helme and Clarke, 2001). This is assessed through analysing language-related episodes (i.e. discussion of linguistic forms), negotiation of meaning, exploratory talk (i.e. talk that used to challenge, accept and expand arguments, see Mercer, 1995), self-corrections and idea units (e.g. the amount of ideas). Emotional engagement involves the student’s display of emotions and affective responses to the tasks. According to Reeve (2012), student’s interests and willingness to participate in tasks are examples of task-facilitating emotions, whereas student’s negative attitudes or anxiety towards the task demonstrate their task-withdrawing emotions. Hence, emotional engagement can function as a filter on the student’s behavioural and cognitive engagement in using L2 while completing tasks (Baralt et al., 2016). Emotional engagement can be identified through self-report data, such as stimulated-recall interviews, and discourse analysis of the students’ interactions (Mercer, 2015). Finally, social engagement refers
to the social dimension of interaction and it highlights how students interact with their interlocutors (Storch, 2001). These interactional behaviours can be tracked through analysing the student’s interactions, as reflected in the student’s mutuality, their willingness to interact with peers, provide scaffolding and assistance to their peers during the interaction. Features including backchannels, moments of offering peer assistance, equally distributed turns are examples of measuring social engagement. It can be argued that social engagement is closely related to emotional engagement since the relationship between peers can influence how students feel in a specific task (Baralt et al., 2016).

In recent years, CA researchers re-conceptualise the definition of engagement and they suggest that engagement is observable, and they can be examined through the detailed analysis of the social interaction (Sandlund and Greer, 2020). CA analysts adopt the emic perspective to engagement, and they restrict their analysis to the behavioural and social dimensions of engagement. The CA analysis will touch on cognitive and emotional engagement only to the extent that they are made accessible in social interaction. In classroom interaction research, CA analysts have investigated student engagement in regard to how teachers engage students in completing the tasks. Waring and Hruska (2011) document the interactional strategies of how a novice ESOL student teacher deploy to manage student resistance in interaction and keep the lesson moving forward. The findings reveal that the student teacher attempt to negotiate with the student through aligning with the student’s world, maximising opportunities for student participation and mitigating any possible opposition between herself and the student. These findings echo Walsh’s (2002) work on teacher talk which promotes student involvement. This includes interactional features, such as wait time, scaffolding and content feedback, for engaging student participation in a task. Stokoe et al. (2013) view engagement in university student discussions in terms of how the students demonstrate their stance towards their academic tasks and how they align with other student’s comments. The findings reveal that when students are engaging in assessing and evaluating the educational aspects of their academic tasks, students’ stances are often seen as ironic and resistant, instead of positive or enthusiastic. Greer (2016) conceptualises engagement in relation to student initiative. Greer demonstrates how a novice ESL conducts a survey interview with an expert English speaker. The analysis illustrates that the student goes beyond the planned interview questions by using self-nominated post-expansion sequences to expand on the interviewer’s responses and reformulate his clarification requests in order to provide opportunities for him to practice and enhance his interactional competence in English.

Based on the review of the CA studies, it can be argued that engagement should not only be considered as an emotional or reflective state. Rather, engagement can be displayed in real-time
classroom interaction by the participants themselves and it can be investigated retrospectively through analysing the micro-details of the talk. Platt and Brook’s (2002) microgenetic study demonstrates that student engagement can also be manifested through verbal and multimodal means in peer interactions. The authors emphasise that multimodal features, including gestures, and paralinguistic features, such as intonations, can be as important as linguistic resources for students to utilise for engaging themselves in undertaking group activities. In this chapter, I aim to adopting translanguaging as an analytical perspective in order to examine the EMI teacher’s actions in promoting student engagement through maintaining student attention to the lesson content and maximising opportunities for student participation. Student engagement can be observed through the students’ orientations towards the EMI teacher’s talk.

8.3 Translanguaging as an Inclusive Pedagogical Resource for Student Engagement

In this chapter, inclusion is understood in its broader sense as a philosophy of acceptance where all individuals are treated with respect (e.g. Slee, 2004; Ainscow et al., 2006). Hence, inclusion extends beyond special educational needs (SEN) and disabilities and it is considered as a process that is concerned with everyone. It emphasizes the importance of taking accounts of students’ varied life experiences and different needs in order to bring equal access to educational opportunities and full participation by all students in school settings. The notion of participation is central in inclusive pedagogy and it emphasizes the role of the teachers’ pedagogical practices in supporting all students’ learning processes. Trussler and Robinson (2015) conceptualize two main inclusive practices, namely the individual and whole-class approaches, for catering to the different needs of all students to facilitate their learning success. The individual approach focuses on how students with specific learning difficulties can achieve successfully in the context of whole-class teaching. This may entail preparing different graded tasks and give them out to different students with various levels. This can mitigate the possible stigma of ‘requiring extra assistance’ or ‘doing easy work’. Alternatively, the whole-class approach involves the teacher designing the learning experience for everyone, not only those who are in need. This requires the teacher to have all students in mind rather than the majority or the minority when planning classroom activities, so that it can make learning more accessible for all students.

The notion of translanguaging conceives with the ideas of promoting equity and social justice in the classrooms. It concerns the entirely of the teacher’s and students’ repertoire (see conceptual framework in chapter 3). Deploying students’ full linguistic repertoire in the classroom has roots in inclusive education, culturally-relevant and culturally-responsive teaching and multicultural education as argues by Ladson-Billings (1995). Teaching for equity and social justice requires
teachers to integrate students’ full linguistic resources into learning opportunities and building on students’ linguistic and funds of knowledge (Garcia and Li, 2014). This can potentially give voice to students who are silenced by the monolingual policy in bi/multilingual classrooms. Hence, translanguaging can be a mechanism for promoting to provide equity and social justice. Translanguaging encourages teachers and students to deploy their available multilingual and multimodal resources as a way to challenge the traditional configurations, categories, and power structures, break the hierarchy of languages in the classrooms and allow students’ full participation in constructing new meanings and new configurations of language practices. By doing so, it creates a translanguaging space for meaning-making and social justice (Li, 2018).

It is noticeable that there are a number of EMI studies that have conceptualised translanguaging as practices for promoting equity and social justice in the classrooms (e.g. Tai and Li, 2020; 2021a; 2021; Lin and He, 2017; Sah and Li, 2020, see chapter 3 for more empirical studies). However, the intricacies of translanguaging pedagogy (Li, 2018; Tai and Li, 2020) and how EMI policy is talked-into-being in conversations (Bonacina-Pugh, 2012) are under-explored in the literature. Specifically, does this inclusive pedagogy of translanguaging actually deepen students’ engagement in actual EMI classroom interaction, and how? In order to substantiate the argument of translanguaging as an inclusive pedagogy for promoting student engagement, this chapter aims to reveal how the EMI history teacher seeks out available multilingual and multimodal resources and make strategic choices among these resources in order to deepen student’s engagement and involvement in the classroom.

8.4 Creating Opportunities for Engaging the Whole Class

I now analyse examples of how the teacher engages students at the whole class level. In the dataset, ten instances are identified which illustrate how the teacher engage students at the whole class level.

Extract 1: Initiating Designedly Incomplete Utterances (DIUs) to Invite Student Participation

Prior to this extract, teacher B (T) was teaching the historical fact about the old stone age people’s lifestyle. Teacher B initiated a question about where old stone people would choose to live and a couple of students responded ‘caves’. Teacher B then invited students to come out to the blackboard and draw the pictures of a cave to the class. In this extract, teacher B attempts to elicit further information from the students’ drawings.
51 T: *haha your classmate already presented it
   +S3 walks back to his seat
   +T walks towards the blackboard

52 (0.3)

53 T: *usually they will live really close to +the:?
   +S2 walks back to his seat
   +T extends LH, palm facing students, locate it next to the drawing of a cave
   +T gazes at the students in the class
   +T moves his RH towards
   the drawing of a river#2

Figure #2
55 S1: water
56 (0.5)
57 T: to the? to the? +to the:? 

+T moves his RH along the drawing of a river, palm facing downward
58 (0.6)
59 S4: [river]
60 S1: [water]
61 (0.2)
62 T: river (.) the the river for getting?
63 (0.4)
64 S1: water
65 (0.2)
66 T: water +and also they live inside the:? they live in the?

+T raises up his RH, palm facing upward, locating next to the drawing on a

cave #3
67 (.)
68 S1: caves
69 (0.2)
70 S1: [caves]
71 T: [caves] (.) okay ah that's +what we call the caves

+T writes down 'cave' next to the drawing #4
+T turns to the blackboard
73 T: *why why they lived (0.2) lived the inside

  +T points at the drawing of a cave, using his index finger

  +T gazes at the students in the class

74 (0.4)

75 T: *inside the caves

  +T points at the drawing of a cave, palm facing students, fingers extended

76 (0.2)

77 S4: [because it is safer]

78 S2: [because they (0.4) because um the:] [outside]

79 T: [think] maybe (NAME-

  S2)

80 (0.7)

81 S2: because the outside is too cold or too hot

82 (0.2)

83 T: <yeah::> and also or maybe [+because of] the::?

  +T raises up his RH, index finger pointing

  upward #5

84 S1: [raining]
85 (0.2)

86 T: [climate]

87 S5: [volcano]

88 S1: [raining]

89 (0.2)

90 T: okay?

91 (0.4)

92 T: and er maybe +raining $outside$ okay?

+T points at S1, using his index finger

93 (0.2)

94 T: +and also +can keep them:

+T gazes at S4

+T points at S4, palm facing upward, fingers extended

95 (0.2)
In line 53, teacher B points at the student 3’s drawing of a cave and initiates a designedly incomplete utterance (DIU), ‘they will live really close to the?’, in order to invite students to complete the sentence for teacher B. Note that teacher B deliberately moves his right-hand towards the drawing of a river (figure #2) which offers a hint to the student that ‘river’ is the correct answer. It is vital to note that although teacher B’s initiation of a DIU invites all students to think about the answer and any student can respond to the DIU, the way DIU is designed means that only one or a handful of students can provide the answer. This offers limited opportunity for other students in the class to construct the knowledge themselves in the target language. It is evidenced in line 55 when student 1 offers an answer by saying ‘water’. However, such a response is not considered as preferred by teacher B. This motivates teacher B to repeatedly utter ‘to the?’ three times and makes circular movement around the drawing of a river (line 57) to prompt students to come up with a more precise answer. Eventually, this results in a correct answer uttered by student 4 in line 59.
This prompts teacher B to grammatically extend the elicitation by initiating another DIU to invite students to think about the purpose of living next to the river, ‘the river for getting?’ (line 62). This offers an opportunity for student 1 to repeat her response ‘water’ which is eventually accepted by teacher B and this is followed by another DIU, ‘and also they live inside the? they live in the’ (line 66). The DIU is accompanied by teacher B’s gestural action of pointing at the drawing of a cave on the blackboard (figure #3) to encourage students to identify the place where the old stone age people live. As shown in lines 68 and 70, student 1 offers the answer, ‘caves’, and this is repeated by teacher B as a form of acknowledgement in line 71. Teacher B also writes down the word ‘cave’ next to the drawing in order to help students in noticing the key vocabulary item in the history curriculum (figure #4).

After engaging students in learning about caves in the old stone age, teacher B initiates a whole class discussion and invites students to think about why the old stone age people chose to live inside the cave (lines 73 and 75). Student 2 and student 4 attempt to offer responses to teacher B (lines 77-78). After student 2 offers his answer, ‘because the outside is too cold or too hot’ (line 81), teacher B first acknowledges student 2’s response and he then utters a DIU to indicate the insufficiency of student 2’s response and invite students to come up with a more concise answer, ‘also or maybe because of the?’ (line 83). Concurrently, teacher B raises up his right-hand and pointing upwards (figure #5) in order to encourage students to guess the word that can complete the sentence. Student 1’s response ‘raining’ (line 84) overlaps with teacher B’s DIU in line 83, but student 1’s response is not acknowledged by teacher B. After a short pause, teacher B completes the DIU by himself by providing the word ‘climate’ (line 86), although student 5 and student 1 attempt to offer alternative responses to teacher B. Here, teacher B attempts to provide with the umbrella term ‘climate’ that encompasses the features of other students’ responses, including student 2’s response ‘too cold or too hot’ in line 81 and student 1’s response ‘raining’ in line 88.

Although it appears that teacher B has previously ignored a couple of the student’s responses, teacher B takes the opportunity to engage with individual students’ responses, which occur at a different timescale, in a new sequence. Here, it is evidenced that teacher B’s memory of prior students’ responses is actualised in the interaction which affords him to show appreciation to all students’ comments. Teacher B first turns to the individual students and he points at student 1 as he utters ‘raining $outside$’ (line 92). By doing so, teacher B is explaining the purpose of sheltering in caves and acknowledging the appropriateness of student 1’s responses which were previously enunciated in lines 84 and 88. In line 94, teacher B also points at student 4 when he constructs another DIU, ‘can keep them:’. Here, teacher B is offering a chance for student 4 to repeat her answer, ‘safe’, that she previously provided in line 77. However, student 4 utters ‘warm’
in line 96 and simultaneously student 6 says ‘safe’ in line 97 to attempt to complete teacher B’s DIU in line 94. Teacher B first recognizes student 4’s response by providing a positive assessment, ‘warm very good okay?’. Teacher B then initiates a DIU, ‘and also keep them:’, and nominates student 6 to complete the DIU for him as he points at student 6. This motivates student 6 to utter ‘safe’ (line 101) which essentially repeats his utterance that was said in line 97. It is noticeable that teacher B deliberately stresses the word ‘safe’ when he repeats student 6’s answer in order to highlight the importance of this word to the students since it is a key reason why the old stone age people chose to live in the caves. The importance of this word is further reiterated in line 105 as teacher B places a stress on the word ‘safety’ as he says: ‘for safety okay?’.

In this extract, it is seen that teacher B and students are using English as the medium-of-interaction (Bonacina-Pugh and Gafaranga, 2011), which aligns with the school’s EMI language policy. However, teacher B skillfully constructs several DIUs which are accompanied by his gestural and paralinguistic resources, such as intonation and stress, in order to invite all students to come up with the most appropriate word to complete the DIUs for teacher B. These constructions of DIUs successfully engage students in participating in the classroom interaction and encourages them to guess the words that are appropriate to the historical facts. In the subsequent part of the interaction, teacher B turns towards the individual students and takes his time to acknowledge the responses that were previously said by several students. He offers opportunities for them to voice out their thoughts by using DIUs and pointing gesture to invite the nominated students to take up the turns. In doing so, teacher B is creating a translanguaging space which affords him to balance between whole-class management and engaging individual students at the same time, recognise different students’ contributions to the class discussions and encourage students to think about the past events. During the video-stimulated-recall-interview, teacher B explains the purpose of initiating DIUs to engage student’s history learning:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall Interview Selected Excerpts</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
</table>
| 51 T: *haha your classmate already presented it  
  +S3 walks back to his seat  
  +T walks towards the blackboard | 01 K: 我見你都用咗 designedly incomplete utterance，有時我見到你，即係好似同你特別做一個 gesture 等學生去估個 meaning 出嚟，呢個 inspiration 像係邊度揀返嚟？ (I noticed that you have used designedly incomplete utterance and you deliberately did some gestures to allow students to guess the meanings. Where did you get this inspiration from?) |  | The researcher is curious why T can use DIUs and gestures skilfully to engage student’s participation in the lessons. |
| 52 (0.3)  
  53 T: usually they will live really close to +the?:  
  +S2 walks back to his seat  
  +T extends LH, palm facing students, locate it next to the drawing of a cave  
  +T gazes at the students in the class  
  +T moves his RH towards the drawing of a river? | 02 T: 通常都係覺得咯，keywords 重要，即係有機會考，即係嘅唔字係係個個記實嘅，咁所以記憶唔係，啲 terms 其實都係，係，系係用個个 terms 其實都係，係，係係希望個個可以過 memory，即係起碼有個印象，譬如畫咗啲圖畫，啲 graphic 哩 memory 可能會好啲，係，係系對啲 terms 可能會 |  |  |
| 54 (0.2) | Figure #2 |  |  |
55 T: water
56 (0.6)
57 T: to the? to the? +to the?
   "T moves his RH along the drawing of a river, palm facing downward"
58 (0.6)
59 T: river [river]
60 S1: [water]
61 (0.2)
62 T: river (.) the the river for getting?
63 (0.4)
64 S1: water
65 (0.2)
66 T: water +and also they live inside the? they live in the?
   "T raises up his RH, palm facing upward, locating next to the drawing on a
cave #3"

容易呀入腦啲樣囉!因為,因為 kep叩叩一課,即係,即係個筆字,即係個筆字都係,有啲都係深啲,有啲 terms 但係如果係咁啲喺入又,又解唔通,咁又,即係要咁啲唔到嘅題目嘅樣囉

(Normally I do this because I think these keywords are important. That means these keywords can be assessed in the school examination and they need to memorise them. So, I hope that they can memorise these terms and have a deeper impression about them. An example will be when you draw a graphic. Some kind of graphics can help people in remembering them. Therefore, I hope that I can help them in remembering these terms. This is because in this particular unit, there are lots of terms that are quite challenging to students. If they don’t understand the terms, they won’t be able to answer the exam questions properly.

T recognises that using DIUs can help students in memorising these keywords since these keywords will be examined in examinations.

T uses an example of a graphic for painting a vivid image on individual’s mind. He justifies that his uses of DIUs and gestures share the similar purpose of using graphics since it can help students to memorise the important keywords.
K: 但係呢一個教學法呢，即係你
得意嘅學生活去 fill in the blanks。即
係教师唔使 hints 愈低啦，等低地幫
你去 fill in your sentence，呢個係
你自己，呢個方法係你講係幾時
候學返啲啦，定係從你自己親返
嚟
(So, it is noticeable that you ask
students to fill in the blanks and you
deliberately offer hints to them. Where
have you acquired this pedagogical
strategy from? Was that learnt when
you were pursuing an education
degree?)

T: hahaha 我有用，即係教，即係教
嘅時候有乜呢啲嘅，即係我咁都
啲，即係咁多年，佢覺得呢啲字係
緊要嘅有時，哦，譬如我 Notes
taking 呢啲又唔係好識 notes taking
嘅，之後我覺得，即係，係你都
要 re-mind 呢啲話， 填一填呢啲字
啊，填啲你起碼，起碼譬如呢個
Test exam 嘅時，可能有啲唔會問
到嘅 terms 嘅時，但係都希
However, T
conceives history
teaching in terms
of keywords only.
Students need to
grapple with longer
stretches of
discourse (at the
sentence and text
level), productively
and receptively.

The researcher is
interested to know
what inspired T to
use DIUs.
73 T: *why why they lived (0.2) lived the inside
   +T points at the drawing of a cave, using his index finger
   +T gazes at the students in the class
74 (0.4)
75 T: *inside the caves
   +T points at the drawing of a cave, palm facing students, fingers extended
76 (0.2)
77 S4: [because it is safer]
78 S2: [because they (0.4) because um the: [outside]
79 T:
   [think] maybe (NAME- Si)
80 (0.7)
81 S2: because the outside is too cold or too hot
82 (0.2)
83 T: <yeah: :> and also or maybe [because of] the:?
   +T raises up his RH, index finger pointing uponsd #?
84 S1: [raining]

T acknowledges that he has not received such a pedagogical training when he was pursuing his education degree. It is the exam requirement that motivates T to find ways to help students in memorising the key terms.

T recognises that the students in his class have a lower academic ability, in comparison to the previous cohorts.
Table 8.1: Video-Stimulated-Recall-Interview (Extract 1)

K: 哦，幫你考試 hahaha
(Okay so it’s preparing students for their examinations)

T: 係嘅，centre考试係有時真係，即係都係有少少 exam oriented hahaha，係呀，咁高 form 就一定唔會咁樣啦，但係第 form 就行嘅嘅地，係係 follow，尤其係 form one
嘅嘅，譬如你寫嘅，即係係嘅，係係好嘅嘅 hahaha
(Yeah, I agree that it’s a bit exam oriented hahaha. Of course, I won’t do that to my senior form students. But I need to do this with my junior form students, particularly the form 1 students. At least when they are asked to fill in a sentence for me, they will gradually be familiarised with the key terms. Yeah hahaha.)

T agrees with the researcher that his motivation for initiating DIUs are driven by his goal for preparing students for examination.

The researcher realises that T’s use of DIU is mostly driven by his goal for preparing students for examination.

T uses DIU with his form 1 students because they are not good at memorising key terms and this pedagogical strategy can potentially help students to memorise the key words.

to write down ‘houses’ but not words like caves and huts. Yeah.
As demonstrated in the MCA analysis, it is evidenced that teacher B employs DIUs and gestures to elicit words from the class. Teacher B explains that using DIUs can help students in memorising these keywords since these keywords will be examined in examinations. He uses a metaphor of graphics and explains how using graphics can paint a vivid image on the student’s mind, “譬如畫咗啲圖畫,有啲graphic嘅memory可能會好啲(An example will be when you draw a graphic. Some kind of graphics can help people in remembering them)”. Figuratively, teacher B is portraying the value of his use of DIUs and gestures as the graphics since they can facilitate students’ memorization of the important keywords.

Since teacher B acknowledges that the students in this class generally have the lower academic ability (line 3), this can explain why teacher B’s construction of DIUs is mostly driven by his goal to facilitate student’s memorization and prepare them for examination. Teacher B particularly points out the difference between the current secondary one students and the previous cohorts in the past, “佢哋都係好渣嘅,而家啲喺唔同你哋以前嘅,全部唔喺 Hardcore, hahahaha, 即係而家可能佢哋連諗啲keywords佢哋都未必,未必諗到(Very different from your previous cohorts where you guys achieved full marks hahaha. The current cohort probably can’t think of the keywords at all)”. As I am a former student of the school, teacher B notices that the students in my cohort were able to achieve full marks easily in the fill-in-the-blank questions in the school examination, whereas this is no longer the case in the current cohort. In order to cater for the learning needs of all students in the class, teacher B believes that using more DIUs with his year 7 students is a pedagogical strategy for assisting students to memorise the keywords for their examinations. Hence, by drawing on his own pedagogical belief and his assessment of his student’s academic ability, it can be argued that teacher B’s translanguaging practices afford him to engage the whole class in learning important words for describing historical facts. However, teacher B’s pedagogical approach focuses heavily on guiding students to reach the correct keyword which prevents students from producing extended discourse in English. It can be suggested that such an approach may not prepare students to grapple with longer stretches of discourse at both sentence (e.g. sentence comprehension questions) and text levels (essay-type questions) (Lo and Fung, 2020).

**Extract 2: Engaging All Students in making a Stance**

Prior to the extract, teacher B was presenting an image on the PowerPoint which illustrates the social pyramid of ancient Egypt (Image 8). At the top were the pharaoh and those associated with divinity and farmers and slaves made up the bottom. Teacher B then invited students to think about
whether ancient Egypt was a fair society. Teacher B pointed to the bottom of the social structure and explained the meaning of ‘slaves’ and their job responsibilities, including building the Pyramid, transporting goods and laborious work. In the extract, teacher B asks students whether they wish to be a slave in ancient Egypt (line 71) and this leads to a follow-up question which prompts students to consider the social class that they want to be affiliated with (lines 78-83).
71 T: pyramid (.). okay? er +and +do you want to be the slave

    +T moves his LH backward, pointing backward with his LH thumb

    +T points at the students, with his LH finger

    +T places his LH to his waist and looks around

    the class

72 (0.2)

73 T: in ancient egypt?

74 (0.2)

75 SS: no:=

76 T: =hahaha

77 (.)

78 T: +if you can choose +(.). er [next lesson +tell me]

    +T’s LH index finger pointing at the students

    +T places his LH to his waist

    +T’s LH index finger at the

    students

79 S4: [ (PHARAOH) ]
80 + (0.2)

+T turns his body, facing the screen

81 T: +if you can choose+

+T points at the screen, extending his RH arm, fingers extended, palm facing students

#14

+T shakes his RH

--->+

Figure #14

82 (0.4)
82 (0.4)
83 T: +which (0.3) classes you want to be+
   +T moves his body, facing the class
   +T points at the students, palm facing students, extending RH fingers, extending RH
   arm --> #15
   +T shapes his RH

   -->

84 (0.2)
85 T: [+okay?]
   +T clenches his RH fist

86 S5: [+THE TOP] ONE
   +S5 extends his LH arm and LH index finger pointing at the screen #16
87 S1: [PHARAOH]

88 (.)

89 T: [and hahaha]

90 S5: [THE TOP ONE]

91 (.)

92 S1: MINISTER

93 (.)

94 T: +pharaoh? (0.4) but +pharaoh only have one okay?

+T points backwards, with his RH thumb

+T extends his RH index finger, pointing upward----> #17
95 (0.2)

96 T: ah+ Δ so think about Δ +which +classes=

→

Δ T points at his temple, with his RH index finger→ #18

→ Δ

+T points at his LHS, using his RH index finger #19

+T drops his RH index finger downward

#20
97 T: =you wanted to be okay?=
After explaining the roles of slaves to the students, teacher B invites students to take a stance in terms of their willingness to become a slave (line 71). He also points at the students and looks around the class to invite student participation. This leads to responses from several students by saying ‘no:’ in an extended sound (line 75) to emphasise their unwillingness to become a slave. The students’ responses are received with teacher B’s laughter in line 76 to indicate the funniness of the students’ answer. Teacher B asks a follow-up question (lines 78-83) and points at the screen to refer to the social class pyramid (figure #14, line 81) in order to invite students to think about which social class that students want to be.
While teacher B is uttering ‘okay?’ to seek confirmation from students (lines 85), a number of students utter their opinion in loud voice. In line 86, student 5 yells out ‘THE TOP ONE’ while pointing at the top of the pyramid on the screen to highlight her desire to be Pharaoh. Similarly, student 1 also yells out ‘PHAROH’ to indicate her opinion (line 87). Although the students’ responses are received with teacher B’s laughter in line 89, both student 5 and student 1 continue to yell out uninvited responses in loud volume to display their hope to become Pharaoh. Note that teacher B does not stop students from yelling out uninvited responses, rather he initiates a follow-up question (line 94) to invite further responses from students, possibly promoting students’ engagement in this topic. In line 94, teacher B utters ‘pharaoh?’ in rising intonation and points at the screen at his back which questions S5’s possibility to be at the top of the social class pyramid. Teacher B then points upwards (figure #17) to visually represent the numerical number 1 as he utters ‘pharaoh only have one okay?’ (line 94). This question invites all students to think about the other possible option that students can become if they were in ancient Egypt. Particularly, teacher B’s gestural action (i.e. dropping his index finger downward gradually, figure #20), symbolically represents the different social classes from top to bottom and this gesture is synchronized with his verbal utterance as he utters ‘classes’. Such an enactment aims to engage students to think about the social class that they want to be in.

Despite teacher B’s suggestion to students for considering other social classes, a group of students ignore the teacher’s suggestion that there is only one pharaoh and they repeatedly initiate uninvited responses in loud voice: ‘THE TOP ONE (0.2) THE TOP ONE’, in order to draw teacher B’s attention to their desire to be at the top of the pyramid (line 100). While the students are speaking, T ignores them and invites them to inform their answers to teacher B in the next lesson.

In this extract, it is demonstrated that teacher B utilises various gestures, a visual image of the social class pyramid and his use of if-clause to encourage students to take a stance in terms of the social class that they wish to be affiliated with. This extract differs from Extract 1 which reveals how teacher B makes use of DIUs to deepen student’s involvement in answering teacher B’s questions. In Extract 2, it is noticeable that students offer their responses in loud and exaggerated volume in order to display their opinion which results in laughter from teacher B. This creates a translanguaging space for teacher B and students to engage in meaningful communication about social class in ancient Egypt. However, the analysis of the extract reveals that teacher B only accepts what students say without further elaborations. This begs the question of lack of language scaffolding, even if there is engagement. It can be argued that teacher B could have used this as an opportunity to scaffold students’ responses to something more academically appropriate. For
example, teacher B could have invited the students to justify why they would rather be at the top of the hierarchy. By building on the students’ contributions, teacher B could involve students in co-constructing curriculum knowledge and scaffolding his students’ learning (Haneda, 2009). During the video-stimulated-recall-interview, teacher B is asked to explain the rationales for him to engage in playful talk with students and how does that allow him to fulfil his pedagogical goals:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
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<th>Analyst's Interpretations of the Teacher’s Perspectives</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>01 K: 然之後去到最後你問咗學生，你想做佢乜嘢階級啊，嘅個 pedagogical goal 嘢乜嘢 (So, at the end you asked students which social class do they want to be in. What’s the pedagogical goal?)</td>
<td></td>
<td>T aims to develop student’s critical thinking skills by inviting them to take a stance.</td>
</tr>
<tr>
<td>71 T: +pyramid (+) okay? or +and +do you want to be the slave</td>
<td>02 T: 都係搵係，further 佢，即係佢個 thinking，即係个個 thinking level 高啲，不過佢哋通常都係答話想做最 powerful 嘢個 (I want to further the student’s thinking. Hoping that it can enhance their thinking level. However, they normally say that they want to be the most powerful person)</td>
<td></td>
<td>However, does engaging students in making a stance mean that it can develop students’ critical thinking skills?</td>
</tr>
<tr>
<td></td>
<td>72 (0.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>73 T: in ancient egypt?</td>
<td>74 (0.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75 SS: no:=</td>
<td>76 T: =hahaha</td>
<td></td>
<td></td>
</tr>
<tr>
<td>77 (:)</td>
<td>78 T: +if you can choose +(.), or [next lesson +tell me]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+T's LH index finger pointing at the students</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+T places his LH to his waist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>79 34:</td>
<td>[ (Pharaoh) ]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
80 - (0.2)
+T points at the screen, extending his RH arm, fingers extended, palm facing students

81 T: +if you can choose+
+T shakes his RH

(For example, in this exam, I asked a question about the social class. I asked whether the Pharaoh was perceived as powerful and also the status of the slaves. So, the students were able to comment on the question. I have also

T recounts his experience in marking student's answers which involved them to imagine themselves living in that historical moment.)
83: *Which (0.3) classes you want to be*
   → T moves his body, facing the class
   → T points at the students, palm facing students, extending RH fingers, extending RH arm...
   → T shapes his RH

84: (+)

85: [+okay+]

86: [+the top] one

---

**T**

Figure 15

designed questions that require students to do decision making. I asked if you were an Egyptian, would you build the pyramid? So, they all said no, hahaha. However, the reasons that they gave were naïve. They wrote something like: ‘make me very tired’. They also wrote things like: ‘it was very hard’. Oh my god. So, they were saying ‘work very hard’. Actually, they wanted to say: ‘need to work very hard’. However, they just wrote down ‘it was very hard’ and I was so frustrated when I read these answers. There were a few students who wrote answers like they might feel proud when they had the chance to serve the Pharaoh. This showed that they treated the Pharaoh as a god. So, I have designed these open-ended questions for students to creatively express their opinion. Nevertheless, these questions didn’t carry lots of marks. Probably only two or three marks.)

T is annoyed by the naivety of the student’s written answers.

It is possible that T understands that the students cannot think critically in terms of the historical context.
04 T: 但係係個 syllabus 入邊都，都有好多個 social classes，唔啲字又好似，係唔係係同個唔係好似有乜嘢樣嘅，係唔係，其實你話以前我係，譬如我嘅話係香港係乜嘢，真係可能會受社會好啲嘅 influence 的，如果係係個 equal society 嘅樣講啲嘅 hahaha，不認識而家都係事講啲嘅

(However, in the syllabus, it only requires the teacher to teacher the different social classes and the meanings of these social classes. So, it appears that it has no connections with the student’s everyday life experience. In the past I would ask questions related to Hong Kong. However, right now I don’t have the guts to ask such question. I used to ask: is Hong Kong an equal society? Hahaha. But now I won’t ask this question.)

T believes that it is important to bridge the gap between the historical knowledge and the student’s everyday life experience.

T wants students to think about whether ancient Egypt is a fair society. Using HK as an example, it can assist students to understand what an equal society should entail and the consequences of

By asking students to think about which social class that they wish to be in, this potentially helps students to imagine themselves living in the past.

T points out that he is worried about using HK as an example because in recent years, HK government and the Education Bureau
having different social classes within a society.

It also points out that he feels silenced and he cannot use Hong Kong as an example anymore due to the fear.

expressed concerns about schoolteachers promoting Hong Kong independence in the classroom. Several teachers' teaching license were stripped for spreading pro-independence messages (South China Morning Post, 2020). This sends a menacing message to teachers regarding the potential risks of discussing politics and human rights in the classroom.

Table 8.2: Video-Stimulated-Recall-Interview (Extract 2)
In the interview, teacher B argues that engaging students to think about which ancient Egyptian social class that they want to be in can potentially develop their critical thinking skills as it requires them to make a decision based on the historical facts that they have learnt. Teacher B suggests that the majority of the students claim that they want to be the most powerful person. This is possible that students understand the responsibilities of a slave which entails doing laborious work. Alternatively, being a Pharaoh can get access to power and a wide range of resources. Teacher B recounts his experience in marking student’s answers which involved them imagining themselves living in that historical moment. Teacher B is annoyed by the naivety of the student’s written answers since students demonstrate a lack of criticality in terms of the historical context. It can be argued that teacher B sees a value in bridging experiences across spatial and temporal scales (Thibault, 2011; Ho and Li, 2018) through inviting students to imaginatively place themselves in a historical context. This has an important pedagogical goal for enhancing student’s historical and critical thinking about the societal system in ancient Egypt.

Although the curriculum limits teacher B in introducing the different social classes in ancient Egypt, teacher B believes that it is important to bridge the gap between historical knowledge and the student’s everyday life experience. This is exemplified in the MCA analysis as teacher B asks students to think about which social class that they wish to be in. Students show their excitement by voicing out their desire to be “the top one” in loud voice (lines 86, 90, 100). It can be argued that teacher B’s question potentially helps students to imagine themselves travelling back to the ancient Egyptian period and consider what will be like to be surviving in a hierarchical society. By allowing students to engage in such a discussion, it creates a translanguaging space for teacher B and students to utilise various paralinguistic and semiotic resources to communicate and defend their stances. Nevertheless, it can also be suggested that teacher B’s translanguaging practices can be further utilised to scaffold students’ responses “the top one’. Teacher B can first accept the students’ contributions and he can translanguage between everyday and academic speech in order to create opportunities for students to justify their stance of wanting to be “the top one”.

In order to bridge the connection between ancient Egypt and student’s everyday life experience, teacher B has thought of using HK as an example since it can assist students to understand what an equal society should entail and the consequences of having different social classes within a society. However, teacher B did not further pursue this discussion with the class. It is vital to note that in recent years, the HK government and the Education Bureau expressed concerns about schoolteachers promoting Hong Kong independence in the classroom. Several teachers’ teaching licenses were stripped for spreading pro-independence messages (South China Morning Post, 2020). In the interview, teacher B points out that he feels silenced and he cannot use HK as an
example anymore due to the potential risks of discussing politics and human rights in the classroom. This illustrates that although a translanguaging space is created by the teacher, political-related topics can potentially prevent teacher B and students to engage in whole-class discussions regarding the similarities and differences between the social systems in ancient Egypt and the society that students are living in.

**Extract 3: Creating an Imaginary Scenario for Explaining Content Knowledge**

Prior to the extract, teacher B was introducing the definition of the primary source to the students and he presented the definition via PowerPoint. Teacher B then offered an additional explanation of the meaning of primary sources to ensure that all students could understand this concept. In this extract, teacher B constructs an imaginary scenario of a murdering case and invites students to think about what kind of primary sources does the detective need to collect in order to solve the case.

12 (0.5)

13 T: *for example I just mentioned about er murdering case*
   
   +T extends his LH, palm facing upward ——>

14 (0.6)

15 T: *if you want to (0.4) find out the +evidences*
   
   +T points at himself, extending all fingers #2

   +T’s LH palm facing upward

   +T moves his LH, palm facing upward, move slightly to his

LHS #3

Figure #2
T: evidences do you get the meaning of evidences?

+T uses his thumb and points at his back, pointing at the blackboard→

S1: yes

T: 證據 (0.3) [證據]

(tr. evidence) (tr. evidence)

S1: [we learn this in]

T: +what kind of evidences you want to find

+T clenches his fist
25 (0.3)

26 T: if +you want to solve a +murdering case+=
   +T raises up his LH, palm facing upward, as if holding a ball --> #4
   +T clenches his fist
   +T shakes his fist

   -->+

27 T: +=for example you must
   +T raises up his RH, clenches his fist

28 (0.6)

29 T: +which kind of sources you think it's really useful+
   +T shakes his RH
   +T raises his RH further upward --> #5

   -->+
30 (0.2)

31 T: +if you want to find out the truth+ of a murdering case
   +T gradually drops his RH to his waist level --->
   +T shakes his RH

   --->+

32 (0.5)
33 S8: ingredient
34 (0.6)
35 T: +the ingredient?+
   +T points at S8, using his index finger
36 (0.4)
37 S?: haha
38 (.)
39 T: hahaha (0.2) what else (0.2) what else
40 (1.0)
41 S1: um the

42 (0.8)

43 S1: [history]

44 S5: [testing]

45 (0.3)

46 T: +(WHEN) KILLING A PEOPLE+ +THEY need a

                              +T raises up his RH, fist clenched, and moves it downward at his chest level --> #6

                              +T shakes his RH

                              -->+

                              +T raises up his RH, fist clenched #7

                              +T shakes his RH

Figure #6
47 (0.2)

48 T: maybe er they need what kind of things

49 (0.2)

50 S12: gun

51 (0.3)

52 S?: (unintelligible)

53 (.)

54 T: +yeah very good [er (0.2) +for example]
     +T points at S2

     +T raises up his RH, fist clenched--->

55 S1: [weapon (.) weapon]

56 (0.3)
57 T: +the tools they used+ (.) okay la +so you can see

   +T shakes his RH

   --->

   +T turns his body, facing the
   blackboard

58 (0.3)

59 T: for example <+the tools>

   +T writes down ‘the tools/weapons’ on the blackboard

60 (0.6)

61 T: <or the weapons (0.7) or the weapons>

62 (0.3)

63 T: used by the people +at↑ that↑ time↑+

   +T points at the back using his index finger and
   continuously shakes his RH --->
   --->

64 (0.4)

65 T: +at↑ that↑ time↑ (0.2) +of the events happened

   +T points at the back using his index finger and continuously shakes his RH --->
   --->

   +T moves his RH near his chest

   +T raises up his index finger, pointing upward

66 (0.5)

67 T: +that’s the primary source

   +T’s index finger pointing upwards

   +T moves his index finger slightly forward

68 (0.6)
In line 15, teacher B verbally constructs an if-clause to invite the whole class to think about the evidence that they need for solving a murdering case. Particularly, teacher B complements the new referent ‘evidence’ with his use of iconic gestures as he places his left-hand upward and moves his left-hand slightly to his left-hand-side (figure #3) when uttering ‘find out the evidences’. This potentially allows students to imagine that teacher B is holding ‘evidence’ in his hand. As no student responds to teacher B’s question, teacher B attempts to check student’s understanding of the meaning of ‘evidence’ in line 17. Although student 1 utters ‘yes’ to claim her knowledge, she does not explain the meaning of ‘evidence’. This motivates teacher B to switch to Cantonese and utter ‘證據 (evidence)’ twice in order to emphasise the meaning of the word so that he can carry on with his elicitation of student responses in lines 24 and 26. Here, it is noticeable that teacher B only switches to Cantonese when students display little comprehension of the word ‘evidence’. This minimal use of L1 as the last resort is widely criticised by scholars who advocate for extensive and systematic translanguaging to expand students’ linguistic repertoire (e.g. Garcia and Li, 2014; Probyn, 2015). In line 26, teacher B switches back to English and rephrases the if-clause. Concurrently, he raises up his left-hand again by cupping his hand as if holding a round object (figure #4) and shaking his fist in order to construct the same imaginary context of a detective solving a murdering case. Due to the lack of student responses, teacher B initiates another question by asking students: ‘what kind of sources you think it’s really useful’ (line 29) and rephrases the if-clause in line 31 with the hope that the students will respond to teacher B.

Although student 8 offers a response ‘ingredient’ to teacher B, such a response is not considered as preferred as signalled by teacher B’s repeat of S8’s response in raising intonation (line 35) and his seek for other responses from the class in line 39. Despite teacher B’s call for additional responses from the class, the students are unable to offer any appropriate answers, as shown in lines 41, 43-44. This motivates teacher B to initiate a DIU in order to encourage students to come up with a sensible answer. In line 46, teacher B first raises his intonation and utters his DIU in a louder voice, ‘WHEN KILLING A PEOPLE THEY need a’. Simultaneously teacher B’s gestural actions facilitate the creation of an imaginary context. Teacher B clenches his first, raises up his right-hand and moves it downward repeatedly (figures 6 and 7) in line 46 which represents the action of killing a person with a knife. Here, it is noticeable that teacher B’s uses of intonation, sound volume and gestures enable him to create an embodied enactment of an imaginary murdering scenario (Tai and Brandt, 2018) for encouraging all students to think from the detective’s perspective. However, teacher B’s DIU is not being filled by any student during the 0.2-second pause (line 47) which potentially implies that the students feel confused about teacher B’s question. This requires teacher B to repair his question: ‘maybe er they need what kind of things’ (line 48) to invite student participation and familiarise them with the detective’s ways of
thinking. In line 50, student 12 eventually says ‘gun’ and teacher B positively acknowledges student 12’s answer by first pointing at student 12 and then offering the correct answer to students: ‘the tools they used’ (line 57). It is noticed that teacher B raises up his clenched fist as he utters ‘for example’ (line 54). This gesture symbolises the ‘tools’ and teacher B deliberately raises it up so that all students can imagine teacher B holding the tools for killing a person (line 54). At the same time, student 1 repeats her response ‘weapon’ which emphasises the alternative answer to teacher B’s question in lines 46 and 48. In line 57, teacher B turns to the blackboard and writes down the answer (‘tools/weapons’) on the blackboard (line 59) so that all students can make a note of it. Note that teacher B takes the chance to recognise student 1’s contribution in line 55 by writing down ‘weapon’ on the blackboard and repeating the word ‘weapon’ twice in line 61. By doing so, teacher B acknowledges the value of student’s contributions to the whole class discussion, an important feature for promoting inclusive practices in the classroom (Chan and Lo, 2016).

In drawing students’ attention to the subject-specific knowledge, teacher B explains that the tools and weapons are ‘used by the people at that time’ (line 63). The phrase ‘at that time’ is repeated twice and it is heavily emphasised with stress and raising intonation. Additionally, teacher B points at his back and continuously shakes his index finger (figure #8) to indicate the past time frame. Here, teacher B’s gesture which indicates past events is synchronized with the phrase ‘at that time’ As shown, teacher B repeats doing the same gesture and saying the same phrase in line 65. The self-repeated gesture (Hauser, 2019) and the use of other paralinguistic features, like intonation and stress, enable students to grasp the fact that primary sources are sources that are previously used by people ‘at that time’ of the events happened’ (line 65). In line 67, teacher B concludes his explanation by linking it with the historical term ‘primary source’. It is noticeable that teacher B points his index finger upwards and he slightly moves his finger forward as he utters ‘that’s’ with a stress in order to emphasise the definition of the primary source to all students. Such an emphasis is also verbally repeated in line 69.

In this extract, teacher B attempts to expand students’ content knowledge by creating an imaginary context of a murdering scene through the deployment of linguistic, paralinguistic and multimodal resources. Similar to Extracts 1 and 2, teacher B initiates guided questions and DIUs and uses subject-specific language in whole-class interaction in order to develop students’ subject-specific ways of thinking and draw their attention to the ways of explaining ‘primary source’ in the study of history as a discipline. During the video-stimulated-recall-interview, teacher B is asked to comment on his motivation in creating an imaginary context at this moment of the interaction:
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<tbody>
<tr>
<td>25 (0.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 26 T: if you want to solve a murdering case =>                    | 01 K: 唔呢度呢你就用咗一個 murdering case 做例子啦，咁你覺得
   +T raises his LH, palm facing upward, as if holding a ball --> #4
   +T clenches his fist
   +T shakes his fist
   ___>                                                    | (here you used a murdering case as an
   ___>                                                    | example. So, do you think how this
   ___>                                                    | example can help you to facilitate
   ___>                                                    | history teaching?) |
| 27 T: =+for example you must                        | 02 T: 郭係話住呢係可能但係都睇過
   +T raises his RH, clenches his fist                      | 撣咗個故事，hahaha，即係係咁
| 28 (0.6)                                    | 唔係咁 easy to associate to few less often 我
   +T shakes his RH                                       | 掌住，因為呢啲 term 真係
| 29 T: +which kind of sources you think it’s really useful+              | 好鬼 abstract，唉係係，即係大
   +T raises his RH further upward --> #5                | 學都，即係你嘅大學度嘅 primary
   +T raises his RH further upward --> #5                | secondary sources 唔係呢啲都，都係
   ___>                                                    | 掌住，係係都幾難嘅呢啲概念其
   ___>                                                    | 實，即係話住呢一個例子會簡單啲
   ___>                                                    | 咁樣嘅，即係同埋係，係到係，
   ___>                                                    | 話到，即係容易啲會話到好似撿
   ___>                                                    | 去查原啲嘅，即係通常我談課
如果要找出真相
- T gradually drops his RH to his waist level →
- T shakes his RH

32 (0.5)
33 SS: ingredient
34 (0.6)
35 T: *the ingredient?
    - T points at SS, using his index finger
36 (0.6)
37 SS: hahaha
38 (.)
39 T: hahaha (0.2) what else (0.2) what else
40 (1.0)

T points out that using the murdering case as an example can facilitate students’ understanding of the concepts of primary and secondary sources. T’s use of murdering case is related to his belief that historians are similar to detectives who look for the truth.

It is evidenced that T is bringing out-of-school knowledge into his history teaching.

T attempts to guide students to think about primary and secondary sources from a detective’s perspective. Developing students’ discipline-specific ways of thinking.

03 K: 頭先呢個位，啲學生靜啲喺
    (there’s a moment where all students were silent.)

04 T: 嘻啲啲
    (yeah yeah)
05 K: 然後之後你就話 WHEN KILLING A PEOPLE hahaha
(and then you were saying: WHEN KILLING A PEOPLE (loud volume) hahaha.)

06 T: Hahaha

07 K: 跟住頭先，你頭先同我講，啊真係教得好慘，好似想死哂，點解同講呢
(And at the beginning you were telling me that you felt that it was awful, as if you were dying. Why would you say that?)

08 T: 咁即係好似，真係咁
(It’s like, oh my god.)

09 K: Hahaha

10 T: 點פו皆唔使嘅嘅嘅 hahaha，但係係啲嘅，有辦法，真係有時有時去到呢啲，就好好似我咁去到呢啲一啲
I'm not sure what kind of things they need.

S1: gun

T: yeah, very good [is (0.2) + for example]

T raises his right hand, fist clenched

S1: [weapon (.) weapon]

T points at S2

T: uh uh

T: 不過我地教咗幾年，就大約知道，同係一些嘅，我地以前我地多少多少時間都要一啲嘅，係好緊張又，

 Possibly because the students in the class generally have lower academic ability, T needs to cater for all student's needs in order to ensure that they can all be on the same page.
57 T: the tools they used? (.) okay la so you can see
   ~T shakes his RH
   -->
   ~T turns his body, facing the blackboard

58 (0.3)
59 T: for example <<the tools>>
   ~T writes down 'the tools/ weapons' on the blackboard

60 (0.6)
61 T: or the weapons (0.7) or the weapons

62 (0.3)
63 T: used by the people <<< that <<< time <<<
   ~T points at the back using his index finger and continually shakes his RH -->

64 (0.4)

好似追悔都追唔出啲嘅，好似好似都講嘅，係嘅
(However, we have been teaching for so long and we will probably know whether the students can understand us or not. In the past we used to have more time to talk about the definitions of primary and secondary sources during lesson times. However, since I only had limited amount of time and I could tell that the students could not provide any response. So yeah.)

Based on T’s extensive teaching experience, T can tell whether his students manage to understand the abstract concepts.

Limited lesson time is a factor that prevents students in coming up an appropriate answer to respond to T’s questions and DIUs.

Due to COVID-19, all school teaching must end by 1:00pm. Therefore, all schools must adjust their school timetable and the amount of lesson time for each subject. It is clear that the limited lesson time prevented T from explaining such abstract concepts to students.

Table 8.3: Video-stimulated-recall-interview (Extract 3)
Teacher B explains that the concepts of primary and secondary sources are abstract and difficult and there are lots of extensive debates about the distinction between primary and secondary sources at the university level. Hence, in order to deepen student’s understanding of these concepts, teacher B believes that using a murdering case as an example can help all students to find the concepts more relatable to their everyday life knowledge. By doing so, teacher B is bringing the outside knowledge (Tai and Li, 2020; chapter 6) into the history classroom to engage student participation and deepen student’s content learning. In particular, teacher B uses a simile to justify his belief that historians are similar to detectives who look for the truth, “即係好似啲historical 都好似 detective 咁樣去 find out the truth (historians are like detectives to find out the truth)”. This can explain why teacher B in the classroom interaction attempts to initiate various DIUs and questions in the form of if-clause to encourage all students to think about primary and secondary sources from a detective’s perspective. In doing so, teacher B is potentially developing students’ discipline-specific ways of thinking like a detective during whole-class interaction.

Based on the MCA analysis, the researcher also notes how teacher B utilises various paralinguistic features, such as stress, intonation, and gestures when constructing a question: ‘WHEN KILLING A PEOPLE”. The researcher is interested to know more about teacher B’s perception of his own translanguaging practices. Teacher B emphasises that he needs to look for an alternative approach to engage his students when students are not responding to his questions. It is possible that the students in the class generally have the lower academic ability and therefore there is a need for teacher B to cater to all student’s needs through repairing his question in order to ensure that they can all be on the same page. Teacher B further explains that limited lesson time is a factor that prevents students from coming up with an appropriate answer to respond to his questions and DIUs. Due to the COVID-19 pandemic, all secondary schools must adjust the amount of lesson time for each subject. At school A, teacher B only had 30 minutes to carry out his teaching. Thus, it is necessary for teacher B to be strategic in deploying available resources for ensuring that all students can understand the abstract historical concepts within a limited time. Teacher B further explains how he attempts to engage students in history learning using various resources:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall Interview Selected Excerpts</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>57 T: <em>the tools they used</em> (. ) okay la <em>so you can see</em></td>
<td>01 K: 然後之後<em>你特別去</em>emphasise*嘅 at that time 嘅樣呢</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(So here you deliberately emphasise the phrase ‘at that time’)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>02 T: <em>hahaha 我嘅意思係係話，但一定要係，講係嘅係，係唔係時間地，係係</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>嘅個年代嘅係，係係啲係，系呢個時間地，係係嘅係，係係呢個 period 之後，係係譬如經過嘅處理嘅，係係約我俾個叫做一手資料嘅，如果係係係，係係轉到人骨，或者係係咕人用過嘅嘅，起碼係係，但係係晰啲係係呢個叫做 primary source，係係 hahaha</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Yeah, I mean the specific time, the specific year. At least they won’t mix it up with the things that are related to*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>future events or sources that are being processed by someone. Then that is not considered as primary source. If you*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>58 (0.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>59 T: <em>for example</em> <em>&lt;the tools&gt;</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60 (0.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>61 T: <em>&lt;for the weapons (0.7) or the weapons&gt;</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>62 (0.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>63 T: *used by the people *say / that / name *</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>64 (0.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>T: <em>at</em> that time* (0.2) of the events happened</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- T points at the back using his index finger and continuously shakes his RH --&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>--&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- T moves his RH near his chest</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- T raises his index finger, pointing upward</td>
<td></td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>(0.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>T: <em>that’s</em> the primary source</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- T’s index finger pointing upwards</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- T moves his index finger slightly forward</td>
<td></td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>(0.6)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Visually: Know things like human bones or things that were used by the people at that time, then they will have a clearer picture of what primary source means.

Yeah hahaha.)

---

03 K: 我見你平時都有用呢啲好
exaggerated intonation 佢驚驚去
draw 佢哋嘅 attention
(I noted that you often use exaggerated intonation in order to draw student’s attention.)

04 T: 如果唔係佢唔會乜嘢。
Otherwise they don’t know what’s
going on.)

05 K: 如果唔係佢唔會好似 get 咁
到，我就覺得
(Otherwise they won’t get you at all)

06 T: 係啊如果你就唔講佢唔講，佢
啞啲嘅。 唸即係 Zoom 都係咁啲，即係
Zoom 你變唔咁啲嘅嘅。

T recognises the limitations of using Zoom for conducting teaching.

Using raising intonation can possibly facilitate students’
<table>
<thead>
<tr>
<th>(Yeah if you just say it without any intonation, they will... so it's like Zoom. When you use Zoom, all these features won't be available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 K: 像咩方啲 (yeah you don't.)</td>
</tr>
<tr>
<td>08 T: 像啲 Zoom 都有啲啲, 你就算, 你就算啲啲整啲整啲, 又啲啲好 get, 即啲啲好嘅到你有啲啲 emphasise 嘅嘅, 即啲啲時我嘅上堂就可以啲啲 body language 同埋啲 gesture 去 Emphasise 某啲位, 或啲啲 tones 像啲啲</td>
</tr>
<tr>
<td>(Using Zoom won't allow me to utilize these resources. No matter how much you have presented on the screen, they still don't fully get your point. That is, they can't really see what you are trying to emphasise. During face-to-face lessons, I can use body language or use stronger tones to emphasise certain things.</td>
</tr>
<tr>
<td>T points out the importance of utilising intonation and gestures for emphasising key information and drawing student's attention.</td>
</tr>
<tr>
<td>Since T used Zoom to conduct his teaching last year, he is aware of the affordances of Zoom.</td>
</tr>
</tbody>
</table>

Table 8.4: Video-stimulated-recall-interview (Extract 3)
As shown in the MCA analysis, teacher B uses raising intonation and stress to emphasise the phrase ‘at that time’. In the interview, teacher B explains that it is necessary to place a heavy emphasis on it since it is an important feature of primary sources. Thus, teacher B is drawing students’ attention to the disciplinary-specific phrases in order to scaffold their historical understanding. Based on the researcher’s 2-month lesson observations, he notices that teacher B often uses raising intonations to engage students’ learning. Teacher B points out the importance of utilising intonation and gestures for emphasising key information during face-to-face lessons and these resources are absent in Zoom virtual teaching. Here, teacher B recognises the difficulty in using gestures and tones to ensure all students are engaged during the Zoom classes. This is possibly because students may not pay full attention to the screen and there may be other technical issues, such as the volume of the student’s computer is not loud enough which prevents students from attending to teacher B’s use of tone. Thus, it can be argued that teacher B recognises the value of various paralinguistic and gestural resources in facilitating history teaching and the mobilisation of these resources contributes to a creation of a translanguaging space for students to learn the historical knowledge.

**Extract 4: Drawing on Related Historical Knowledge to Scaffold Content Knowledge**

Prior to the extract, teacher B was introducing the development of the Nile Valley civilization. The PowerPoint slide (figure #1) illustrates the symbolisms of the different features of the Pharaoh’s crown. On the blackboard, teacher B constructed a timeline which included important events that happened in the 3500BC, 3200BC and 320BC. Teacher B subsequently introduced the fact that Egypt had 31 dynasties. In lines 1-2, teacher B writes down ‘31 dynasties’ on the timeline and he invites students to guess the meaning of the word ‘dynasties’.
01 +(2.0) 
   +T writes down '31 dynasties' on the blackboard

02 T: +um +can you guess the meaning for dynasties?
   +T turns his body, facing the students
   +T uses his chalk to point at the blackboard

03 (0.2)

04 S1: 帝國
      (\textit{\textup{\textup{\textit{tr. empre}}}})

05 (0.5)

06 T: +just like +china (0.3) [china also had different] dynasty
       +T extends his RH, palm facing outward, extending all RH fingers #1
       +T moves his RH from LHS to RHS continuously #2

07 S1: [er (0.2) 王國]
       (\textit{\textup{\textup{\textit{tr. empre}}}})
08 (0.2)

08 S1: 王國 王國=

   (((tr. empire empire))

09 S12: =朝代=

   (((tr. dynasty))

10 T: =haha +very good +朝代 okay? (0.2) er in china we have:+

   (((tr. dynasty))

   +T points at S12, palm facing upward, extending all RH fingers, extending RH arm #3

   +T rotates his RH-->
11 (0.3)

12 T: +which dynasty? you should know+

   +T holds his RH at his chest level, palm facing upward, extending all fingers--->

       --->+

13 (0.5)

14 S2: +xia: er

   +T turns his body to his LHS and gazes at S2

15 (0.2)

16 S7: xia=

17 T: +=xia (.) [+and then?]  

   +T extends his RH arm, palm facing upward, extending all RH fingers, pointing at S2

       #4

   +T moves his RH to his RHS and points at the student in the front #5

18 S7:  [唐呀]

       ((tr. Tang))
19 (0.4)

20 S2: [+yuen:]

+T turns his body to his LHS and gazes at S2

21 S12: [元唐]

((tr. Yuen, Tang))

22 (0.4)

23 S7: xia (.) xin

24 (0.2)
25 T: +yuen (0.3) +song very good=
   +T extends his RH, pointing at S2, palm facing upwards, extending all fingers
   +T further extends his RH arm and points at S2

26 S6: =唐呀=
   ((tr. Tang))

27 T: +tong (.) okay? (0.2) and also er the last one
   +T points at S6, palm facing upward, extending all RH fingers

28 (0.3)

29 T: [+which +which one is the last dynasty]
   +T places his RH at chest level, palm facing T, extending RH fingers
   +T extends his RH arm and moves his RH forward #6

30 S1: [元唐夏商周呀]
   ((tr. Yuen, Tang, Xia, Shang, Zhou))
31 S10: [ching]
32 (0.2)
33 T: [in china]
34 SS: [ching]
35 (0.2)
36 T: +very good (.) the +ching dynasties the last one=
    +T raises up his RH, uses a chalk to point at students
    +T opens his RH palm, palm facing students #7

Figure #7

37 S12: =after ((inaudible))=
38 T: =+but er you can see in egypt (0.4) er +total
    +T points backwards, palm facing backboard, extending all RH fingers #8
    +T moves his RH forward,
    palm facing upward,
    extending all RH fingers
39 (0.2)

40 T: *thirty one dynasties*

   +T places his RH at waist level, palm facing outward, extending RH fingers

41 (0.8)

42 T: *all are founded in this period of time*

   +T turns his body to his RHS

   +T moves his RH to his RHS

   +T shakes his RH

   +T points backward, using his RH thumb---> #9

   -->+
Student 1 offers her answer in Cantonese to respond to teacher B’s question in line 4. However, her Cantonese response ‘帝國’ means empire rather than dynasty. Teacher B does not offer any feedback to student 1’s answer, but he invites students to think about the dynasties in Chinese history. Student 1 attempts to offer an alternative response by uttering ‘王國’ (empire) in line 7 and repeat her response in line 8. However, such a response is not seen as preferred by teacher B and teacher B displays his preference for student 12’s Cantonese utterance ‘朝代’ (dynasty). This can be observed as teacher B offers positive feedback ‘very good’, points at student 12 (figure #3) and repeats student 12’s Cantonese answer ‘朝代’ in line 10. After teacher B’s acknowledgement of student 12’s response, teacher B switches back to English and constructs a DIU, ‘in china we have:’, to invite students to think about the dynasties in Chinese history (line 10). So far, it is evidenced that the students are using Cantonese to respond to teacher B’s question, but teacher B attempts to deploy English to respond to student’s questions, hence orienting to English as the medium-of-interaction in the classroom (Bonacina-Pugh and Gafaranga, 2011).

After a short pause (line 11), teacher B notices that his use of DIU fails to elicit any response from students, possibly because it is unclear to students regarding the kind of responses that can complete the DIU. Teacher B then forms a question, ‘which dynasty?’, and clearly states that ‘you should know’ (line 12), which implies that all students in the class should have prior knowledge about the Chinese dynasties. Teacher B also holds up his right-hand at his chest level and points at the students in order to invite students to offer him responses. Here, it is evidenced that teacher B is trying to bring students’ prior knowledge in Chinese history into the learning of Egyptian history. It is possible that teacher B assumes students to have learnt Chinese dynasties in their Chinese history class. Student 2 takes a turn to initiate a response ‘xia’, which is the first dynasty in Chinese history. Student 2’s response draws teacher B’s attention, as evidenced in teacher B directing his gaze to student 2 (line 14). Teacher B acknowledges ‘xia’ as an appropriate answer by repeating student 2’s answer and pointing at student 2 (figure #4). While teacher B is eliciting more dynasties from students (line 17), several students begin to offer their responses in either Cantonese or English, such as ‘唐呀 (Tang)’ in line 18, ‘Yuen’ in line 20, ‘元唐 (Yuen and Tang)’ in line 21 and ‘Xia’ and ‘Xin’ dynasties in line 23. In line 25, teacher B acknowledges student 2’s contribution by repeating ‘Yuen’ as one of the dynasties and pointing at student 2. Teacher B also utters ‘Song’ which is a dynasty that is not being mentioned by the students. As student 6 repeats student 7’s and student 12’s answers by saying ‘唐呀 (Tang)’ in line 26, teacher B takes the opportunity to recognise student 6’s contribution, as evidenced by teacher B’s pointing gesture and teacher B’s repetition of student 6’s utterance. However, teacher B pronounces Tang dynasty as ‘Tong’ which is the direct translation of Cantonese pronunciation ‘唐 (tong4)’.
In lines 27 and 29, teacher B prompts students to name the last dynasty in China. Several students respond ‘Ching’ in lines 31 and 34 which are accepted by teacher B in line 36. Teacher B further elaborates on student’s responses and explains that the Ching dynasty is the last Chinese dynasty. After that, teacher B connects the knowledge related to Chinese dynasties back to Egyptian history. He invites students to look at the timeline on the blackboard which presents the historical timeline of the development of the Egyptian civilisation. By pointing backward (figure #8) and verbally inviting students to imagine ‘Egypt’ on the blackboard as he says ‘but er you can see in egypt’ (line 38), teacher B is bringing students back to the learning of Egyptian history. Here, teacher B metaphorically refers to the timeline on the blackboard as Egypt and the timeline serves as a useful resource for allowing students to imagine the existence of Egypt. After stating the fact that there are ‘thirty one dynasties’ in Egypt (line 40), teacher B repeats his gesture by pointing backwards with his thumb to draw student’s attention to the timeline on the blackboard while verbally saying that these dynasties ‘are founded in this period of time’ (line 42).

This extract reveals that teacher B brings students’ prior knowledge of Chinese dynasties into the teaching of ancient Egyptian history. By doing so, teacher B mobilises various multimodal resources (pointing for acknowledging student’s contributions and extending arms to invite responses) alongside his follow-up questions in English and repetition of students’ Cantonese responses to engage students in learning the meaning of dynasty and the existence of various dynasties in Egyptian history. In the video-stimulated-recall-interview, teacher B comments on his rationale of drawing on the Chinese history to facilitate his teaching:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
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<th>Analyst's Interpretations of the Teacher's Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>01</strong> K: 咱嘛時就無端端點解你會覺 得用中史，去問啲中史噴問題會 解釋何謂朝代？(So, what motivates you to use Chinese history as an example to explain the meaning of dynasty?)</td>
<td>01 K: 啥時就無端端點解你會覺 得用中史，去問啲中史噴問題會 解釋何謂朝代？ (So, what motivates you to use Chinese history as an example to explain the meaning of dynasty?)</td>
<td><strong>T</strong> believes that bring in the knowledge that students have learnt in Chinese history can help them to understand the western dynasties.</td>
<td>The researcher is interested to understand the rationale for bringing Chinese history into the learning of western history.</td>
</tr>
<tr>
<td><strong>02</strong> T: 呢個 但啲應該，都係 association 姐，即係但啲啲中史應該 學嘅，啲就個概念上可以 link up 到 哪啲朝代。 (T: 呢個 但啲應該，都係 association 姐，即係但啲啲中史應該 學嘅，啲就個概念上可以 link up 到 哪啲朝代。)</td>
<td><strong>T</strong> believes that bring in the knowledge that students have learnt in Chinese history can help them to understand the western dynasties.</td>
<td><strong>T</strong> believes that bring in the knowledge that students have learnt in Chinese history can help them to understand the western dynasties.</td>
<td>The researcher is interested to understand the rationale for bringing Chinese history into the learning of western history.</td>
</tr>
</tbody>
</table>

**Table 8.5: Video-stimulated-recall-interview (Extract 4)**
Teacher B explains that bringing the historical knowledge that students have learnt from the Chinese history lessons into the classroom can help them to understand the ancient Egyptian dynasties. It is possible that teacher B is aware of the Chinese history curriculum and having such an awareness allows him to draw on Chinese dynasties as an example to scaffold student’s understanding of ‘dynasty’ in Egyptian history. As shown in the MCA analysis, teacher B successfully draws on students’ funds of knowledge and engages students’ learning as students are able to provide examples of different Chinese dynasties. Hence, by bringing relevant historical knowledge into the history classroom, this affords teacher B to construct a translanguaging space. Such a space allows teacher B to understand and assess the current state of the students’ knowledge in the learning process.

**Extract 5: Engaging All Students and the Researcher in the Classroom**

I now present a case that deviates from the standard practice illustrated in Extracts 1-4. In this extract, teacher B uses the researcher, an observer in the class, as an example to consolidate students’ understanding of primary and secondary sources. This extract occurs approximately ten minutes after Extract 3. Prior to the extract, teacher B was explaining what secondary sources mean and the nature of different sources, such as written and non-written sources. He presented examples of secondary sources to the students through the PowerPoint. On the PowerPoint, it listed out the following examples: history books, documentaries, research essays and chronicles (see figure #1). Teacher B then defined the meaning of ‘documentaries’ to students. At the beginning of this extract, teacher B attempts to explain what ‘research essays’ are.
01 T: so that's what we call the documentaries okay?
02 (0.3)
03 T: and also just like +(NAME-Researcher) ah doing

    +T points at the researcher, using his index finger
04 (0.2)
05 T: okay +ah research essays okay?

    +T extends his LH, palm facing upward, extend all fingers --->
    +T shakes his LH
06 (0.3)
07 T: ah he needs to search ah+

    --->+
08 +(0.5)

    +T points at the researcher, using his index finger #1
09 T: **tell me!** (0.2) er you can see

10 (0.3)

11 T: um +(NAME-researcher) um making um+ +recording my lesson

   +T extends all fingers, palm facing upwards, extends LH, holds up his LH--> #2

   +T shakes his LH

   -->+

   +T points at himself, extending

   all fingers

Figure #2

12 (0.3)

13 T: +what do you think

   +T’s index finger pointing upwards

14 (0.2)
15 T: if what kind of sources ah he he he +try to
   +T extends all his fingers, fingers
   pointing upwards as if holding a
   ball, palm facing upward #3

16 (0.2)

17 T: uh (0.2) +collect=

   +T clenches his fist and drops his LH back to his knees level

18 SS: =primary

19 (0.2)

20 T: +eh! +it's a written↑ or non↑ written↑ sources

   +T nods

   +T raises up his clenched fist at chest level

21 (0.2)
After explaining what documentaries mean (line 1), teacher B moves on and explains the meaning of ‘research essay’. Teacher B includes the researcher for doing the explanation and he first points at the researcher while inviting students to attend to what the researcher is doing: ‘just like (NAME-Researcher) ah doing’ (line 3). Since the students in the class are aware that the researcher is here to collect video data for his doctoral thesis, using the researcher as an example to explain ‘research essay’ is an easy way to convey the meaning clearly to the students. Teacher B initially aims to explain to students the things that the researcher needs to search (line 7). However, teacher B abruptly terminates the formulation of the sentence and he points at the researcher (line 8) and utters ‘tell me’ with a strong emphasis in order to draw the student’s attention to the researcher again and projects that a question will be initiated by teacher B (line 9).

In line 11, teacher B extends all his fingers and points at the researcher (figure #2) while verbally stating that the researcher is ‘making um recording my lesson’. While teacher B utters the word ‘recording’, a couple of students turn around and look at the video camera which demonstrates that
some students show understanding of teacher B’s question. Teacher B continues to point at the researcher (figure #3) and asks students to identify the source that the researcher is collecting (lines 13-17). Several students utter ‘primary’ (line 18) which is accepted by teacher B as he utters ‘eh!’ and nods at the students (line 20). Teacher B initiates a follow-up question and teacher B puts emphasis on words ‘written’ and ‘non-written’ as he says: ‘it’s written↑ or non↑ written↑ sources’, in order to reinforce the necessity for classifying the nature of the primary source (line 20). As evidenced in lines 22, 24 and 26, students display their understanding and enunciate ‘non’, which is acknowledged by teacher B in line 28. Particularly, teacher B raises up his fingers and cups his hand as if holding a round object when he utters ‘video is a non written’. Hence, the gesture figuratively represents that teacher B is holding up the videos, which allows teacher B to reinforce the object video as a non-written source.

In this extract, teacher B utilises English utterances and gestural motions to include the researcher into the classroom interaction to engage student’s learning and assist them to understand the meaning of ‘research essay’ and the fact about video data as a primary non-written source. During the video-stimulated-recall-interview, the researcher is interested to understand the purpose of bringing him into the lesson:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 T: so that’s what we call the documentaries okay?</td>
<td>01 K: 我想問着就像…特登去 involve</td>
<td>By including me into the interaction, T aims to draw student’s attention and facilitate content explanation.</td>
<td>Although T states that he suddenly thought about using me as an example to explain secondary sources, T actually mentioned about his plan for using me as an example during an ethnographic interview which occurred before the lesson.</td>
</tr>
<tr>
<td>02 (0.3)</td>
<td>我落去個課堂度，你覺得有咩教學目標你擬想 achieve呢？</td>
<td>(I want to know what are the pedagogical goals that you aim to achieve by involving me into the classroom?)</td>
<td></td>
</tr>
<tr>
<td>03 T: and also just like (NAME=Researcher) ah doing</td>
<td>02 T: 我都係想draw佢啲嘅attention</td>
<td>(I want to draw the student’s attention hahaha. And you were also there, and I suddenly thought about that at that moment).</td>
<td></td>
</tr>
<tr>
<td>+T points at the researcher, using his index finger</td>
<td>Hahahaha 其實，同埋啲嘅你有嘅目標，</td>
<td></td>
<td></td>
</tr>
<tr>
<td>04 (0.2)</td>
<td>佢係我覺啲嘅到個位</td>
<td></td>
<td></td>
</tr>
<tr>
<td>05 T: okay +ah research essays okay?</td>
<td>03 K: 哈哈哈哈 (oh, you thought about it on the spot)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+T extends his LH, palm facing upward, extend all fingers --&gt;</td>
<td>04 T: 噢嘢，即係等佢啲起碼都會下你呀嘛，hahaha 即係好似捉番佢啲</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+T shakes his LH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>06 (0.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07 T: ah he needs to search ahh</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--&gt;--&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08 +0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+T points at the researcher, using his index finger #1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
363

09 T: tell me! (0.2) or you can see

10 (0.3)

11 T: um *(NAME-researcher) um making um* recording my lesson
   +T extends all fingers, palm facing upwards, extends LH, holds up his LH --> #2
   +T shakes his LH

   -->
   +T points at himself, extending all fingers

12 (0.3)

13 T: what do you think
   +T's index finger pointing upwards

14 (0.2)

T uses a simile, “catching them back” to refer to the purpose for bringing me into the interaction for drawing student’s attention.

It is noticeable that several students did turn around and gaze at the video camera when T asked students to identify what video data was classified as.

返嚟，hahaha 不過都 OK 喕，即係呢啲即場啲，即興啲啲講話
Yeah, at least they could gaze at you hahaha. It’s like “catching” them back. Hahaha. But it’s okay. I think. It’s quite spontaneous to be honest.

05 K: 係
   (Yeah)

06 T: 係嘅
   (Yeah)

07 K: 係嘅其實我都覺得我係用啲我做例子，跟住就可以問到佢哋
   (Yeah, I think using me as an example, you can then ask them)

08 T: 裝下佢哋
   (Checking them)

09 K: 感覺幫佢哋 classify 呢個係乜嘅嘅 source
   (Deliberately helping them to classify the different kinds of source.)

I think that referring my data collection as
Table 8.6: Video-stimulated-recall-interview (Extract 5)

15 T: if what kind of sources ah he he he *try to
- T extends all his fingers, fingers
   pointing upwards as if holding a
   ball, palm facing upward #)

16 (0.2)
17 T: uh (0.2) *collect=
- T clenches his fist and drops his LH back to his knees level

18 SS: *primary
19 (0.2)
20 T: *eh! *it's a written| or non| written| sources
- T nods
- T raises up his clenched fist at chest level
21 (0.2)

10 T: 同埋唔啱啱嘅，即係拍緊片，
咱我都覺得 okay 喔，等佢哋都知嘅 oral 啊或者係 video 都係一個
source 啦，呢樣嘅，Hahahaha
(And also, you are video-recording the
lesson so I think it’s appropriate for
them to know oral or video is a source.
That’s it hahaha.)

T believes that
referring to my data
collection can assist
students in
understanding video-
recording as a source
for investigating a
subject.

an example can help
students to learn how
to classify the
features of different
sources.
Involving me as a researcher into the classroom interaction provides teacher B with the opportunity to draw student’s attention and facilitate the explanation of the secondary source and different features of sources, including written or non-written sources. Although in the interview teacher B states that he spontaneously thought about using me as an example to explain primary and secondary sources to the students, based on the ethnographic interview that I carried out before the lesson, teacher B actually planned to refer to my doctoral project as an example. He believes that bringing me into the interaction can ‘catch them back’ (line 4 in the interview), a smile that is employed to emphasise the importance of engaging student’s attention in class. Such a pedagogical strategy successfully draws student’s attention. This is evidenced in the MCA analysis since it reveals that a couple of students turn around and gaze at the video camera when teacher B asks students to identify the feature of a video-recording (line 11).

Additionally, it can be argued that through bringing the researcher into the classroom interaction, teacher B creates a translangaging space for enabling teacher B to engage students in learning the features of primary and secondary sources. Teacher B and I believe that using my data collection as an example is convenient in terms of helping students to grasp the ways for classifying the nature of different sources, such as written or non-written sources. Teacher B further adds that the existence of the video-camera in the classroom allows him to convey a message to the students that video or oral data is a source for investigating a subject. As evidenced in the MCA analysis, students are able to accurately respond to teacher B’s questions about video-recording as a primary or secondary source and video-recording as a written or non-written source. This displays their understanding of the kinds of sources that I am collecting for my research project.

8.5 Creating Opportunities for Student’s Engagement through Catering to Individual Needs

In this section, I analyse examples of how the teacher engages students with individual needs (Extracts 6 and 7). In the dataset, two instances are identified which demonstrate the ways the teacher engage individual students.

**Extract 6: Including SEN Student into the Process of Knowledge Construction**

Prior to the extract, teacher B was playing a Youtube clip which illustrated how the old stone age people discovered fire. Before watching the clip, teacher B advised students to pay attention to why and how stone age people made fire. While students were watching the clip, teacher B asked
students to identify ways to make a fire. Student 2 then created voices ‘puss puss puss’ to imitate the sounds of two stones striking and moved his hands forward and backwards to enact the act of striking. Here, student 2 aims to convey the idea that striking is a way for the stone age people to make fire. Note that student 2 has autism and student 2 sometimes struggles to convey his thoughts clearly. Teacher B then invites student 2 to come out to the class to demonstrate the action of striking.

63 T: (NAME=S2) try to show to the class
64 (0.3)
65 T: +er how er +how the stone age people um made the fire

   +T points at the blank space on the blackboard

   +T raises his LH at chest level, palm facing students, pointing at the

   word ‘how’ on the blackboard #4

   Figure #4

66 (1.1)
67 S2: +er: (0.5) just like +they:

   +S2 picks up a chalk

   +S2 starts drawing

68 (0.7)
69 T: er oh you like to draw $okay$ (0.2) good
70 \(1.5\)
71 T: yes the two stones
72 \(0.4\)
73 S2: +er they hit the stones to
74 \(+S2 draws a person holding two stones #5\)

74 \(0.7\)
75 S?: ha ha ha ha ha
76 \(0.3\)
77 T: hahaha
78 \(0.3\)
79 S?: ha?
80 \(1.1\)
In lines 63 and 65, teacher B invites student 2 to show the action of striking to the class. Particularly, teacher B points at the word ‘how’ on the blackboard (figure #4) while uttering the question: ‘how the stone age people um made the fire’ (line 65). By doing so, this encourages students to make notes in terms of how the fire was made by the stone age people. Instead of enacting the action, student 2 picks up a chalk and he starts drawing on the blackboard as he utters concurrently: ‘just like they’ (line 67). Teacher B realises that student 2 prefers drawing and he does not immediately
In line 81, teacher B shifts from individualised orientation to whole class orientation as he offers an additional explanation on the meaning of ‘striking’ to all students. Specifically, teacher B turns his gaze to the whole class in order to signal to the class that he is introducing new knowledge to the class. Teacher B then utters ‘hit each other’ repeatedly while moving his right-hand forward and backwards repeatedly (figure #6) which allows teacher B to both verbally and visually explain the action of striking to all students. Although student 2 is still drawing (line 83), teacher B continues to offer vocabulary explanations to the whole class. In line 86, teacher B takes the opportunity to extend his vocabulary explanation by introducing the target vocabulary item ‘striking’ to students. Teacher B enacts the gestural action of striking (figure #6), and this is accompanied by his verbal explanation, ‘or strike together um striking’. Teacher B’s vocabulary explanation deliberately includes the target word ‘strike’ and teacher B explicitly connects it back to his simple linguistic utterances in line 81.

In this extract, it is evidenced how teacher B opens up a translanguaging space by providing opportunities for student 2 to engage in drawings for visualising his understanding to the class. This space facilitates the participation of student 2, who is a SEN student, in the process of knowledge construction. While student 2 is drawing, teacher B also provides additional explanations about student 2’s drawings to the class through using English and various gestural actions in order to assist other students in the class to make sense of student 2’s drawings of the action of striking. During the video-stimulated-recall-interview, teacher B comments on the pedagogical goals for allowing student 2 to draw on the blackboard:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall Interview Selected Excerpts</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
</table>
| 63 T: *(NAME-52) try to show to the class* 64 *(0.2)* 65 T: *er how er how the stone age people um made the fire*  
  +T points at the blank space on the blackboard  
  +T raises his LH at chest level, palm facing students, pointing at the word ‘how’ on the blackboard =4 | 01 T: 係，我本來想叫佢做嘅  
  (Yes, I originally wanted to act it out)  
  02 K: 但係佢又做唔到  
  (But he didn’t do it eventually)  
  03 T: 係係本來想叫佢做嘅  
  (Exactly! I wanted him to do the action)  
  04 K: 佢又唔做佢就 hahaha  
  (And he chose not to do it hahaha)  
  05 T: 係就走去做，我咪就係話我明明都叫佢去做，跟住佢哋又畫出嚟 hahaha 好搞笑  
  (I asked him to come out and I specifically ask him to do the action. But it turns out that he chooses to draw. It’s very funny)  
  T is aware that he asks S2 to enact the action of striking, rather than asking him to draw. |
06 T: 咱但係點解你又唔愛叫佢改返，叫佢改返個 action 但係又有得佢繼
續做  (But how come you didn’t intervene him? You could have asked him to do
the action. However, you allowed him to continue to draw)

07 T: 咁，係喺 hahaha 唔呀， ai
(NAME-S2) 唸咁好難叫停佢嘅，即
係佢答緊個，你係 stop 佢呢，佢
都會繼續係 hahaha 嘅講，咱我
通常都係 hahaha 嘅話，如果喺係
咁，咱有得佢做先係，係係，係係，係係
其實我都係 hahaha 嘅話，elaborate 一下
咁嘅話，所以就有即刻 stop 佢，其
實都可以 stop 咁 hahaha
(Ah yeah. Um it is very difficult to stop
S2 from doing something. For
example, when he is responding in the
interaction and you want to stop him,
he will continue to speak and ignore
your request. So normally if it’s not
urgent, I will let him to finish what he
wants to do first. Actually, I was

The researcher is
curious to understand
why T does not
intervene S2 and ask
him to do the action.
T could have taken a
more authoritative
position.

T understands that S2
seldom listens to
instructions.

Granting S2 access to
the floor and drawing

T is aware that S2 has
autism and it is
evidenced that T
understands S2 with
autism characteristics
which motivates him
to give the
Table 8.7: Video-stimulated-recall-interview (Extract 6)

<table>
<thead>
<tr>
<th>Time Code</th>
<th>Transcript</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 T:</td>
<td>+that means (0.2) +hit each other (0.4) hit each other</td>
</tr>
<tr>
<td></td>
<td>T turns to the whole class</td>
</tr>
<tr>
<td></td>
<td>T moves his RH forward and backward repeatedly as if holding a ball</td>
</tr>
<tr>
<td>02 (0.2)</td>
<td></td>
</tr>
<tr>
<td>03 S2:</td>
<td>[then we] um</td>
</tr>
<tr>
<td>04 T:</td>
<td>[okay?]</td>
</tr>
<tr>
<td>05 (0.6)</td>
<td></td>
</tr>
<tr>
<td>06 T:</td>
<td>or <em>strike together</em> um striking okay?</td>
</tr>
<tr>
<td></td>
<td>T moves his RH forward and backward repeatedly, as if holding a ball</td>
</tr>
<tr>
<td></td>
<td>T looks at S2’s drawing</td>
</tr>
<tr>
<td>07 (0.2)</td>
<td></td>
</tr>
<tr>
<td>08 T:</td>
<td>planning to stand aside and elaborate on S2’s drawing to the class. So, I didn’t stop him immediately. Actually, I can stop him hahaha.)</td>
</tr>
<tr>
<td>09 K:</td>
<td>Hahahaha</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>09 T:</td>
<td>呵呵 好聽，不過 你個人都唔係好聽 係呢種基本上 係好 hahaha</td>
</tr>
<tr>
<td></td>
<td>(He is not willing to listen. Actually, that’s his character. He seldom listens to instructions. Yeah hahaha.)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>10 S2:</td>
<td></td>
</tr>
<tr>
<td>11 S2:</td>
<td></td>
</tr>
<tr>
<td>12 T:</td>
<td>did it for S2 so that he can express his thoughts through drawings.</td>
</tr>
</tbody>
</table>

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It is noticeable that teacher B expects student 2 to enact the action of striking in front of the class, rather than asking him to draw pictures on the blackboard. However, teacher B eventually allows student 2 to carry on with his drawings. It is questionable in terms of why teacher B did not request student 2 to do the action. This is because teacher B could have taken a more authoritative position and ask student 2 to follow the instruction since teacher B needs to cover the curriculum content within the limited lesson time. Nevertheless, teacher B shows his understanding of student 2’s personality traits since he realises that student 2 seldom listens to instructions and he has his own way of doing things. Teacher B gives an example of student 2 not listening to orders: “即係佢答緊嘢呢，你想 stop 佢呢，佢都會繼續係囉 (when he is responding in the interaction and you want to stop him, he will continue to speak and ignore your request)”. It can be argued that teacher B is aware that student 2 has autism and based on teacher B’s extensive experience in working with SEN students as Head of Guidance and SEN, he understands student 2’s autism characteristics. This motivates him to give the interactional floor to student 2 which affords him to visualise and verbalise his thoughts.

In addition to including student 2 into the knowledge construction process, it is evidenced in the MCA analysis that teacher B adds further descriptions of student 2’s drawings to the whole class while student 2 is drawing in order to fully utilise the lesson time to maintain the whole class engagement. Teacher B explains that it is part of his plan to elaborate on student 2’s drawings so that all students can make sense of what student 2 has drawn on the blackboard. This demonstrates that teacher B has created a translanguaging space in the classroom for promoting student engagement in both individual and whole class levels. At an individual level, the space affords student 2 in utilising drawing as a way that is comfortable for him to express his understanding of the meaning of ‘striking’, although student 2 does not engage in the way that teacher B expects (i.e. using gestures to represent the action of striking). At a whole-class level, the students at first are not empathetically engaged with student 2, as shown through a student’s laughter in lines 75 and 79. It is observable that teacher B attempts to engage all students by offering additional explanations of student 2’s drawings while student 2 is taking his time to draw the whole picture on the blackboard. This allows all students to learn the meaning of ‘striking’, which is an important term in understanding the life of the old stone age people.

Extract 7: Offering Opportunities for Individual Students to Publicly Display Their Understanding

Extract 7 is the prior part of the interaction in Extract 1 (approximately two minutes before Extract 1). Prior to this extract, teacher B was introducing the lifestyle of the old stone age people to students. In this extract, teacher B aims to elicit student’s thoughts regarding the place that the old
stone age people lived.

05 T: +and also tell me er they lived in where
    +T writes on the blackboard
    +T is facing the blackboard
06 +(0.8)
    +T writes down “lived in” on the blackboard
07 T: they lived [+in:]
    +T draws a line on the blackboard#1

Figure #1

08 S1: [caves and]

09 (10.0)

11 T: +they lived in?
    +T turns his back, facing his students
12 (0.4)

13 S1: caves and

14 (.)
15 T: +anyone can draw please help me to
   +T writes down “caves” on blackboard
16 (0.4)
17 T: draw on the backboard okay?
18 +(4.7)
   +T writes down “hunts” on blackboard
19 T: can you show me in picture
20 (.)
21 T: +(NAME-S2) (0.3) please come out
   +T moves his RH to his chest level
   +T extends his RH and beckons
22 (0.3)
23 T: draw +draw me the pictures of caves
   +T cups his LH and points at the word ‘caves’ on blackboard
24 (1.0)
25 T: can can you draw it
26 (0.9)
27 T: people +everybody? (0.3) you get the meaning of caves?
   +T extends his LH and palm facing upward
28 (2.3)
29 S3: +can l try?
   +S3 raises up his RH

30 (0.2)

31 T: +you +want to try? >please (also) come out< (0.7) +haha
   +T extends his RH, palm facing upward, points towards S3
   +T then moves his RH to his LHS and points at the blackboard
   +T glances at
   the blackboard

32 (1.2)

33 T: +just draw the pictures of the living place of them
   +S2 and S3 standing in front of the blackboard

34 (0.2)

35 T: of the old stone age people

36 (0.5)

37 T: +thank you thank you
   +S2 and S3 start drawing on the blackboard

38 (2.0)

39 T: +and also tell me the reason (0.4) why
   +T turns his back, facing the students
   +T extends his RH, palm facing upward
40 (0.3)
41 T: why did the old stone age people lived there
42 (1.8)
43 S1: they didn't know how to build a house
44 +(3.6)

+T turns back to the blackboard
45 T: haha (0.3) thank you thank you
46 (4.3)
47 T: haha
48 +(10.0)

+S3 and S2 finishing off their drawing #2

49 T: thanks a lot okay?
50 (1.3)
In line 5, teacher B initiates a question and invites students to think about where the old stone age people lived in. Teacher B also writes down ‘lived in’ on the blackboard to draw student’s attention (line 6). Teacher B then constructs a DIU by uttering ‘they lived in:’ and teacher B also draws a line on the blackboard (figure #1) to encourage students to fill in the gap for teacher B. Student 1 immediately replies to teacher B’s DIU by saying ‘caves and’ (line 8). However, student 1’s response is not being acknowledged and teacher B repeats the DIU in line 11 which prompts student 1 to repeat her response again (line 13). In line 15, teacher B writes down the word ‘caves’ on the blackboard, which indirectly recognises the appropriateness of student 1’s response and teacher B invites any students in the class to draw caves on the blackboard (lines 15-17). Since no student volunteers to draw, teacher B nominates student 2 to come out to draw the cave on the blackboard, as evidenced in his verbal utterance and his gestural actions of beckoning student 2 (line 21). While student 2 is coming out from his seat, teacher B shifts to the whole class discussion.
and initiates a confirmation question to engage other students in thinking about the meaning of caves (line 27). Student 3 take a turn and self-nominates himself for drawing a cave (line 29). Teacher B then turns to student 3 and student 3’s request is being granted by teacher B in line 31. By allowing student 3 to come out to draw a cave, teacher B is also allowing himself and other students in the class to evaluate student 2’s and student 3’s understanding of what a cave looks like.

While student 2 and student 3 are drawing on the blackboard, teacher B switches back to whole class orientation by first establishing gaze with the students and asking students to think about the reason ‘why did the old stone age people lived there’ (lines 39-41). Student 1 attempts to guess the reason (line 43) but it is possible that teacher B cannot hear her response and teacher B turns back to the blackboard to gaze at student 2’s and student 3’s drawings (line 44). In line 48, student 2 and student 3 are finishing off their drawings. As observed in figure #2, student 2 draws a person living inside a cave and a river is located near the cave. However, student 3’s drawing apparently does not represent a cave. Rather, it shows a person hunting an animal. Teacher B then shows his appreciation for their effort (line 49) and invites other students in the class to pay attention to student 2’s drawing through pointing at it and eliciting a question about it (lines 51-53). However, it is noted that teacher B does not validate student 2’s drawing or treat student 2’s drawing as acceptable.

Similar to Extract 6, this extract has demonstrated how teacher B includes student 2 and student 3 into the interaction by inviting them to draw a cave. It is argued that by encouraging students to use their visual skills to represent an object, teacher B is creating a translanguaging space for students to exhibit their historical knowledge and for teacher B to assess their understanding. Later in the interaction, teacher B does not engage with student 2’s drawing at all since the drawing does not visually illustrate a cave. Despite inviting S2 into the process of knowledge construction, teacher B does not take an opportunity to validate the value of S2’s drawing. During the video-stimulated-recall-interview, the researcher is interested to understand teacher B’s pedagogical goal for asking students to draw in history class and why teacher B deliberately invites student 2, a student with SEN, to participate in the drawing activity during the lesson:
<table>
<thead>
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</tr>
</thead>
</table>
| 15 T: *anyone can draw please help me to  
  *T writes down “caves” on blackboard | 01 K: 啪啪呢一個例子入面，你特登摸 (NAME-S2) 出嚟去畫個 cave  
  (In this example, you deliberately ask S2 to come out and draw a cave) | | |
| 16 (0.4) | 02 T: 像呀像呀  
  (yeah yeah) | | |
| 17 T: draw on the blackboard okay? | 03 K: 點解會特登摸 (NAME-S2)  
  (Why did you choose S2?) | | |
| 18 = (4.7) | 04 T: 其實都係，我都係，通常佢都係 active 的啦，俾啲男仔，俾啲男仔做吓嘢 hahaha  
  (He is often quite active in class. So, I decided to assign some tasks for him to complete) | S2 is an active student in the history class. | Based on the researcher’s informal chat with S2, he is very interested in learning history and he often reads history |
| 19 T: can you show me in picture | | | |
| 20 (.) | 05 K: 哦！  
  (Oh) | | |
30 T: = can I try?
  =S3 raises up his RH
30 (0.2)
31 T: =you want to try? =please (also) come out(0.7) =haha
  =T extends his RH, palm facing upward, points towards S3
  =T then moves his RH to his LHS and points at the blackboard
  =T glances at the blackboard
32 (1.2)
33 T: =just draw the pictures of the living place of them
  =S2 and S3 standing in front of the blackboard
34 (0.2)
35 T: of the old stone age people
36 (0.5)
37 T: =thank you thank you
  =S2 and S3 start drawing on the blackboard
38 (2.0)
39 T: =and also tell me the reason (0.4) why
  =T turns his back, facing the students
  =T extends his RH, palm facing upward
06 T: 像囉像囉
  (Yeah yeah)
07 K: 關唔開個因為有自閉症，所以想 include 個課堂度
  (Is it related to the fact that he has autism and you wish to include him into the classroom?)
08 T: 我都其實，通常上堂都希望佢
  但可以投入到個課堂嘅，咁尤其是呢一科係佢 interest 嘅嘅，佢見佢都好
  積極嘅，佢多啲機會佢啦，有時都會
  嘅嘅，你都見我多數，都多問啦
  (NAME-S2)
  (Actually, I hope that he can participate more in the lessons. In particular, history is his interested subject. So, I think it’s important to give him chances for him to excel in this subject since he is enthusiastic. You often notice that I always ask him questions.)
09 K: 像呀
  (Yeah)
books during his leisure time.

The researcher is curious whether T aims to include S2 into the interaction because of his special educational needs.

T believes that it is important to offer S2 opportunities to respond to questions so that it enhances S2’s interest in learning history.

Based on the researcher’s own observations, T often invites S2 to answer different questions.
40 (1.0)
41 T: why did the old stone age people lived there
42 (1.8)
43 S1: they didn't know how to build a house
44 +(3.6)
45 T turns back to the blackboard
46 T: ha ha (0.3) thank you thank you
47 (4.3)
48 T: ha ha
49 +(10.0)
50 S3 and S2 finishing off their drawing #2

10 T: 哈囉，哈囉
(Yeah yeah)

11 K: 唔經住我就見到你你邀請咗啲學生，佢邀請咗班長 ah
(NAME=S3) 啦度畫公仔咁樣，唔個 moment 叫佢畫呢啲 drawings 咁時 候，有啲話待登去，係咪已經事先 plan 好咗？
(So here you also invited the class monitor S3 to draw a cave. When you ask students to draw pictures, was that a planned activity?)

12 T: 都啲都啲會嘅 moment 都會咁嘅，
即係譬如我教，我初初教第一課 Stone Age 咁時 候都有叫佢哋，像樣，
都有啲頭啲時 候都會問佢哋，但啲有啲 drawing 但啲個 understanding 會好 唔嘅，係搞笑，相對地，唔當然係
PowerPoint 都可能啲圖片，啲啲佢 啬譬如佢，係畫啲時 候，啲起碼個都，
即係知道佢啲大約話緊啲嘅，係搞笑
Table 8.8: Video-stimulated-recall-interview (Extract 7)

S1 T: “haha your classmate already presented it
  S3 walks back to his seat
S2 (0.3)
S3 T: “usually they will live really close to +the?
  S2 walks back to his seat
  T extends LH, palm facing students, locate it next to the drawing of a cave
  T moves his RH towards
  the drawing of a river)

Figure #3

54 (0.2)

(Answer: For example, when I first taught
  stone age period, I did ask students to
draw pictures on the blackboard so that
it can enhance their understanding. Of
course, I can show the pictures on the
PowerPoint. However, when they
draw, at least I can know what they are
thinking. Yeah.)

T have thought about
the whole class when
designing an activity
which asks them to
draw out a picture on
the blackboard.

The activity for
asking students to
draw pictures is a
way for teacher to
engage student’s
learning and assess
their historical
knowledge.
As evidenced in Extracts 6 and 7, teacher B attempts to include student 2 in the process of knowledge construction. The researcher is interested to know whether student 2’s SEN status motivates teacher B to include student 2 into the classroom. However, student 2’s SEN status is not the main factor since teacher B is aware that student 2 is interested in learning history. Based on the researcher’s informal chat with student 2, he is very interested in learning history and he often reads history books during his leisure time at the library (ethnographic interview). Hence, student 2’s learning interest is an important factor which encourages teacher B to offer student 2 opportunities in responding to teacher B’s questions, so that it can further enhance his interest in learning history. This demonstrates that teacher B’s willingness to grant opportunities for student 2 to actively participate in the classroom interaction creates a safe translinguaging space for student 2 to engage as an active member of the classroom and elicit his prior knowledge.

Additionally, asking students to draw pictures on the blackboard is teacher B’s pedagogical goal for promoting history learning. It is argued that the activity for asking students to draw pictures is a way for teacher B to engage student’s learning and assess their historical knowledge. As demonstrated in Extract 6, it is evidenced that student 2 prefers using drawing as a method to display his understanding of ‘striking’ to teacher B. Similarly, in the MCA analysis of Extract 7, it is noticeable that student 2 fails to understand what a cave means as his drawings reveal a person hunting for animals. However, teacher B does not acknowledge student 2’s drawing throughout the interaction which fails to take up his contribution in a way that demonstrates its value. Even so, student 2’s picture successfully reveals what the old stone age people would do to maintain their living. This shows that the translinguaging space constructed by teacher B is inclusive of multiple linguistic and multi-semiotic resources, including student’s drawings for publicly displaying their knowledge, support the students’ learning preferences and maintaining student engagement.

8.6 Summary

The present chapter aims to reveal how the EMI history teacher deploys various multilingual and multimodal resources to stimulate student engagement in the classroom. In all extracts, it is evidenced that the teacher orients to the English-only policy and the teacher heavily draws on paralinguistic and multimodal resources, such as gestures, pictures and intonations, to compensate for restricted L1 use. Extract 1 illuminates how the teacher invites the whole class to complete the DIUs. Particularly, the teacher makes sure of gestures to construct his DIUs which engages students in thinking about the appropriate words that are related to the historical facts. In Extract
The MCA analysis shows that the teacher’s use of translinguaging practices has assisted students in grasping the historical knowledge, which is evidenced in students’ appropriate and accurate responses to the teacher’s DIUs. Extract 2 also demonstrates the way in which the teacher constructs a playful translinguaging space for students to engage in whole-class discussion regarding their preferences to be affiliated with one of the social class in ancient Egypt. The teacher skillfully utilizes the visual image on the PowerPoint and gestures to complement his guided questions in order to invite students to form an opinion regarding their choice. The MCA analysis of Extract 2 has also revealed that the student’s gestures, laughter, raised volumes and mounting excitement are indicators of their emotional engagement on the whole class discussion. Nevertheless, it is noted that the teacher could have translangaged between everyday and academic language to not only validate the students’ point of view, but also expand on the students’ contributions by inviting them to justify their respective positions and co-construct curriculum knowledge. Extract 3 demonstrates how the teacher constructs an embodied enactment of an imaginary murdering scene by using various resources, including loud voice, intonation, Cantonese and English utterances and gestural actions. Such a creation of an imaginary context allows students to understand the kind of items that can be considered as ‘primary sources’ in a murdering scene. Extract 4 illuminates the ways how the teacher brings in relevant historical knowledge to facilitate student’s understanding of the discipline-specific term ‘dynasty’. Throughout the process, the teacher repeatedly utilizes pointing gestures and follow-up questions in English to engage students to identify the different dynasties in Chinese history, which implicitly assists them to understand the Egyptian dynasties. Finally, Extract 5 differs from Extracts 1-4 and it is a deviant case which shows how the teacher deploys English utterances and gestural motions, particularly pointing at the researcher, to bring the researcher into the classroom interaction. This affords the teacher to use the researcher’s doctoral project as an example for eliciting students’ responses regarding the kind of data that the researcher is collecting.

On the other hand, Extract 6 differs from Extracts 1-5 which illuminates a different kind of engagement. The extract reveals how the teacher attempts to engage a SEN student by attending to student 2’s self-initiation of unintelligible sounds, due to his inability to articulate the idea in English. In this extract, it is evidenced that the teacher creates a translinguaging space by inviting student 2 to draw out the action of ‘striking’ which provides student 2 with an opportunity to visually demonstrate his understanding to the whole class. Concurrently, the teacher attempts to engage other students in the class through a balance between whole-class management and engaging individual students. It is evidenced that the teacher offers verbal English explanations of ‘striking’ through using simple linguistic utterances while student 2 is drawing in order to scaffold the whole student’s understanding and engage their attention. Similarly, Extract 7 illustrates how
the teacher invites two students, one of them is student 2, to orchestrate their visual repertoire to publicly display the drawing of a cave to other students in the class. It provides an opportunity for the teacher to evaluate their understanding simultaneously. While students are drawing on the blackboard, the teacher attempts to engage the other students in the class by initiating several questions for them to consider. However, teacher B could have taken a moment to demonstrate the value of S2’s drawing and fully involve student 2 into the knowledge construction process.

This chapter reinforces the view of inclusive pedagogy, such as translanguaging, as a right to participate in educational practices and explain how EMI teachers can potentially draw on appropriate multimodal and multisensory resources to deepen student’s engagement in the classroom. As the importance of translanguaging is recognized in the field of multilingualism and scholars have been recommending EMI teachers to incorporate translanguaging more regularly in the EMI classrooms, it becomes necessary to extend the view by conceptualising the orchestration of resources for promoting student engagement. I argue that the process of engaging student’s learning is a process of translanguaging which requires the EMI teacher to mobilise various available resources for catering for the different needs of all students and facilitating their learning success in the classrooms. Inspired by the work by Trussler and Robinson (2015), this chapter proposes that translanguaging can enable teachers to maximise student’s engagement at a whole-class level and at an individual level. At the whole-class level, this requires the teacher to have all students in mind rather than the majority or the minority when engaging in translanguaging practices during classroom activities, so that it can make learning more accessible for all students. At the individual level, this requires the teacher to focus on using translanguaging to engage students with specific learning difficulties so that it can bring equal access to educational opportunities and full participation in the context of whole-class teaching.

In terms of how does the teacher make sense of his use of translanguaging in promoting student engagement in the classroom, the analysis of the video-stimulated-recall-interview data exhibits the teacher’s open attitude towards the flexible use of language and multimodal resources in the EMI history classroom for students to learn the historical knowledge. Importantly, the teacher also stresses the significance of inviting student’s proactive contribution to the learning processes. Particularly, the teacher believes that inviting students to respond to questions, such as asking them to take a stance, initiating follow-up questions and completing the DIUs for the teacher can develop their historical and critical thinking skills (Tables 8.1, 8.2, 8.5, 8.6). This can engage students’ learning and the engaged students are likely to create more engagement among their peers. This is especially evidenced in Extract 2 where students are excited to yell out their opinion in raising volume which signals their mounting excitement. The teacher illustrates his pedagogical belief as
he explains that creating an imaginary context of a murdering context using a loud voice, raising intonation, stress and gestures can assist students to bridge the knowledge gap between a familiar context (i.e. murdering scene) and the discipline-specific concepts under the limited lesson time (Tables 8.3 and 8.4). This eventually motivates students to identify the tools that can be considered as primary sources for solving a murdering case. Moreover, the teacher also acknowledges the need to understand a particular student’s autism characteristics and value the alternative ways for students to express their understanding (Tables 8.7 and 8.8). By doing so, the teacher can include students with individual needs into the knowledge construction process. Hence, the teacher’s pedagogical beliefs in inclusive education and multilingualism are essential in constructing a translanguage space for inspiring active student participation and creating a positive climate in the classroom.
Chapter 9 — Analysis: Creating a Space for Co-Learning in EMI Classrooms through Translanguaging

9.1 Introduction

In the previous chapters, I have demonstrated how engaging in playful talk (chapter 5) and bringing outside knowledge into the classroom (chapter 6) turn the EMI classrooms into translanguaging spaces, which allows the EMI teacher and students to bring in a range of linguistic and multimodal resources for performing a range of creative acts (chapter 5) and different kinds of knowledge into the lessons (chapters 5 and 6). Chapter 7 has also illustrated how technological devices, like an iPad, play a role in extending the teacher’s semiotic repertoire which affords him to create a technology-mediated translanguaging space for facilitating content learning. Alternatively, chapter 8 demonstrates how maximizing student engagement is a dynamical process of exploiting available resources for addressing and responding to student’s learning needs. This final chapter for the data analysis details how engaging in translanguaging does not only lead to deeper student engagement and involvement, but also encourages EMI teachers to engage in learning with their students and become co-learners in the classroom.

Classroom-based learning traditionally involves a role set where the teacher serves as the source provider of knowledge and the student the recipient of information. The teacher is also expected to validate the student’s knowledge and provides appropriate feedback (Lawrence, 1996). Research on L2 classroom interaction shows that teacher-fronted teaching tends to allow little space for the students to interact amongst themselves since it is the teacher who decides who can speak, when and about what (Greenleaf and Freedman, 1993; Walsh, 2006). van Lier (1996: 184-185) argues that teacher-fronted teaching has several consequences including ‘reduced student's participation, less expressive language use, a loss of contingency [...] and limitations on the students' employment of initiative and self-determination’. Critics of the traditional classroom role set emphasize the importance of active participation of the students in classroom interaction and the role of such participation in knowledge construction (e.g. Baynham, 2006; Jacknick, 2011; Waring, 2011; Tai and Brandt, 2018). This chapter examines examples of a teacher’s strategies to encourage and facilitate the student’s active participation in EMI classroom interaction. I invoke the concept of co-learning (Brantmeier, 2013, to be defined in section 9.2) to show that the teacher benefits just as much as the students from the process, and this important aspect of knowledge construction needs to be studied more systematically in the future. A key strategy that the teacher uses in facilitating co-learning is translanguaging (see further in section 9.3), which seems to go against
the EMI policy that is practised in the school. This chapter will demonstrate how translanguaging creates a space for co-learning. Four examples of co-learning of linguistic knowledge (i.e. knowledge of the linguistic features of specific named languages including pronunciation, grammar) (Extracts 1-3) and common knowledge (Extract 4) will be analysed.

9.2 Co-learning in the Classroom

The concept of ‘co-learning’, as discussed in Li (2014b), has been used in a range of disciplines from artificial intelligence and computer simulation, to global security systems and business information management. ‘In essence, co-learning is a process in which several agents simultaneously try to adapt to one another’s behaviour so as to produce desirable global outcomes that would be shared by the contributing agents’ (p. 169). The emphasis here is on mutual understanding, mutual benefits, and mutual growth amongst the different agents rather than differentiated power structures and relationships. Brantmeier (2013) uses the concept of co-learning to develop his approach to a pedagogy of vulnerability which seeks to relieve the teacher from the burden of knowing all the right answers, and take risks – risks of self-disclosure, risks of change, risks of not knowing, risks of failing – to deepen learning’ (p. 96). ‘Co-learning changes the role sets of teachers and students from dispensers and receptacles of knowledge to joint sojourner on the quest for knowledge, understanding, and wisdom’ (p 97). The concept of co-learning does not simply entail the teacher in deploying strategies for promoting equal participation for all students; co-learning challenges the power relationship between the so-called expert (teacher) and the novice (students) and denies the privileging of one knowledge over another (Curry and Cunningham, 2000).

Co-learning has the following principles (Li, 2014b: 170):

- Trust and respect in each other as people and co-learners;
- Reciprocal value of knowledge sharers: all co-learners have their ‘funds of knowledge’ (Moll et al., 1992: 133) - ‘historically accumulated and culturally developed bodies of knowledge and skills essential for households and individual functioning and well-being’;
- All knowledge is valuable and should be valued.

For co-learning to happen, the classroom environment needs to have the following characteristics (Li, 2014b: 170):

- Shared power amongst co-learners;
- Collective and individual meaning-making and identity exploration;
- Situated learning in a community of practice;
- Real-world engagement and action
Research on co-learning in the classroom studies how the classroom participants jointly create and manage their co-learning relationships, what have they learnt from each other and what impact does it have on participants’ knowledge acquisition. Curry and Cunningham (2000) observe how cooperating teachers and teacher candidates learn from each other during co-teaching placements and the findings illustrate that cooperating teachers gain new knowledge in the process from the interactions with the teacher candidates since they provide innovative ideas and strategies that can improve curriculum, pedagogical practices and assessment. Studies by Moll and his colleagues (Moll et al., 1992; Moll and Gonzalez, 1994) involve the teachers to visit their students’ household in order to better understand their students’ family background. The findings illustrate that the teachers shed their role of the teacher and assume a new role as co-learner which allows them to know their students and the families of their students in distinct ways. For instance, a teacher has learnt that many of her students’ households have extensive knowledge related to the medicinal value of plants. The teacher then draws on their knowledge in creating a theme unit which reflects that local knowledge of curative properties of plants. In this instance, the teacher becomes a participant during the household visits which contributes to her knowledge acquisition. In order to conceptualise the act of the teachers bringing their accumulated knowledge into the design of the teaching materials, Moll et al. (1992: 133) coin the term ‘funds of knowledge’ which refers to the ‘historically accumulated and culturally developed bodies of knowledge and skills essential for households and individual functioning and well-being’. Such funds of knowledge entail rich cultural and cognitive resources that can be deployed by the teacher in order to offer culturally responsive and effective pedagogical practices. Both the teacher and students can make use of these funds of knowledge in the classrooms in order to make the classroom more inclusive and engage in real-life meaning-making.

This chapter will examine examples of co-learning in EMI classrooms to the kinds of knowledge that can be gained by the teacher, as well as by the students and the pedagogical strategies that are used to facilitate co-learning.

9.3 Translanguaging and Space for Co-Learning

Like co-learning, translanguaging has been used as both a conceptual and analytical concept and a pedagogical principle (Garcia and Li, 2014). I consider translanguaging as an enabling and empowering strategy in bi/multilingual education where all participants, learners and teachers, are encouraged and supported to make use and share their funds of knowledge, including but not limited to the knowledge of different languages, in collective and collaborative learning. In other
words, translanguaging creates a space for co-learning. A recent qualitative study by Hansen-Thomas et al. (2020) investigates how monolingual English teachers adopt translanguaging pedagogy in American high school English language classrooms. Amongst all the resources the teachers use, the students themselves and their knowledge and social experiences are the most important. They also invoke the notion of co-learning to argue that teachers’ willingness to participate as co-learners with the students is crucial in learning gains. However, this study only analyses fieldnotes and teachers’ reflection data without analysing how co-learning is interactionally constructed in the classrooms. Noda and Zhu (under review) examine interactions in an eikaiwa (English conversation) classroom in Japan and show that when the teacher reverses his role from a language authority to a cultural novice and encourages the learners to use their funds of knowledge through embodied and multimodal interaction, eikaiwa becomes a much more enjoyable and beneficial experience. In this chapter, I will demonstrate how translanguaging creates a space for co-learning in an EMI classroom in HK.

9.4 Co-Learning of Linguistic Knowledge

In the dataset, three instances are identified which illustrate how the teacher and students resolve perceived linguistic discrepancies through co-learning. Extracts 1, 2 and 3 are examples of the interaction.

**Extract 1: Learning Mandarin/Putonghua from the Students**

This extract is extracted from the secondary three mathematics class which was taught by teacher A (T). Prior to the extract, teacher A read out the mathematical question that students needed to solve. After that, teacher A initiated a question by deploying rhyming words at the end of each sentence to create a rhyming effect. However, when he uttered the last sentence, he failed to use the appropriate rhyming words/phrases. This led to students’ laughter in the classroom. Teacher A deliberately apologised to the students by saying ‘對不起老師（sorry teacher）’ in Mandarin/Putonghua. In this extract, the teacher and students are engaging in discussions which have no direct relevance to the content subject.
28 S12: + (Name-T) 你識唔識講 (0.5) 我覺得不行

   ((wǒ jué de bù xíng))
   ((tr. do you know how to say)) ((tr. I don't think so))

   +T looks at S12

29 (0.5)

30 T: + 我真的不行

   ((wǒ zhēn de bù xíng))
   ((tr. I am not good))

   +T shakes his head

31 (0.3)

32 Ss: hahahaha

33 (0.3)

34 S12: + 佢講到 (0.2) 我真的不行

   ((wǒ zhēn de bù xíng))
   ((tr. he is saying)) ((tr. he is not good))

   +S12 turns to S1

35 (0.2)

36 S11: + 乜唔係 (.) 我覺得 (.) 唔

   ((wǒ jué de))
   ((tr. shouldn't it be)) ((tr. I think)) ((tr. right))

   +T stares at S11

37 (0.6)

38 S1: 叫佢講 (.). 我真的不行

   ((wǒ zhēn de bù xíng))
   ((tr. ask him to say)) ((tr. I am not good))

39 (0.2)

40 S11: 覺得啊=

   ((jué de))
   ((tr. think))

41 T: = 我覺得

   ((wǒ jué de))
   ((tr. I think))

42 (0.6)
After a 0.5-second pause, teacher A indirectly responds to student 12’s question by uttering ‘我真
的不行’ (I am not good) in Mandarin and shaking his head (line 30). However, in line 36, student
11 repairs teacher A’s response by saying ‘覺得 (jué de) (i.e. think)’ in Mandarin (lines 36 and 40). In
response to student 11’s initiation, teacher A offers the correct expression ‘我覺得 (wǒ jué de)’ (i.e. I think)’ in Mandarin (line 41). Student 11 reiterates the corrective feedback in Cantonese by explaining that ‘真的 (really)’ is not an appropriate phrase to be used in Mandarin (line 43). Simultaneously, teacher A repairs his utterance in line 44 again by uttering the whole sentence ‘我
覺得不行’ in Mandarin and shaking his head at the same time, which illustrates his uptake of the
target Mandarin expression. In line 46, teacher A attempts to direct the students’ attention back to
the mathematical question by using Mandarin to elicit students’ responses regarding the question
and switching back to English to specify the sub-question ‘part b’. Although teacher A utters ‘可以
嗎? (ké yī mǎ) (i.e. okay?)’ in Mandarin to invite students’ responses, student 1 initiates an
uninvited response in Cantonese by praising teacher A’s Mandarin proficiency, ‘我覺得還可以 唔
你啲普通話 (I think your Mandarin is okay)’ (line 49). As it shows, teacher A utters ‘還可以 (hái
ké yǐ) (i.e. it’s okay)’ in response to student 1’s comment and also acknowledges his Mandarin proficiency (line 50).

Based on the teacher’s self-reflection during the pre-interview, he considered that his Mandarin proficiency was below average. Hence, it can be seen that the teacher is engaging in translanguaging practices as he draws on his limited linguistic knowledge of Mandarin, accompanied by his bodily actions, such as shaking his head, to engage in learning Mandarin with the students in the EMI classroom. It is illustrated that the teacher has gained some knowledge of Mandarin grammar and pronunciation from his students and he makes the effort in repairing his utterance based on the students’ corrective feedback. In the post-video-stimulated-recall-interview, the teacher comments on what he has learnt from his students:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall Interview Selected Excerpts</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 S12: + (Name - T) 你講唔識講 (0.5) 我覺得不行&lt;br&gt;  ((wǒ jué de bù xíng))&lt;br&gt;  ((tr. do you know how to say?) (tr. I don't think so))&lt;br&gt; +T looks at S12&lt;br&gt;  29 (0.5)&lt;br&gt;  30 T: +我真的不行&lt;br&gt;  ((wǒ zhēn de bù xíng))&lt;br&gt;  ((tr. I am not good))&lt;br&gt;  +T shakes his head&lt;br&gt;  31 (0.3)&lt;br&gt;  32 Sm: hahahaha&lt;br&gt;  33 (0.3)&lt;br&gt;  34 S12: +巨講到 (0.2) 我真的不行&lt;br&gt;  ((wǒ zhēn de bù xíng))&lt;br&gt;  ((tr. he is saying) (tr. he is not good))&lt;br&gt;  +S12 turns to S1&lt;br&gt;  35 (0.2)&lt;br&gt;  36 S11: +他問 (.) 我覺得 (.) 哼&lt;br&gt;  ((wǒ jué de))&lt;br&gt;  ((tr. shouldn't it be?) (tr. I think) (tr. right))&lt;br&gt;  +T stares at S11&lt;br&gt;  37 (0.6)&lt;br&gt;  38 S1: 叫他講 (.) 我真的不行&lt;br&gt;  ((wǒ zhēn de bù xíng))&lt;br&gt;  ((tr. ask him to say?) (tr. I am not good))&lt;br&gt;  39 (0.2)&lt;br&gt;  40 S11: 覺得啊&lt;br&gt;  ((jué de))&lt;br&gt;  ((tr. think))&lt;br&gt;  41 T: +我覺得&lt;br&gt;  ((wǒ jué de))&lt;br&gt;  ((tr. I think))&lt;br&gt;  42 (0.6)&lt;br&gt;  01 T: 學到嘅嘅，但係佢普通話好嘅，哈哈，但係，係嘅，有嘅人係係 native，然後，係嘅，係嘅，但係，係嘅其他嘅 language 比我就夠嘅，比係普通話嘅 請音準音好多，係係呢一個，係係身上就係係普通話嘅 (What I have learnt? Um their Mandarin is really strong haha. Yeah some of them are native speakers of Mandarin. Their language proficiency is better than me and their Mandarin pronunciation is more accurate than mine. That’s it. So, I have learnt to speak Mandarin from them)</td>
<td>T understands that his students’ Mandarin proficiency is better than him.</td>
<td>From lines 2-7, T and the researcher are jointly making sense of what T has learnt from his students.</td>
<td></td>
</tr>
</tbody>
</table>
33 S1: [what really]
  (tr. it's not 'really')
43 T: [I don't think so]  (1.0) 我覺得不行
  (wǒ jué de bù xíng)  (wǒ jué de bù xíng)
  (tr. I don't think so)  (tr. I don't think so)
  +T shakes his head
45 (1.5)
46 T: +你不覺得這個 (0.3) 就可以嗎 (.)
  (nǐ bù jué de zhè ge)  (hái kě yí mā)
  (tr. don't you think this)  (tr. is it okay)
  +T directs his gaze to the screen and looks at the question
  +T looks at students
47 (0.3)
48 T: [可以嗎？]
  (kè yí ma)
49 S1: [你講得] (0.2) +不是你講得 (0.2) 我覺得還可以 暱普通話
  (nǐ jiǎng de)  (tr. not the way you say it)
  (tr. I think your Mandarin is okay)
  +T looks at S1
50 T: 還可以
  (hái kě yí)
51 (0.5)
52 S1: 這一會普通話我覺得還可以  hahaha
  (tr. the whole Mandarin sentence is still okay)
back as they stated that it should be "think"
(pronouncing it in Mandarin).
So, I think the students are not simply teaching you)
03 T: 諒音
(The pronunciation)
04 K: 哈啦，同埋咁教埋你
(Exactly and they are also teaching you)
05 T: 嘢個文法點樣講
(The grammar of Mandarin)
06 K: 繁體的文法
(The grammar)
07 T: 嘢啦 嘢啦 嘢啦
  (Yes, yes yes)
  (Yes, that’s, yeah, so I am aware that I am not good at
  pronouncing Mandarin utterances as well as using
  the, yeah, I’m not sure how
to deploy it)
08 K: Hahahaha
09 T: 嘢啦，即係係係係，係
  (Yes, that’s, yeah, so I am aware that I am not good at
  pronouncing Mandarin
  utterances as well as using
  the, yeah, I’m not sure how
to deploy it)
10 K: um
In the previous interview, T explained that he allowed students to laugh at him and he used it as a strategy to befriend with his students and promote a jocular classroom environment. The researcher wants to know how co-learning influence T’s perceptions.

T believes that through co-learning, the students can develop their sense of pride and it can also motivate students in learning the content subjects.

T also acknowledges that providing an opportunity for someone to teach can allow him/herself to learn better.

T is willing to learn from his students.

T imitates his students’ voice by imagining that they have achieved the sense of achievement when they are able to educate the teacher.

T’s use of simile, ‘turning on the switch’, further
### Table 9.1: Video-Stimulated-Recall-Interview (Extract 1)

<table>
<thead>
<tr>
<th>Chinese</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>嗨，這個，我說，我說，當時做教完候得個思想去學習係一個好嘅啲嘅，係，好似係開放左個學習嘅動機，咁樣啲eur，就係咁，我覺得係啲，(I think when I have learnt something from the students, then, I, I have learnt that they have taught me, then it's their turn to learn what I am going to teach next. So, I think this will motivate them to learn from me as well. So, I think they may feel that 'oh I develop the sense of success'. Actually, teaching the others is the best way for allowing us to learn. And so if the students are expecting me to, I mean keeping my learning attitude, that is, my willingness to learn new things, I think, I think, once the students have taught me the new knowledge, it's a good timing for them to learn from me too. It's like turning on the switch on their learning motivation. Yes, that's what I think.)</td>
<td>T perceives this as a key moment for him to motivate his students and encourage them to learn the content subject with him. highlights his belief that by showing his willingness to learn from his students, this will prompt the students to learn new knowledge from him.</td>
</tr>
</tbody>
</table>


After watching the video-clip, teacher A comments that he has learnt the correct Mandarin pronunciation from the students, and he realises that his students’ Mandarin proficiency levels are a lot better than himself. In line 2, the researcher points out that teacher A has not only learnt the correct Mandarin pronunciation. This motivates teacher A to come into a realisation that he has also learnt the appropriate Mandarin grammar from the students (line 5). This is reflected in the classroom interaction where teacher A has learnt to use the phrase ‘覺得 (jué de) (i.e. think)’ instead of ‘真的 (really)’ since ‘真的 (really)’ is not grammatically correct in Mandarin. In line 9, the teacher also acknowledges that he struggles to pronounce Mandarin words and employ the appropriate Mandarin phrases/vocabulary items. In the previous video-stimulated-recall-interview, teacher A previously explained that he was trying out his weakest language at that moment and he allowed students to laugh at his use of Mandarin. In line 13, teacher A justifies that when he displays his willingness to learn from his students, it can subsequently encourage students in learning Mathematics with teacher A. Teacher A’s willingness to engage in acquiring knowledge from his students is exemplified when he imitates his students’ voice by imagining that the students have achieved the sense of achievement, ‘咦都有成功咁喎 (oh I develop the sense of success)’, when they are able to educate the teacher. Teacher A’s use of simile when he mentions, ‘好似係開啟左佢哋學習嘅動機 (turning on the switch on their learning motivation)’, highlights his belief that by building students’ confidence and showing his willingness to participate as a co-learner. Therefore, it can be argued that teacher A’s engagement in co-learning is motivated by various pedagogical goals, including his desire to develop students’ motivation in content learning and build up student’s confidence, which contribute to the construction of a translanguaging space for co-learning.

*Extract 2: Learning English Pronunciations from the Students*

This extract is extracted from the secondary three mathematics class which was taught by teacher A. Prior to this extract, teacher A was drawing students’ attention to the next mathematical question on compass bearing. In this extract, teacher A is reading aloud the mathematical question, which is visually presented on the projector. Teacher A then struggles to determine the appropriate pronunciation of the word ‘aircraft’.
T: okay (0.5) you can see
    +T looks at the question on the screen--->

T: er (1.2) +a and b (0.4) are one hundred kilometre
    +cursor moves along the line AB

T: apart (0.5) okay?

T: that means +length of ab is one hundred kilometre
    +T looks at the students

T: okay?

T: +and the compass bearing of +b (1.1) is +n seventy five=
    +T looks at the screen
    +cursor points at B
    +cursor points at 75 degree

T: =ah from a (0.4) n seventy five east

T: +that means here like this
    +cursor moves around point A

T: +air (0.6) craft (0.6) +craft (0.6) right?
    (/kræft/)         (/kræft/)
    +cursor points at the word ‘aircraft’
    +T looks at the students

T: aircraft (. ) craft (0.7) aircraft
    (/eə.kræft/)      (/kræft/)       (/eə.kræft/)

S12: craft
    (/kræft/)
From lines 3-12, teacher A is reading aloud the question and concurrently moving the cursor to point at the target phrases in order to assist students in noticing them (e.g. lines 3, 5, 11 and 12). Additionally, teacher A also provides short explanations in regard to the questions to the students (e.g. lines 7 and 14) to scaffold students’ understanding. However, in line 16, when he uses the cursor to point at the word ‘aircraft’, teacher A is showing hesitation in pronouncing the word. He first utters the first part of the word ‘air’ and after a 0.6-second pause, he enunciates ‘craft /krɑːft/’. He repeats ‘craft /krɑːft/’ again in order to indicate his uncertainty regarding the pronunciation of ‘craft’ and he invites the students to provide feedback on his pronunciation, as he looks at the
students and utters ‘right?’ (line 16). However, no student offers any feedback to teacher A in lines 17 and 19. Such a difference is attributed to the variation between British and American English. Eventually, S12 acknowledges teacher A’s pronunciation by uttering ‘/krɑːft/’ (line 20). Teacher A then repeats ‘/krɑːft/’ twice in order to recognise student 12’s feedback. Teacher A directs his eye gaze to the screen and utters ‘okay (0.5) aircraft’ which indicates his motive in continuing to read aloud the mathematical question.

Nevertheless, after 0.6-second pause, teacher A suddenly looks at his students and utters ‘minecraft’, which is a popular online game. Teacher A then utters ‘aircraft (/eə. kræft/)’ again in line 27. Here, teacher A is comparing the old trace and the new trace by drawing on his accumulated knowledge of the pronunciation of ‘minecraft’ and then comparing it with his pronunciation of ‘aircraft (/eə. krɑːft/)’ in order to help him with determining the right articulation. This also implies that teacher A still has not fully accepted student 12’s feedback in line 20. After a short reflection in line 27, teacher A eventually apprehends that he is right, as he utters ‘係囉係囉 (yeah yeah)’ in Cantonese. At the same time, student 12 confirms teacher A’s pronunciation of ‘craft (/kræft/)’ as accurate.

In this extract, teacher A translanguages through his concurrent use of verbal (use of English) and multimodal (e.g. use of cursor) resources to invite students in amending his English pronunciation. It is also noticeable that teacher A comprehends the correct pronunciation of ‘craft’ through engaging in multilingual practices with the students (using both English and Cantonese) and drawing on his past knowledge which is acquired in different contexts and timescale. During the post-video-stimulated-recall-interview, teacher A explains that inviting students to offer corrective feedback to his English pronunciation is a strategy to ensure that students are paying attention to his talk and it can possibly motivate students’ in learning how to solve this particular mathematical question. The researcher then invites teacher A to explain why he is keen to learn the correct English pronunciation from his students:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
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<th>Teacher's Perspectives</th>
<th>Analyst's Interpretations of the Teacher's Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 T: okay (0.5) you can see +Looks at the question on the screen&lt;-&gt;  02 (0.2) 03 T: oh (1.2) +a and b (0.4) are one hundred kilometre + cursor moves along the line AB  04 (0.6) 05 T: apart (0.5) okay?+  06 (0.2) 07 T: that means +length of ab is one hundred kilometre + Looks at the students  08 (0.8) 09 T: okay?  10 (0.4) 11 T: +and the compass bearing of th (1.1) is + seventy five = +Looks at the screen +cursor points at B +cursor points at 75 degree  12 T: +an from a (0.4) n seventy five east  13 (0.2) 14 T: +that means here like this + cursor moves around point A  15 (0.8) 16 T: +six (0.6) craft (0.6) +craft + right? + cursor points at the word 'aircraft' +Looks at the students  17 (0.8) 18 T: aircraft (.) craft (0.7) aircraft  (speakcraft) (craft) (speakcraft)  19 (1.5) 20 S12: craft (kraft)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

01 K: 我就把想問個問題啦，點解你咁想知道個讀音係乜嘅啦 (I am planning to ask you this question. Why do you wish to know the correct pronunciation haha)  02 T: um 點解呀 (um why)  03 K: 因為，點解我會咁問呢，好多時係 social interaction 可能其中有 一個，或者 native speaker 佢自己可能都讀錯字嘅呢，好多時都唔會 let it pass 哦 (the reason why I am asking this is because very often, individuals or even native speakers may mispronounce words in social interactions. Very often, they will let it pass.)  04 T: 哦 (oh)  05 K: 即係咁 ignore 左，咁就 let the interaction 咁就 go forward 咁就 make it smooth 咁樣嘅 (This means they will ignore the mistake and let the interaction move forward in order to make the whole interaction fluently and smoothly)  06 T is unsure why the researcher is asking this question  07 The researcher is referring to Firth's 'let it pass' principle.
<table>
<thead>
<tr>
<th>21</th>
<th>(0.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>T: craft (0.3) craft (0.2) +okay (0.5) aircraft</td>
</tr>
<tr>
<td></td>
<td>(ˈkræft) (ˈkræft) ('ər.seɪ.kræft)</td>
</tr>
<tr>
<td>23</td>
<td>+T looks back on the screen</td>
</tr>
<tr>
<td>24</td>
<td>(0.6)</td>
</tr>
<tr>
<td>25</td>
<td>T: +minecraft (0.8) air</td>
</tr>
<tr>
<td></td>
<td>('mæ.nɪ.krɛ)</td>
</tr>
<tr>
<td>26</td>
<td>+T looks at the students</td>
</tr>
<tr>
<td>27</td>
<td>(0.4)</td>
</tr>
<tr>
<td>28</td>
<td>S1: 啊都 get 恩=</td>
</tr>
<tr>
<td></td>
<td>(tɪ. əd ɡet ə)</td>
</tr>
<tr>
<td>29</td>
<td>+S1 looks at question 12 on the screen</td>
</tr>
<tr>
<td>30</td>
<td>T: +aircraft (0.7) +[ɪəˈkraɪt] (ˈɛə.kraɪt)</td>
</tr>
<tr>
<td>31</td>
<td>(ˈɪə.kraɪt)</td>
</tr>
<tr>
<td>32</td>
<td>+T looks at S12</td>
</tr>
<tr>
<td>33</td>
<td>(0.3)</td>
</tr>
<tr>
<td>34</td>
<td>S12: 你有格一個</td>
</tr>
<tr>
<td></td>
<td>(nɪ. ði. tɛɪ. ˈeɪ.�)</td>
</tr>
<tr>
<td>35</td>
<td>(0.2)</td>
</tr>
<tr>
<td>36</td>
<td>T: +circraft6 departs from B</td>
</tr>
<tr>
<td></td>
<td>(ˈɛə.kraɪt)</td>
</tr>
<tr>
<td>37</td>
<td>(0.5)</td>
</tr>
<tr>
<td>38</td>
<td>T: and flies +at a speed of one hundred and fifty kilometer</td>
</tr>
<tr>
<td></td>
<td>+cursor points at line AB</td>
</tr>
</tbody>
</table>

06 T: 哦像嘅
(oh really)

07 K: um hm 呀所以叫，呀所以就叫
問選練叫，點解你會唔想知道個
讀音係乜嘅
(um hm so that’s why, that’s why I am
interested to know why you are curious
to learn the pronunciation of that word)

08 T: 因為我唔想錯嘅，哈哈，理科
人唔話嘅，會唔會呢，即係要 make
sure 每一個都係正確啲樣去講比嘅
同學知，即係我唔想講錯左比喺同
學知，唔，唔，所以，雖然，唔
囉，所以今個讀音我都唔嘔呀，都
有嘅，有嘅情況有其他字呢同個
學選驗嘅讀音唔同呢，喺同學都同
我喺度揀嘅，唔係同，係嘅，唔，
唔揀就嘔嘅嘅，即係知道，知道
正確嘅最好嘅，即係 correct，係
嘅，就係最緊要系唔唔野嘅，就係
唔
(That’s because I don’t wish to make
mistakes hah. That’s a typical way of
thinking, as a science-trained
graduates. Maybe? I think it’s
important to ensure that everything
that I say has to be accurate. I don’t wish to
provide the inaccurate information to
the students. Yes. So yeah. So, I even
insist that I am pronouncing the word
accurately. In some cases, some of the

T displays his belief
that it is important
for students to learn
the correct
information in class.

T attributes his
fastidious character
to his educational
background. He was
trained as a
Mathematician
during his
undergraduate and
postgraduate studies.
| 09 K: 你覺得同 EMI policy 有冇關係啊 (so that, do you think it has any connections with the EMI policy?)
| 10 T: um
| 11 K: 你覺得 EMI policy 有冇 Kind of逼你要用 correct English 啊樣 (do you think that the EMI policy somehow forces you to use correct English?)
| 12 T: 都有架，都有架，如果唔係，我，我睇到唔係，我知，哦係嘅嘅咩嘅，啲啲話，我嘅話可能就會話，可能以前補習就會，有啲話就 departs from B 啊樣嘅，就直接 skip 啦個字唔講啦，但係而家我，要講俾英文嘅時候嘅，即係點都要講一次個字點樣嘅，點樣，都會要求自己要做嘅嘅，係嘅，係嘅時係，都會聽到個字點樣嘅，哈哈
| The researcher is making sense of T's explanation and questions whether such belief is influenced by the EMI school policy.
| T explains that EMI teaching motivates him to utter the whole English sentence and he is unable to avoid not pronouncing the words that are not familiar to him.
| This shows that EMI policy somehow hinders T in adopting the avoidance communicative strategy (Faerch and Kasper, 1984). That is, T is not able to avoid a particular linguistic item during the
| (Yes, it does, yes it does. If it doesn’t. I, when I first looked at this word, I know that it’s ‘oh aircraft it’s military aircraft’. So, in the past, I could possibly say, perhaps when I was tutoring, I might say ‘there is an aircraft which departs from B’. I will directly skip the word and not enunciate it. But now I have to read aloud the whole sentence in English. So, this means that I have to ask how the word can be correctly pronounced. Yeah. I will expect myself to be able to do so. Yeah. So, they can listen to how the word can be pronounced too. Haha.) | interaction. |

Table 9.2: Video-Stimulated-Recall-Interview (Extract 2)
During the interview, the researcher refers to Firth’s (1996) ‘let it pass’ principle (line 3). This means that the speaker delays in repairing a problematic utterance which is considered to be inconsequential for the course of the interaction. Teacher A justifies that he does not want to make any mistake and he attributes such a fastidious attitude to his educational background as a science-trained graduate (line 8). During his undergraduate and postgraduate studies, teacher A was trained as a mathematician (pre semi-structured interview). Notably, teacher A also acknowledged that his English proficiency was average for teaching and occasionally he worried that he might mispronounce English words in class (pre semi-structured interview). Possibly because of his educational background and his awareness of his insufficient English skills, it shapes his attitude for conveying the most accurate information to his students. This is clearly reflected in teacher A’s remark in line 8: ‘我唔想講錯左比啲同學知 (I don’t wish to provide the inaccurate information to the students)’ and ‘最緊要學啱嘅野囉 (it’s important to learn the right thing)’.

The researcher then questions whether the school’s EMI policy has influenced teacher A’s perception to use correct English (lines 9 and 11). Teacher A explains that the EMI policy has motivated him to set an expectation for himself to speak correct English. He then recounts his experience as a private mathematics tutor. In the past, he could adopt the avoidance strategy (Faerch and Kasper, 1984) in order to avoid uttering a particular word in English. He provides a hypothetical scenario where he may say ‘有架戰機就 departs from B (there is an aircraft which departs from B)’. Such an example illustrates how he deliberately deploys Cantonese, ‘有架戰機 (there is an aircraft)’, to refer to the aircraft and then switches back to English, ‘ departs from B’, to continue reading aloud the question. However, in an EMI classroom setting, he realises that he needs to utter every single word to the students in English. This is reflected in the classroom interaction where teacher A insists to seek feedback from students regarding his pronunciation of ‘aircraft’ through translanguaging. Therefore, it can be argued that teacher A’s motivation to engage in co-learning with the students in this moment of the interaction are influenced by his perceptions of offering accurate information to students as well as the EMI policy which encourages him to develop his competence in using English to teach mathematics.

Extract 3: Learning Chinese Surname from the Students
This extract is extracted from the secondary four class. Prior to this extract, teacher A was reading aloud a mathematical question that involved the students in searching for the number of days that Mr. Pang and Mr. Tung have worked on a project. While he was reading aloud the question, teacher A struggled to pronounce the surname of ‘Tung’. He was unsure whether it should be pronounced as ‘Dong (/dəŋ/)’ or ‘Tung (/tuːŋ/)’. He then translated them into Cantonese ‘董 (Tung)’ and ‘東 (Dong)’ in order to assist him to decide the most accurate pronunciation. In this extract, it is
observed that the students are educating teacher A in regard to the appropriate Chinese translations of the surname ‘Tung’ through deploying various multilingual practices (e.g. using Cantonese and appropriating teacher A’s English pronunciations).

40 T: okay +please (1.2) okay listen listen (0.2) zip zip
   +T points at the sentence
   +T uses his index finger to hit the BB

41 (0.2)

42 T: very important

43 (0.5)

44 T: you cannot be lazy +you must write me a complete sentence
   +T moves his finger along the sentence on BB (moving from left to right position) #1 #2

Figure #1

Figure #2

45 (0.7)

46 T: okay?

47 (.)

48 T: don’t sim-

49 (0.2)

50 T: don't simply write me +let x be the number of days
   +T uses RH to cover the last two lines of the sentence #3
51 (.)
52 S13: don’t sim-
53 (1.2)
54 T: okay? + (2.3) +唔可以就咁齋寫呢個啊 (1.0) +知唔知點解
   ((tr. you can’t just write that))
   ((tr. do you understand why?))
   +T draws a square to include ‘let x be no. of days’
   +T leans over the back of the chair
   +T looks at the students
55 (1.2)
56 T: 因為我哋啊東生係咪啊 (0.2) 有彭生喺度嘛
   ((tr. that’s because our dear Mr. Dong right?))
   ((tr. we have Mr. Pang here right?))
57 (0.9)
58 Ss: 彭生 hahahaha
   ((tr. Mr. Pang))
59 (0.5)
60 T: 我哋係 (0.7) 唔 (0.2) 你你點知呀東 (0.7) 係啦?
   ((tr. we are))
   ((tr. um (0.2) how will you you know Mr. Dong (0.7) right?))
61 (0.4)
62 S14: 有人姓董嘅嘛
   ((tr. some people have ‘Tung’ as their surnames))
63 (0.5)
64 T: 董都得啊董係呢個啊
   ((tr. oh Tung is acceptable in this case?))
In line 54, teacher A initiates a question in Cantonese and asks students to provide a reason why it is necessary to write out a complete sentence. As no student responds in line 55, teacher A attempts to draw students’ attention to 東生 (Mr. Dong) and 彭生 (Mr. Pang), without realising that he has mispronounced Mr. Tung’s Chinese surname. Although the students are laughing at teacher A’s reference to Mr. Pang without pointing out teacher A’s mistake in line 58, teacher A displays his uncertainty of referring to Mr. Tung as 東生 (Mr. Dong), as shown in line 60 when he utters ‘你你點知呀東 (0.7) 係啦? (how will you you know Dong (0.7) right?). It is noticeable that there is an abrupt stop in articulating ‘東生 (Mr. Dong)’ as teacher A only utters 東 (Dong) and subsequently leads to a 0.7-second pause. Teacher A then says ‘right?’ in high intonation to signal...
the uncertainty of his speech. In line 62, student 14 offers feedback to teacher A in Cantonese by saying ‘有人姓董喺嘛 (some people have ‘Tung’ as their surnames)’. This results in teacher A’s uptake as he acknowledges the possibility of having ‘董 (Tung)’ as a Chinese surname (line 64). However, another student challenges student 14’s response by offering an alternative answer, ‘姓童 (Tung as the surname)’. Teacher A shows his surprise that the surname of Tung can also be translated in Chinese as 童. This is illustrated in his repetition of the word ‘童’ several times in line 68 and the repetition of the same questions: ‘姓童喺呀 (having Tung as the surname too?)’ and ‘有人姓童嘅 (some people have the family name Tung?)’. After initiating a change-of-the-state token ‘哦 (oh)’ (Heritage, 2012) in line 68, student 14 offers further clarifications to teacher A in line 69 by pointing out that ‘童’ can also mean children. Teacher A then acknowledges student 14’s feedback by repeating ‘係喎 (oh right)’ twice (line 71).

In line 73, student 13 initiates an uninvited turn and offers clarifications to teacher A. She claims that ‘即係 children 啊 (this means children)’ which directly points out the semantic meaning of ‘童’. Note that student 13 pronounces the word ‘children’ as /ˈtʃɪldən/ (i.e. missing the ‘r’ sound). It is argued that student 13 deliberately does that to imitate teacher A’s pronunciation since this is how teacher A pronounces ‘children’ prior to the extract. Teacher A mistakenly pronounces ‘children /ˈtʃɪldən/’ twice in line 75 when he accepts student 13’s feedback. Sarcastically, student 13 continues to appropriate teacher A’s English pronunciation and utters ‘係呀 children (/ˈtʃɪldən/) 啊 (exactly, it’s children)” in order to mislead teacher A’s perception of his English pronunciation of ‘children’. This translanguaging practice allows student 13 to construct a performance of teacher A’s inaccurate English pronunciation, which is received with laughter from the class (line 78).

Throughout the extract, it is evidenced that teacher A does not only learn how an English translation of ‘Tung’ can possibly be referring to different Chinese surnames (董 and 童). Rather, such a co-learning opportunity broadens his real-world knowledge regarding different kinds of Chinese surnames which exists in Chinese society. During the post-video-stimulated-recall-interview, the researcher invites teacher A to reflect on what he has learnt from his students:

“K: 咁頭先睇呢一個 episode 入邊，你覺得你自己學到一啲嘅 from the students？
(So, after watching the episode, do you think you have learnt something from the students)

T: 都有喺，即係拼音嘅嘅，個名喺，haha，姓氏，係嘅，係係嘅尤其係中文譯音嘅嘅呢，我唔係好熟呀嘅，之後突然佢哋講咗，喺姓董家得嘅，咦係唔嘅，有人姓童嘅嘅，咁樣嘅，係啦咁然後所以就，都 inspire 到我即係原來，即係學多幾個姓氏嘅嘅拼音嘅都可以叫做
(Yes, I do. That’s the pronunciation. The name. Haha. Surnames. Yeah. It’s specifically the Chinese translation of the surnames. I’m not familiar with those. So they suddenly said to me that having the surname (Tung, 童) is also possible. Oh yeah. Some people do have the surname Tung. That’s it. So that also inspires me in some ways. It is because I’m able to learn more about the pronunciations of different surnames.)”

(Video-stimulated-recall-interview with T)

Here, teacher A acknowledges that he has learnt the translations of the Chinese surnames and also the existing Chinese surnames in the society. This is shown as teacher A imitates his students’ voice ‘哦姓童都得嘅 (having the surname 童 is also possible)’ and then verbalises his thought, ‘咦係嘅，有人姓童嘅 (Oh yeah. Some people do have the surname Tung)’. Teacher A suggests that through co-learning, it inspires him to learn new knowledge from his students. The researcher then questions why it is necessary for the teacher to engage in an extended discussion about Chinese surnames with the students during the mathematics class:
<table>
<thead>
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| 40 T: okay please (1.2) okay listen listen (0.2) zip zip  
  → T points at the sentence  
  → T moves his index finger to hit the BB  
  41  (0.2)  
  42 T: very important  
  43  (0.5)  
  44 T: you cannot be lazy +you must write me a complete sentence  
  → T moves his finger along the sentence on BB (moving from left to right position) #1 #2 |
| 01 K: 哈但係，你覺得自己當時要，點解要  
  搞緊去 engage 去呢個 topic 入面呢  
  (But then, why do you think that you have to  
  engage in that particular topic at the moment?)  
  02 T: 因為佢喺呢個位置態度講  
  (This is because they are forcing me to  
  discuss this matter with them)  
  03 K: 係呀但係你可以 ignore 佢嘅態度嘅  
  (Yes, but you can choose to ignore them)  
  04 T: 我覺得，我係話人去但係喺個 topic  
  到完喇時，然後等，等我易啲可以抽番佢  
  地出嘅，講我講嘅嘅嘅，即係好似個我  
  sacrifice 一啲，即係首先我願意聽佢喺個問題  
  即係佢講嘅嘅嘅，然後學完嘅，即係  
  我就可以講我講嘅嘅嘅，去我態度學嘅嘅嘅，  
  就係咁嘅嘅  
  (I think that, when I engage in their topic, it  
  will be easier for me to draw their attention  
  back to the lesson and allow them to focus on  
  my teaching. So, it’s like I’m sacrificing  
  something. That is, I have to first show my  
  eagerness in listening their questions and what  
  they have to say. After learning that from  
  them, I can then draw their attention back and  
  motivate them to learn from me. That’s it.)  
  05 K: 呢個時間我見到學生同老師之間，都 go  
  beyond 個 language policy 喺，就用少少中  
  文去 engage 個個個 people 嘅 個個 playf  
  ul talk 入面呢，  
  點解你覺得係比較， why is it important 去 |
| Figure #1 | Figure #2 |
| T argues that the students force him to engage in the non-academic discussion.  
  T suggests that engaging in non-academic discussions with the students can allow him to attract them in paying full attention on the content.  
  Based on the observation of the classroom interaction data, the researcher |
| The researcher suggests that T can ignore the students. |
| The researcher is trying to understand why T engages in the non-academic discussion with the students. |
break the language boundary 同理 social boundary，即有学生在 break 左右 boundary，但今 social boundary 即使我同 個學生之間，老師像一個 leader 在 classroom 同學生同 here to learn，點解，點 解唔緊要去 break through 呢一個 boundary 去達致到一個 scenario 就似大家都可以學到 野（So based on my own observation, I notice that between you and the students, the classroom has gone beyond the language policy as you and the students are using some Cantonese to engage in the playful talk. Why do you it is important to break the language boundary and the social boundary? So, from the linguistic point of view, you break the language boundary but also the social boundary. This means that between you and the students, the teacher is serving as a leader in the classroom and the students are here to learn. Why do you think it's important to break through such boundary in order to achieve a space where everyone in the classroom can learn something?）

06 T: 同樣，我系緊，其實作之為老師個方 面，我覺得仲係，仲係繼續緊個 leader 當身份去做我驚長長，但係另外一 方面，啲嘅學生有其他啲嘅領導，可以令 我學返轉頭，咁我去學嘅嘅，有影響到 我係數學 leader 呢方便數學嘅，即係， 係嘅，我覺得我唔會因唔係，同佢唔， 真係好似我，我唔識嘅樣 language 你啦， 即係噯啲嘅，易會令到，動搖左我係數 學係方便數學嘅教學嘅個環節嘅，即係我都 可以教到你地數學嘅，只不過我另外果 一方面唔強，所以我會學你啲嘅嘅，係

T perceives himself as an expert in mathematics and acknowledges the fact that his mathematical knowledge makes him qualified to be teaching students mathematics.

T recognizes the fact that different people have different strengths and weaknesses and he is open to learn new

T’s open-minded attitude is the factor which motivates him to co-learn with the students.
Table 9.3: Video-Stimulated-Recall-Interview (Extract 3)

415

T predicts that if he shows his willingness to learn from his students, the students will find him more approachable, which is important to develop students’ motivation in learning mathematics. T refers to a Chinese idiom '不耻下问' (It's like not being ashamed to ask and learn from those who are inferior to you, just like the older generations) to display his willingness to learn from his students.
In line 2, teacher A initially suggests that he decides to engage in the discussion about Chinese surnames because of his students. However, the researcher questions whether teacher A can ignore the students’ demand. Teacher A then explains that by demonstrating his willingness to learn from the students, this can motivate students to learn the subject content. Teacher A uses a simile to illustrate his point: ‘即係好似係我 sacrifice 一啲 (it’s like I’m sacrificing something)’. This exemplifies teacher A’s view that learning something from the students requires him to sacrifice something, possibly the lesson time for learning the content. Hence, by sacrificing the lesson time and becoming a co-learner, teacher A can subsequently involve the students in learning the content subject with him.

The researcher raises another question based on his observation of the classroom data and he notices that teacher A and students go beyond both EMI language policy and also the hierarchical role sets (i.e. the teacher as a knowledge provider and students as knowledge receiver). As displayed in the MCA analysis, the classroom turns into a trans languaging space where the students translanguage to construct playful talk through imitating teacher A’s English pronunciation and also to educate teacher A’s understanding of the translations of Chinese surnames through using Cantonese. Teacher A also employs Cantonese throughout the process to make sense of the students’ feedback. In the interview, teacher A justifies that learning from his students will not affect his status as an expert in mathematics and hence he is willing to learn anything that is beyond his expertise (line 6). This is reflected in his reference of a typical Chinese idiom, ‘不恥下問 (It’s like not being ashamed to ask and learn from those who are inferior to you, just like the older generations)’. Using this idiom exhibits teacher A’s willingness to learn from his students who are not typically considered as ‘experts’. Moreover, teacher A also comments that co-learning with the students allows him to build a positive rapport with his students, which plays an important role in motivating students’ content learning. This is also reflected in the MCA analysis where the students are engaged in playful talk with teacher A (Tai and Li, 2021a; Waring, 2013). As shown in lines 73-78 of the interaction, S13’s feedback to teacher A is received with laughter from the students and they treat the utterances as playful.

9.5 Co-Learning of Common Knowledge

In the dataset, only one extract demonstrates more specifically the issue of co-learning of common knowledge that the teacher and student face in classroom interaction. Extract 4 is an example of the interaction.

Extract 4: Learning Common Knowledge from the Students
This extract is extracted from the secondary one history class which was taught by teacher D (T) at school B. Prior to the extract, teacher D was introducing basic information about China and he drew students’ attention to the information on the PowerPoint. At the beginning of the extract, teacher D introduces the fact that China is the third-largest country by reading aloud the text on the screen. The PowerPoint text contains the Chinese translation of the English sentence (i.e. China is the third-largest country in the world).

01 T: okay er china is the: (0.2) third largest country
       +T gazes at the screen #1

02 (0.5)

03 T: in the world +but who's the first?
       +T turns his body, facing the students

04 (0.7)

05 T: [and second]

06 SS: [russia]

07 (0.3)

08 T: russia (0.3) second?

09 (1.3)

10 S3: canada

11 (0.4)

12 S4: kind of yeah

13 (0.5)

14 S5: us

16 (0.4)
S4: I don’t know

S6: Canada

T: +mm: (0.4) yeah (0.2) I yeah I just search er
   +T places his LH below his chin and he tilts his head #2

Figure #2

T: er China’s the +third
   +T looks at the screen

T: +but for the first one and second one mm:
   +T looks at the students

T: [I’m not sure]

T: Russia is the first yeah

T: Russia and Canada are the=

T: Russia should be the +top one or top two
   +T moves his RH fingers upward
   and downward

T: [but I don’t know]

S6: [Russia is number one (((inaudible)))]

T: let’s search

T: is um (0.5) India the first?

T: what? no; India is just the=

T: okay too; +I just give you a +question
   +T extends his RH and LH arms, palms facing upward #3
   +T closes his hands, fists clenched
   +T opens up his hands again, palms facing upwards
   +T claps his hands

Figure #3
T: *anyone who can tell me: er the top one and top two:
   +T extends his LH, pointing at the students
   +T points at the students with his LH index finger
   +T points at the students with his LH index finger

T: *next lesson (0.2) okay I give you chocolate
   +T turns his head and looks at his RHS
   +T moves his LH to his RHS
   +T moves his LHS to his RHS, fist clenched as if holding a ball #4

S2 raises up her RH

S2: sir I got it

S2: sir I got it
51 S7: should be canada
52 (0.3)
53 S2: sir I got it
54 (0.5)
55 T: +yeah you got it?
   +T walks towards S2
56 (0.3)
57 S2: +yeah (. ) russia canada and
   +S2 shows her iPad to the teacher
58 +(0.3)
   +T picks up S2's iPad
59 T: oh yeah okay (. ) give you chocolate
60 (0.3)
61 T: okay (0.2) I owe you a chocolate okay
62 (1.2)
63 T: what's what's your name?
64 (0.4)
65 S2: (NAME-S2)
66 (0.5)
67 T: +okay um according to (NAME-S2) (0.4) okay
   +T holds up S2's iPad and gazes at it #5

   (0.9)
68 T: er: (0.8) or: the ((inaudible)) of um
70 (0.4)
71 T: russia canada and china
72 (0.2)
73 T: okay? number one is um russia
74 (0.4)
75 T: number two is um canada
76 (0.5)
77 T: number three is china okay? +I just er point out china
   +T raises up his RH, palm facing students
78 (0.2)
79 T: that's what I forgot (. ) okay thank you
80 (3.8)
81 T: teacher is +not as clever as er a i
   +T moves his RH to and fro
82 (1.1)
83 T: okay? maybe ten years later you will have an a i teacher
84 (1.1)
85 T: okay (0.2) +thank you
   +T returns the iPad back to S2
86 (4.6)
After introducing the fact that China is the third-largest country (lines 1 and 3), teacher D initiates a question and invites students to think about which country is the largest and second-largest country in the world (lines 3 and 5). This results in several responses from students in line 6, as the students pointing out that ‘Russia’ is the largest country. Teacher D repeats students’ responses by repeating it and he then utters ‘second?’ in order to invite students to think about which country is the second-largest in the world (line 8). Several students attempt to offer their answers by saying ‘Canada’ (lines 10 and 16) and US (line 14). However, teacher D indicates his uncertainty of the students’ responses and claims insufficient knowledge (Sert and Walsh, 2013), as indicated in teacher D’s truncated response (line 21) and his embodied action of tilting his head and placing his LH below his chin (figure #2). Although several students have offered their responses as they say that Russia is the largest (lines 28, 30, 32), teacher D’s claims of insufficient knowledge are further exemplified when he utters ‘I’m not sure’ (line 27) and ‘but I don’t know’ while shaking his head (line 35). In line 40, teacher D initiates a question by asking: ‘is um (0.5) india the first?’. Teacher D’s assumption is challenged by student 8 as he first produces an exclamation “what?” and then offers a negative assessment ‘no: india is just the=’.

In line 43, teacher D interrupts student 8’s speech and attempts to initiate a new sequence. Teacher D first extends his right-hand and left-hand arms (figure #3) and utters ‘okay’ to draw students’ attention. Teacher D enacts the same gesture and utters ‘I just give you a question’. Teacher D then claps his hands as a way to ensure that the students are paying close attention to his forthcoming question. In lines 45 and 47, teacher D specifies the question which requires students to find out the answer of the first and second-largest countries in the world by the next lesson. Teacher D deliberately clenches his fist and moves his left-hand to the right-hand-side when he says, “okay I give you chocolate” which figuratively pretending to hold a chocolate in his left-hand. By doing so, teacher D potentially aims to motivate students to look for the information after class. In lines 49 and 53, student 2 initiates a claim of understanding as she utters ‘sir I got it’ twice, which draws teacher D’s attention in line 55. Student 2 then shows her iPad to teacher D and confirms her peer’s answers: ‘russia canada’ (line 57). This illustrates that student 2 deploys the iPad as a resource for her to check the accurate answer for teacher D, which in turn, teach the correct information to teacher D and her classmates. Teacher D picks up student 2’s iPad (line 58) and he verbally acknowledges student 2’s answer by repeating the answers repeatedly in lines 71, 73, 75 and 77. It is noticeable that teacher D verbally acknowledges his knowledge gap by stating “I just er point out china” (line 77) and “that’s what I forgot” (line 79). Teacher D further makes a comment by comparing himself with artificial intelligence, ‘teacher is not as clever as er a i’ (line 81) which highlights the limitations of human’s memory capacity.
In this extract, although the whole conversation is carried out in English, teacher D translanguages through his concurrent employment of verbal (use of English) and gestural actions (e.g. extending his arms and tilting his head) in order to claim his insufficient knowledge and invite students in providing the accurate knowledge to him and also to other classmates. It is evidenced that teacher D learns the information about the first and second-largest countries in the world when student 2 looks for the information via her iPad. This demonstrates how student 2 draws on the available technological resource that is available to her and this affords her in informing the correct answer to teacher D. During the video-stimulated-recall-interview, teacher D is invited to explain the role of co-learning in shaping the classroom interaction:
<table>
<thead>
<tr>
<th>Classroom Interaction Transcript</th>
<th>Video Stimulated Recall Interview Selected Excerpts</th>
<th>Teacher’s Perspectives</th>
<th>Analyst’s Interpretations of the Teacher’s Perspectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 S4: I don’t know</td>
<td>01 K: 你覺得你學生身上學時學到對啊係呢一個 moment? (Do you feel like you have learnt anything from the students at this moment of the interaction?)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 (0.3)</td>
<td></td>
<td></td>
<td>T understands that there are times where a teacher may not be able to answer certain questions even though</td>
</tr>
<tr>
<td>19 S6: Canada</td>
<td>02 T: 學到啊，因為無論係 History 又好或者其他科都好，可能你 prepare 好啲嘅，但係知道啦，跟住係係出另外一個問題，可能你突然之間係出個啲考覈，跟住你答唔到，佢可能你要即刻，如果當其時有時間嘅話你可以再問點資料啦，即刻話一啲 啦，但係如果當時有時間嘅話係緊緊，即係一係就下一堂同個講，如果唔係就拖着個係落比佢，即係下一堂話一講俾我講啊，咁都 okay 喔 (Yes, I have. I believe that no matter whether it is History or other academic subjects, you may have to prepare some teaching materials in advance and students may ask you a question that is not covered in the material at all. It is)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 (0.4)</td>
<td></td>
<td></td>
<td>T believes that it is okay to learn new knowledge from his students.</td>
</tr>
<tr>
<td>21 T: +mm: (0.4) yeah (0.2) I yeah I just search or +T places his LH below his chin and he tilts his head #2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 (0.5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23 T: er china’s the +third</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 (0.5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25 T: +but for the first one and second one mm: +T looks at the students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 (0.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27 T: [I’m not sure]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28 S1: [Russia is larger]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29 (0.3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 S7: Russia is the first yeah</td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>
possible that you may not be able to answer that question because you have not encountered that before. If you have time, you may immediately look for the information and think about it. However, if you do not have time during the class, then you may tell the students that we can discuss this question during the next lesson. You can also tell the students to look up the answer by themselves and ask them to tell you the answer next lesson. I believe that this approach will work too."

03 K: 你覺得，因為好多師生會覺得老師 很多個學科入邊嘅 expert ，但是當一個老師如果唔知道這個答案嘅時候，係係都嘗試向學生發資料，係於一個比較虛心嘅態 度去向學生學習，你覺得 break through 呢個 social status 對你係有冇影響？

(Often students may think that teachers are experts. However, when a teacher does not know the answer and attempts to seek for information from students, this requires the teacher to adopt a modest attitude in order to learn from the students. Do you think that by

he/she has prepared the teaching material in advance.

T proposes two ways for teachers to deal with such situation: 1) use the class time to look for the answer, 2) leave the question to the next lesson.

The researcher is trying to understand why T is willing to learn from his students.
T: anyone who can tell me: at the top one and top two:
   - T extends his LIM, pointing at the students
   - T points at the students with his LIM index finger
   - T points at the students with his LIM index finger

T: next lesson (0.3) okay I give you chocolate
   - T turns his head and looks at this RHS
   - T moves his LIM to his RHS
   - T moves his LHS to his RHS, fist clasped as if holding a ball

S2 raises her RH
S2: sir I got it

T believes that it is alright for students to teach him the correct information.
T imitates a student's voice and imagines that the student is criticising the teacher's incapability in teaching the subject.

T metaphorically compares himself with doing so; it challenges your status as a teacher?)

04 T: 有呀，雖然話我建議喺個係比學生多啦，唔好因為你學過時間啦，你嘅年資啦，你年長好多啦，但係我又唔會覺得學生意比老師嘅，我係呃你呢個嘅呃，你呢個係唔係，又唔會覺得呢個係一個難受嘅，或者係你問題係，因為，我自己就覺得你就算係 expert 都好啦，佢都唔係知唔係答同唔係喺係 AI 哪，唔係就唔係要我啦，我係一個 human being，唔可能有時我自己記啲啲可能記錯嘅

(Not really. Although I know more than my students due to the amount of exposure that I have received and my life experience, I don’t think that it is a problem for students to tell me the correct information. A student may say oh you don’t know that? Oh, you are wrong. I will not feel embarrassed or disappointed or feel ashamed. This is because I think that although you are an expert, you will not know everything. If you know everything then you will become like an artificial intelligence. In
that case you do not need me at all because I am just a human being and I sometimes will make mistakes or forget certain information.)

T's use of metaphor of comparing himself with artificial intelligence is also reflected in the classroom interaction.

T gives an example of a scenario where he mixes up the historical facts and how students can correct him.

T switches between the student's and teacher's voices in order to showcase how he will deal with such situations.
are just a human being and you may forget certain information. Or there may be something that you have not learnt before. So, when students are able to tell you the answer, then you should learn with them.)

06 T: 因為其實你們整個課堂就像一齣 learn 嘛，咁又有話一定係我單向傳比你，佢其實係可以大家一齊學習，咁我又 learn 一啲野嘅細地身上，唔但又 learn 一啲野嘅我身上，呢個就是學習同埋教育咩嘅，咁所以 T believes that a classroom provides a space for teachers and students to engage in co-learning.

human being and he is willing to learn from his students.

T’s open-minded attitude is the factor that motivates him to co-learn with the students.

Table 9.4: Video-Stimulated-Recall-Interview (Extract 4)
In line 2, teacher D first points out the possible solutions for dealing with uninvited student initiatives. One of the ways is to allow students to find out the correct answer and invite them to inform the answer to the teacher and other peers. The researcher then raises another question that prompts teacher D to reflect on the role of co-learning in challenging teacher D’s status as a history teacher. Teacher D then justifies that it is alright for students to teach him the correct information. It is noticeable teacher D shifts the footing by imagining himself as his students and voicing out their thoughts: ‘哦原來你呢個唔知㗎，你呢個係錯嘅 (Oh you don’t know that? Oh, you are wrong)’. This shift of footing demonstrates teacher D’s own perception of his student’s reactions when teacher D indicates a claim of insufficient knowledge. Similar to teacher A in Extracts 1-3, teacher D explains that he will not feel ashamed or disappointed by such criticism because he understands that he is a human being. He then metaphorically compares himself with artificial intelligence and by doing so, teacher D is emphasising the limitations of a human’s cognitive system. This is also reflected in the MCA analysis when teacher D explicitly states that ‘teacher is not as clever as AI’ (line 81). By emphasising the fact that he is a ‘human being’, teacher D highlights his willingness to co-learn new knowledge with his students.

Teacher D further elaborates on his account and he explains that a classroom is a space for co-learning. Teacher D points out that learning is not only one way (i.e. teacher teaching new knowledge to students). Rather, both teacher and students can engage in learning something new from each other. Such a belief is manifested in his account as he says: ‘咁其實係可以大家一齊學習，咁我又 learn一啲野喺佢哋身上，咁佢又 learn一啲野喺我身上 (They can learn new knowledge from me, and I can also learn new knowledge from them)’. This belief echoes Brantmeier’s (2013) argument that co-learning alters the role sets of teacher and students since the teacher is no longer the only knowledge provider in the classroom. The classroom is then transformed into a space for mutual learning and equal participation for all classroom participants. It can be argued that teacher D’s engagement in co-learning is motivated by his pedagogical belief about education and his goal for promoting equal contributions from the students, which result in the creation of a translanguaging space for co-learning in the EMI history classroom.

9.6 Summary

This chapter presents how the EMI mathematics and history teachers employ various linguistic and multimodal resources not simply to teach and manage the class but also to learn from their students to create a translanguaging space for co-learning. The examples show that the teacher’s priority is to get the lesson done and make sure that the students have learned the contents rather
than sticking to the school’s language policy. Through translanguaging beyond the different languages and modalities, the classroom has turned into a co-learning environment in which the teachers benefit a great deal from the students’ knowledge. Extract 1 illustrates how teacher A draws on his limited knowledge of Mandarin/Putonghua, a language that has been promoted as the national language in China and it has been taught in HK schools and universities, to gain knowledge of Mandarin/Putonghua grammar and pronunciation from his students. Teacher A also attempts to repair his Mandarin/Putonghua utterance based on the students’ corrective feedback and this contributes to the creation of a humorous classroom context in the lesson. As noted in section 4.3.1 in chapter 4, Mandarin/Putonghua is a minority language in terms of the speaker population – a very small number of pupils are Mandarin L1 speakers in the classroom. However, Mandarin/Putonghua is the official national language of China, of which HK is a special administrative region. But HK youth, and the general public, generally have a negative attitude towards Mandarin/Putonghua (Poon, 2010; Zhang, 2013). In this extract, it is noticeable that teacher A creates a translanguaging space for co-learning which promotes equitable knowledge construction and honours students’ various linguistic knowledge in the classroom. Extract 2 shows that teacher A is positioning himself as an English learner and students as the knowledge holder. Similar to many other EMI teachers who are not confident with their English usage in the classrooms (Macaro et al., 2018; Briggs et al., 2018), teacher A negotiates the correct English pronunciation with S13 through using multilingual and multimodal resources. It is also noticeable that teacher A brings in his past knowledge which is acquired in different contexts and timescale to help him in grasping the appropriate pronunciation.

Additionally, although teacher A is a Cantonese L1 speaker, teacher A is seeking clarifications about different English translations of Chinese surnames through Cantonese with his students (Cantonese L1 speakers) in Extract 3. In the interaction, teacher A learns more about the English translations of the Chinese surname ‘Tung’, the existence of different Chinese surnames as well as the Cantonese pronunciations of these surnames. His curiosity to learn from his students is reflected in the video-stimulated-recall-interview. He always wants to be accurate all the time, possibly because of his educational background as a mathematician. Throughout the co-learning process, teacher A and students employ a variety of registers, such as appropriating teacher A’s wrong English pronunciation, use of Cantonese, to transmit and exchange information with each other. Finally, Extract 4 illuminates how teacher D positions his students to be the knowledge holder by inviting them to inform the correct answer about the largest and second-largest countries in the world. It is evidenced that teacher D does not only draw on the linguistic and gestural resources to indicate his claim of insufficient knowledge, teacher D also brings in his pedagogical belief about teaching and learning which creates a translanguaging space for students to verbalise
their thoughts and utilise their iPads, a technological device that is provided by school B, to search for the answer and inform teacher D’s common knowledge.

The analysis has revealed that by receiving new information and having an awareness or a realisation of something amiss, this can potentially be useful for the teachers to manage content teaching. This is reflected in the post-video-stimulated-recall-interview data which illustrates the teachers’ awareness of what they have learnt from their students and the impact that it has on classroom instruction. The teachers clearly articulate that learning something from their students do not only fill in their knowledge gaps (e.g. Tables 9.1, 9.2, 9.3 and 9.4), it also assists the teachers to achieve their pedagogical goals, including motivating students to learn the subject with the teacher, develop student’s confidence, create a playful classroom context in the classroom (Tables 9.1 and 9.3) and conforming with the EMI policy (Table 9.2). This highlights that co-learning does not only afford teachers’ learning of new information or provide a frame for equalising power relations. It can potentially serve as an opportunity for teachers to accomplish a range of pedagogical goals for promoting students’ learning in the EMI classrooms.
Chapter 10: Conclusion and Implications

10.1 Introduction

This chapter concludes the thesis by revisiting the main themes that have been analysed in chapters 5-9. The EMI policy has been implemented in HK which restricts teachers and students to use English-only in the classroom, which may hinder students from drawing on their knowledge and skills in their L1 and restrict opportunities for teachers and students with shared linguistic and cultural backgrounds to communicate effectively. The data analysis chapters have demonstrated that the EMI teachers have utilised various multilingual, multimodal, spatial and multi-semiotic resources to create different translanguaging spaces in the EMI classrooms, which in turn, has great potential to deepen student’s engagement and involvement. This chapter will first summarise the major findings from the previous five data analysis chapters. It then explains how the research findings can offer theoretical and methodological contributions to the field of applied linguistics. It will also offer pedagogical implications for EMI education. Finally, the chapter will address the limitations of this study and suggest some directions for future research endeavours.

To recap, the two main research questions and 5 sub-questions answered throughout the data analysis chapters are the following:

(1) What are the roles of the EMI teachers’ use of translanguaging in creating different translanguaging spaces for achieving their pedagogical goals in Hong Kong EMI mathematics and history classrooms?
   (1.1) How do HK EMI teachers employ resources in their repertoires to construct playful talk?
   (1.2) How do HK EMI teachers employ resources in their repertoires to bring outside knowledge into the classrooms?
   (1.3) How do HK EMI teachers employ resources in their repertoires to create a technology-mediated space in the classrooms?
   (1.4) How do HK EMI teachers employ resources in their repertoires to deepen student engagement?
   (1.5) How do HK EMI teachers employ resources in their repertoires to engage in co-learning of linguistic and everyday life knowledge in the classrooms?
(2) How do the HK EMI mathematics and history teachers make sense of their use of translanguaging during the lessons?
10.2 Discussions of Findings

With regard to the first research question, this study has demonstrated that engaging in playful talk (chapter 5), bringing outside knowledge into the classroom (chapter 6), using a technological device (chapter 7), deepening student engagement (chapter 8) and engaging in co-learning of linguistic and sociocultural knowledge (chapter 9) in EMI classrooms help to create different translanguaging spaces which allow classroom participants to bring in a range of linguistic and multimodal resources and different kinds of knowledge into the lessons. In terms of the second research question, the analysis of the video-stimulated-recall-interviews has revealed that translanguaging enables the EMI teachers to bring their prior life experience, various pedagogical knowledge and beliefs (e.g. knowledge of students’ academic and linguistic backgrounds, knowledge of scaffolding strategies) into their teaching. This affords the teachers to shape the construction of the translanguaging spaces in the EMI classrooms. In the below paragraphs, I will highlight the five different translanguaging spaces that are emerged from the findings and discuss them in connection with the research questions and the landscape of translanguaging research in bi/multilingual education.

10.2.1 Translanguaging Space for Playful Talk

From chapter 5, the analysis of the extracts examines how translanguaging is employed by teacher A to create playful talk in the EMI mathematics classroom in order to accomplish his pedagogical goals in the lessons, including building rapport, facilitating content explanation and promoting meaningful communication with students. The analysis demonstrates that translanguaging appears to be a critical resource for creating playful talk. In line with the interactional features in playful talk that are identified in prior studies (e.g. Waring, 2013; Lytra, 2017; Tai and Brandt, 2018), I have demonstrated that translanguaging can serve as a source of creativity and language play which allows classroom participants to bring in a range of linguistic resources, including composition (e.g. smiley voice, laughter, the volume of voice, word choice), and multimodal resources (e.g. gesture and drawings). Specifically, the analysis has demonstrated that the teacher creates playful talk to facilitate content learning through creating an imaginary context, constructing a mnemonic to facilitate students’ memorisation of the mathematical knowledge and using a student-initiated playful comment to facilitate teaching. This resonates with the findings in Jakonen’s et al. (2018) study showcasing that the classroom participants’ translanguaging practices for creating playful talk involve the use of diverse linguistic resources which goes beyond the language policy of using
English only in the history CLIL classroom. Teacher A also makes use of translanguaging to construct playful talk for promoting meaningful communication. It is found that the teacher draws on his limited linguistic knowledge of Mandarin to create a humorous atmosphere in the classroom. The teacher also raises the issue of linguistic discrimination and he deliberately translanguages by initiating a foreigner’s Cantonese accent, deploying his truncated Mandarin proficiency and L1 Cantonese to invite students to consider accent discrimination in contemporary society.

In terms of how does the teacher make sense of his translanguaging practices in constructing playful talk, the analysis of the video-stimulated-recall-interview suggests that several social factors, including the teacher’s personal belief, prior life experience, teaching and learning history, sociocultural and pedagogical knowledge, play a role in constructing playful talk. This shows that the construction of a translanguaging space for playful talk is facilitated by different sociocultural factors (Tai and Li, 2020; 2021a). Thus, it can be argued that the playful talk transforms the classroom into a translanguaging space which in turn allows the teacher and students to perform a range of creative acts and experiment with a variety of voices to facilitate the meaning-making and knowledge construction processes.

### 10.2.2 Translanguaging Space for Bringing Outside Knowledge into the Classroom

Chapter 6 examines how translanguaging practices afford opportunities for teachers to bring the outside into the EMI classroom in order to support the students’ learning of new academic knowledge. The findings demonstrate how the teacher constructs a translanguaging space by integrating the students’ everyday life experience in an institutional learning space. Particularly, it is found that the teacher draws on the shared knowledge between the teacher and the students and creates real-life scenarios through translanguaging in order to scaffold student’s understanding of the mathematical concepts. This finding corroborates Cooke and Wallace (2004), Baynham’s (2006) and Tai and Brandt’s (2018) findings in that bringing students’ familiar knowledge into the classroom allows teachers to open up an interactional space for the students to bridge the gap between classroom interaction and everyday knowledge. Moreover, the teacher also uses an everyday life metaphor (e.g. a metaphor of cooking and a metaphor of skipping mathematical steps as if the students are committing suicide) to scaffold student’s mathematical understanding.

Regarding how the teacher makes sense of his own translanguaging practices in the video-stimulated-recall-interview, it is noticeable that the teacher draws on his pedagogical belief and his prior learning experience as a student which shapes his translanguaging practices and creates opportunities for him to bring everyday life knowledge into the classroom space for facilitating explanation. It is argued that translanguaging thus helps to transform the EMI classroom into a
lived experience, which in turn enhances content learning. More importantly, the findings of this chapter illuminate that an EMI classroom can consist of multiple translanguage spaces (everyday life space and institutional learning space) where the teacher and students engage in multiple meaning-making systems which can create new configurations of language and pedagogical practices.

10.2.3 Technology-mediated Space

From chapter 7, I have demonstrated how an EMI mathematics teacher (teacher C) makes use of the technological affordances of the iPad to achieve pedagogical goals in a linguistically and culturally diverse EMI classroom. Specifically, I have explored how the use of the iPad extends the semiotic and spatial repertoires for enabling teacher C to create a translanguage space for supporting multilingual students' learning of new academic knowledge and students' participation. The analysis of the extracts reveals that the teacher’s use of the iPad affords him to facilitate content learning. It is noticeable that teacher C utilises various semiotic resources, including highlighting, taking a photo of student’s work, zooming in and out, and using different colour pens, to provide feedback on student’s work and scaffold mathematical explanations. Such a finding aligns with prior studies (e.g. Engin and Donanci, 2015; Liu and Chao, 2017; Ho and Li, 2019) which have illustrated the affordances of technological tools for creating opportunities for dialogic teaching. Importantly, the finding has highlighted the use of the iPad for expanding teacher C’s use of spatial repertoire in the classroom since the teacher can walk around the classroom freely and he can write on the iPad while he is walking along the classroom and checking students' actual progress simultaneously. The affordance of the iPad shapes the teachers’ walking trajectories in the classroom and this finding resonates with Jakonen’s (2020) findings which demonstrate how the L2 English teacher’s walking trajectories affords her to achieve pedagogical actions of checking and assessing student progress. Moreover, teacher C’s use of the iPad extends his semiotic repertoire by affording him to construct a humorous classroom environment for promoting student engagement. This is exemplified through several pedagogical actions, including taking photos of student’s appearances and projecting them on the main screen, in order to lighten up the students’ mood.

In the video-stimulated-recall-interview with teacher C, teacher C acknowledges the benefits of using an iPad for allowing him to explain and evaluate student’s ideas. It is argued that the iPad provides opportunities for the EMI teacher to fully exploit the semiotic and spatial resources for creating a technology-mediated space in the classroom. This opens up new opportunities for him to facilitate meaning-making processes, promote inclusivity and construct a playful classroom environment in the mathematics classroom.
Although iPad, with its various functions and applications, can bring diversity to the classroom and create new facets of content teaching and learning, it is important to note that the iPad must be used with a pedagogical intention. This is because the iPad is simply a technological tool, like any other artefacts in the classroom, including a computer and a book (Mercer et al., 2010; Engin and Donanci, 2015). After all, it is the pedagogy that is paramount for creating a translanguaging space for facilitating the student’s content learning processes, not the technology. Thus, opportunities for constructing a technology-mediated space eventually depend on the EMI teacher’s use of the iPad and his/her ability to harness the available semiotic and spatial repertoires afforded by the iPad in order to achieve his/her pedagogical goals.

Furthermore, although the study has suggested that the use of the iPad can facilitate the creation of a humorous and safe space for the students, it is possible that such a technology-mediated space may not be always perceived as a safe atmosphere in the classroom. It can be argued that the student the teacher’s use of the iPad’s camera function in Extracts 3 and 4 is creating an unsafe space for the student whose picture is being taken (Extract 3) or whose older calculator is being shown on the project (Extract 4). This is because such a humorous atmosphere may potentially hurt the student’s feelings or dampen his self-esteem which may trigger fear, stress and/or depression. As Loommans and Kolberg (1993) argue, ‘misuse of humour creates a hostile learning environment that stifles rapidly communication and self-esteem’. Although the particular student in Extracts 3 and 4 does not display any discomfort or feel offended by the teacher’s actions, it is vital for teachers to be aware of the students’ and their own appropriate laughter and humour in the classroom. Engaging in sarcasm, humiliating remarks or insults dissimulated in the playful talk can create situations which can make students feel embarrassed or insulted (Herbert, 1991).

Importantly, although how particular actions or utterances are treated as laughable or humorous are negotiated by classroom participants on a moment-to-moment basis (Waring, 2013; Tai and Li, 2021a; Matsumoto et al., 2021), it can be suggested that teachers need to create a safe space for all students to engage in laughing moments in an appropriate manner, in ethical limits. Any teachers need to be cognizant of the classroom norms and the students’ personality traits before engaging in playful talk. Having the assumption or belief that engaging in humorous moments can construct a safe translanguaging space for students to engage in classroom learning can be problematic and it may fail to build a positive rapport between teachers and students. Therefore, it is worth studying how the creation of such a humorous environment, which is facilitated by technological devices, can potentially exclude students who find themselves unable to participate or feel humiliated during the playful interaction for various reasons.
10.2.4 Translanguaging Space for Student Engagement

Chapter 8 aims to reconceptualise the notion of student engagement from a translanguaging perspective. Previous research on SLA has demonstrated that engagement is a multi-dimensional notion which is conceptualised in terms of behavioural, cognitive, emotional and social aspects (e.g. Philp and Duchesne, 2016; Mercer, 2019). This chapter aims to adopt translanguaging as an analytical perspective to examine how an EMI history teacher employs available resources to engage his students in the classroom for promoting participation, keeping the lesson moving forward and meeting the pedagogical goals. The analysis of the extracts illustrates that translanguaging can enable the EMI teacher to increase student engagement at a whole-class level and at an individual level (Trussler and Robinson, 2015).

At the whole-class level, the teacher constructs designedly incomplete utterance (DIU) through his uses of English utterances and gestures and invites students to complete the DIU. Although the use of DIU invites all students to think about the answer, it does not open up opportunities for the whole class to respond to the DIU as only one or handful of students can take the turn and respond to the DIU. Moreover, it is found that the teacher creates a translanguaging space for all students to form an opinion about their preferred social class in ancient Egypt. It is evidenced that the teacher’s translanguaging practices lead to laughter and loud responses from the students, which can be interpreted as a playful moment for the whole class. Nevertheless, the teacher simply validates their opinion without inviting them to justify their stance, which limits the opportunity for a whole class discussion. Although it is evidenced that the students are engaged, the teacher’s translanguaging practice does not necessarily engage his students in jointly constructing the curriculum knowledge (Haneda, 2009). Additionally, the teacher creates an embodied enactment of an imaginary context (see Tai and Brandt, 2018) in order to allow all students to bridge the gap between the imaginary context and historical knowledge. It is also noticeable that the teacher brings the Chinese history into the teaching of ancient history through using a combination of various gestural actions and English and Cantonese utterances to scaffold students’ understanding of ancient Egyptian history. Throughout the analysis, it is noticeable that the teacher mostly deploys English to carry out his teaching. The teacher’s translanguaging practices mainly entail his use of gestural and paralinguistic resources, such as stress and intonation, which are accompanied by his use of English in the classroom. Although there are criticisms of the teacher’s pedagogical practices, it is important to note that the purpose of analysing this teacher’s classroom teaching is not to show him as the best example of good practice. In other words, the analysis should not be viewed as an evaluative exercise of the teacher’s teaching performance. Rather, the aim of the analysis is to illuminate how translanguaging is employed and what translanguaging can do to fulfil the teacher’s pedagogical goals. In the video-stimulated-recall-interviews, it is
noticeable that the teacher’s translinguaging practices are shaped by his pedagogical beliefs, his understanding of the students’ academic abilities and his pedagogical goals for developing students’ discipline-specific ways of thinking and assisting students to learn the historical terms and facts.

At an individual level, it is found that the teacher engages individual students in the process of knowledge construction. This is exemplified in the extracts as teacher B invites the SEN student to draw on his visual repertoire and display his understanding of historical concepts on the blackboard. This allows the teacher and students in the class to evaluate the student’s historical understanding. In the video-stimulated-recall-interviews, the teacher displays his awareness of the characteristics of the SEN student and the student’s interest in learning history. This shapes the construction of an inclusive translinguaging space for supporting students’ learning preferences. Thus, this chapter argues that the process of engaging students is a process of translinguaging which requires the teacher to mobilise available resources for catering for the different needs of all students, which promotes interaction and inclusion in the classrooms. Nevertheless, this chapter also notes that even though the teacher has mobilised various resources to invite students’ participation and foster inclusivity, the process of negotiation of meaning using students’ own multilingual and multimodal repertoires could have been harnessed more.

10.2.5 Translanguaging Space for Co-Learning
Lastly from chapter 9, this chapter aims to demonstrate that EMI teachers’ translinguaging practices do not only deepen student’s engagement and enhance their content learning. Instead, engaging in translinguaging practices can also engage EMI teachers in learning new knowledge from the students. Most studies of classroom interaction studies focus on students and teachers sharing the same physical space in a class (e.g. Sert, 2017; Matsumoto and Dobs, 2017) and although cultural variations exist, scholars (e.g. Seedhouse, 2004; Walsh, 2006) tend to conceptualise the role of the teacher in the classroom as experts who provide knowledge and the role of the students are learners or receivers of knowledge. However, such a role differentiation may create a knowledge-power relationship since the knowledge of the ‘expert’ is privileged and valued and the teacher is the expert who is qualified to validate students’ knowledge (Lawrence, 1996). This can possibly marginalise students’ ideas since their knowledge may not be valued in the classroom which consequently discourages students from stretching the extent of their participation and getting access to different various learning opportunities. The concept of co-learning emphasizes the process in which teacher and students attempt to adapt to one another’s behaviour and learn from each other in order to produce desirable learning outcomes.

The analysis of the extracts illuminates how translinguaging creates a space for co-learning of
linguistic knowledge and common knowledge. The finding is in line with Li’s (2014b) and Hansen-Thomas’s et al. (2020) studies where they argue that co-learning through translanguaging afford the teachers and students to share their funds of knowledge. The analysis reveals teacher A learning Mandarin, English pronunciations and Chinese surname from the students through engaging in translanguaging. As acknowledged by teacher A in the video-stimulated-recall-interview, he perceives his English and Mandarin proficiencies as below average and having the opportunities to learn from his students allow him to facilitate equitable knowledge construction and value students’ linguistic knowledge in the classrooms. On the other hand, teacher D has the chance to learn common knowledge from the students. Through using English and gestural resources to claim for insufficient knowledge, teacher D invites students to inform him of the correct answer about the first and second-largest countries in the world. Importantly, in the video-stimulated-recall-interviews with teacher A and teacher D, both teachers articulate their willingness to participate as co-learners and facilitators of translanguaging which is vital in equalising power relations between students and teachers. The teachers recognise that learning new knowledge from their students can fill in their knowledge gaps and it also creates opportunities for the teachers to achieve their pedagogical goals for promoting students’ learning in the EMI classrooms.

I argue that translanguaging creates a safe space for co-learning that emphasises equity in knowledge construction and challenges the hierarchical relationship between the teacher and the learner. Co-learning promotes equity in knowledge construction. It exhorts the teacher and students to learn from each other and engage in joint construction of knowledge. The teacher is no longer the sole possessor of knowledge in the class. As demonstrated in the analysis, in order to create such a translanguaging space, the EMI teachers’ willingness in positioning themselves as ‘vulnerable’ (i.e. taking risk of being not knowing, acting as a receiver of knowledge rather than a provider of knowledge) (Brantmeier, 2013) and to learn from his students are important factors which enable a more equitable treatment of all students and their linguistic repertoire (Cantonese, English and Mandarin/Putonghua).

Having summarised the findings in each data analysis chapters and explained how the findings connect to the research questions and the prior research studies on translanguaging practices in bi/multilingual classroom discourse, I will now explain how this thesis offers contributions to theoretical and methodological knowledge and pedagogical implications.

10.3 Contributions to knowledge: Theoretical

A key theoretical contribution of the study is that it extends our understanding of an EMI classroom
which can entail multiple translanguaging spaces which are fluid and mobile. I have demonstrated that the creation of different translanguaging spaces in EMI classrooms which are created by and created for translanguaging. This includes: a translanguaging space for playful talk (chapter 5), an everyday life space and an EMI institutional learning space (chapter 6), a technology-mediated space (chapter 7), a translanguaging space for student engagement (chapter 8) and a translanguaging space for co-learning (chapter 9). These translanguaging spaces allow classroom participants to bring in a range of linguistic and multimodal resources and different kinds of knowledge into the lessons, which can create new configurations of language and pedagogical practices. As argued by Li (2011), translanguaging space is where different repertoires, histories, experiences, beliefs and attitudes, and identities come into contact. These translanguaging spaces can be created in different classroom moments for teachers to bring the relevant sociocultural knowledge, pedagogical beliefs and personal interests in achieving a range of pedagogical goals. Creating different translanguaging spaces within an EMI classroom can also transform the traditionally teacher-fronted interaction to negotiate a space for voicing their thoughts and create a more dynamic and contingent environment to facilitate students’ participation.

To date, the complexity of translanguaging space has not been adequately explored (Tai and Li, 2021a; Ho and Tai, Forthcoming) and there is still a lack of comprehensive understanding of how a classroom as an integrated translanguaging space which can be separated into several translanguaging spaces for teachers to achieve different kinds of pedagogical goals. I argue that the division of ‘translanguaging space’ into different sub-spaces can help classroom interaction researchers to identify the nuances in the overarching construct of ‘translanguaging space’ and highlight the dynamic nature of translanguaging space. (Tai and Li, 2020). This perspective echoes Seedhouse’s (2004) argument that classroom interaction is not an undifferentiated whole. Rather, it can be divided into a number of sub-varieties which includes form and accuracy contexts, meaning and fluency contexts, task-oriented contexts and procedural contexts (Seedhouse, 2004). Previous studies on classroom interaction have narrowed their focuses down to the studies of particular action types (e.g. Markee, 1995; Morell, 2007) and the particular interactional structures in the classrooms (e.g. Lee, 2007). These studies portray teachers as constructing one pedagogical action on one level at a time. Seedhouse (2004) demonstrates that L2 teachers may be simultaneously orienting to multiple separate pedagogical goals and that classroom interaction may be operating simultaneously on multiple levels. Analysing classroom interactional features, therefore, needs to take into account of the context in which the features are operating and avoid acontextual overgeneralizations. It can be argued that a classroom should not be seen as a single translanguaging space that is static and invariant. On the contrary, a classroom is an integrated translanguaging space which consists of multiple translanguaging sub-spaces that afford teachers
to draw on particular resources in a coordinated performance to achieve their pedagogical goals at specific moments in the lessons.

It is important to note that the notion of translanguage sub-space differs from Lo and Lin’s (2019b) notions of curriculum genre and task structures. Curriculum genre is defined as ‘the variables of pedagogic activities’ (which unfold as sequences of learning activities), ‘pedagogic relations’ (social relations enacted between teachers and students), and ‘pedagogic modes’ (including spoken, written, visual, manual), through which students acquire target knowledge and values’ (Lo and Lin, 2019b: 81). A curriculum genre consists of several components of task structures which includes ‘prepare’, ‘focus’, ‘task’, ‘evaluate’ and ‘elaborate’ (see Rose, 2014: 14). Lo and Lin argue that different stages of curriculum genres and various components of task structures are realised through a series of learning cycles, learning activities and lesson stage. They draw on the analytical framework of Systematic Functional Linguistics and adopt a deductive approach in classifying classroom talk into different task structures which is inspired by (Rose and Martin, 2012; Rose, 2014). The notion of translanguage sub-space, on the other hand, is inspired by the emic CA context-based approach to classroom interaction which ‘offers a more realistic interpretation of what is actually happening in classroom discourse’ (Walsh, 2011: 71). The identification of the translanguage sub-spaces can be signalled by shifts in classroom activity, topic-focus, turn-taking systems and the overall sequence of translanguage occurrence at the moment. It is important to reiterate that the identifications of the translanguage sub-space, which are in a reflexive relationship between the teacher’s translanguage practices and the teacher’s pedagogical goals, are derived from the examination of the corpus of EMI lessons and they are not in any sense defined a priori. Therefore, attempting to identify multiple translanguage sub-spaces can assist them to focus on different aspects of translanguage practices as they collect and engage with the classroom interaction data. Such an argument emphasises the fact that the EMI classroom interaction can be a rich and varied discourse environment which allows teachers to carry out the institutional business of instructed content learning.

Another key theoretical contribution of the study is that it substantiates the notion of translanguage as a pedagogical resource and as an analytical perspective which reconceptualises EMI teaching as multilingual, multimodal, multi-sensory and multi-semiotic (Li, 2018). Translanguage is often misunderstood as focusing on switching between named languages because of the ‘language’ element in translanguage (Ho and Li, 2019). However, the findings of the thesis highlight the EMI teachers’ usage of various linguistic resources which are accompanied by the employment of multiple semiotic resources. As explained in chapter 3, the concepts of multimodality and translanguage share a lot in common. For example, both concepts
perceive language as one of the modes for meaning-making and so both concepts argue that in order to understand human communication holistically, researchers should take other semiotic modes into account as well. This thesis emphasises the importance for researchers to look beyond the traditional view of language as separate codes of speech and writing and pay attention to the multimodal and embodied aspects of EMI teaching and learning.

As I have explained in chapter 3, translanguaging as an analytical concept allows researchers to go beyond from doing structural analysis for identifying the frequent and regular linguistic patterns (Li, 2020). This redirects the researchers in focusing on how language users break boundaries between named languages and non-linguistic semiotic systems in particular moments of classroom interaction (Li, 2011; Li, 2018). Adopting a translanguaging perspective in analysing the classroom data allows us to provide alternative perspectives on the particular interactional phenomenon in content and language teaching, such as engaging in playful talk, co-learning, technology-mediated interactions and interactions for promoting student engagement and bringing outside knowledge into the classroom. It encourages us to reconceptualise the EMI classroom as an integrated translanguaging space which entails multiple translanguaging sub-spaces. This can acknowledge students’ funds of knowledge, promote equitable knowledge construction and create new configurations of pedagogical practices (Tai and Li, 2020; 2021a; 2021b; 2021c).

10.4 Contributions to Knowledge: Methodological

This study is the first study which attempts to combine MCA with IPA to understand the teachers’ constructions of different translanguaging sub-spaces in EMI classrooms. MCA offers a detailed analysis of classroom interaction which allows researchers to get at the question of ‘how’ from the participants’ perspectives, that is, how EMI teachers draw on multiple linguistic, multimodal and spatial resources to shape their pedagogical practices and how these practices are treated by the students themselves. MCA requires researchers to adopt Jefferson’s (2004) and Mondada’s (2018) transcription systems to include the sequential and paralinguistic elements of the interaction and also descriptions of embodied conduct. Creating these multimodal transcripts offers a holistic perspective of the classroom interaction. This addresses Block’s (2014) call for attending to multimodality in applied linguistics research. Block emphasises the role of embodiment and multimodality in applied linguistics since they are vital for shaping our understanding of communication and meaning-making processes. Hence, MCA affords researchers in understanding the complexity of classroom talk (Tai and Brandt, 2018). Moreover, MCA is proved as an efficient tool for analysts to document the interactional norms, such as the norm of language alternation, that speakers orient to in interaction. The sequential analysis can allow analysts to identify how
and when the classroom participant’s uses of linguistic, multimodal and spatial resources are appropriate or not in a given context (Bonacina-Pugh, 2012).

The findings have also demonstrated how the combination of MCA with an ethnographic approach can shed light on the complexities of translanguaging practices and the sociocultural factors that affect teachers’ meaning-making resources. It has been argued that MCA insists on revealing the details of talk that a specific aspect of context is treated as relevant by the interlocutors themselves and it has a consequential outcome on how the interaction unfolds (Schegloff, 1987). Such a perspective of context is often argued as being too narrow (e.g. Waring and Hruska, 2011; Waring et al., 2012; Matsumoto, 2018). By triangulating MCA with ethnographic details that are obtained from interview data or fieldnotes, it can strengthen the analysis and offer explanations of particular findings. Translanguaging practices are complex in nature since different sociocultural factors, including the speaker’s personal history, life experience, identity, beliefs, can affect their deployment of meaning-making resources in the process of constructing meanings. The study has shown that triangulating MCA analysis with ethnographic information, particularly video-stimulated-recall-interview data, is helpful for analysts to understand the complexities of EMI teachers’ translanguaging practices.

This study is also one of the few studies which employs the analytic framework of IPA to illuminate the ‘insider’ accounts (Smith et al., 2013) of the teachers’ interpretations of their translanguaging practices in the EMI lessons (Tai and Li, 2020; 2021a; 2021b; 2021c). The findings of the study have illustrated that using IPA allows researchers to take an emic approach in order to explore how the EMI teachers understand and make sense of their translanguaging practices in the classrooms. Combining MCA with IPA resonates with the methodological framework of moment analysis (Li, 2011) which requires researchers to collect video or audio recording of naturally occurring interactions and metalanguaging data. Allowing the EMI teachers to review their teaching practices during video-stimulated-recall-interviews can help researchers to analyse the process of the EMI teachers trying to articulate their perspectives of their own pedagogical practices.

10.5 Pedagogical Implications

The findings of this study have pedagogical implications for EMI education. Throughout the data analysis chapters, I have demonstrated how multiple translanguaging sub-spaces are created and how these sub-spaces afford classroom participants to bring in a range of linguistic and multimodal resources and various kinds of knowledge into the lessons for facilitating understanding and meaning-making processes. It moves away from the typical view to EMI classrooms which
provide limited opportunities for students to interact with the teacher (Tollefson and Tsui, 2014). I have also demonstrated that although EMI is essentially a monolingual language-in-education policy, such a policy is often not abided by teachers and students. Through engaging in translanguaging practices in the EMI classrooms, the classroom participants transform the traditionally teacher-fronted interaction to negotiate a space for voicing their thoughts and create a more dynamic and contingent environment to increase student engagement, facilitate students’ participation and content learning. Practitioners in culturally and linguistically diverse classrooms will benefit from the findings of this study because of the capacity of translanguaging as a way of scaffolding to enable the teacher to fulfil the pedagogical goals specific to their EMI classroom contexts and maximise both content and language learning through meaning-making.

Moreover, the findings draw attention to the importance of raising EMI teachers’ awareness of the pedagogical philosophies of translanguaging to enrich their repertoires for teaching and professional development. The findings provide illustrative examples of EMI teachers’ strategies for orchestrating translanguaging and classroom interaction. Although EMI teachers can draw on translanguaging to create different translanguaging sub-spaces to engage students in participating in the classroom interactions, the findings also reinforce the need for teachers to deploy students’ familiar multilingual and multimodal resources and funds of knowledge strategically in order to scaffold students’ learning and offer opportunities to students to expand on their opinion, rather than simply validating their responses (i.e. chapter 8). This, in turn, can involve students in co-constructing the curriculum knowledge, which can potentially deepen student engagement and involvement. Hence, it would be useful for teachers and teacher trainers to understand the concept of translanguaging and its pedagogical implications and find ways to implement translanguaging pedagogies in ways that are appropriate for their own professional contexts. The results of the study can also be used to stimulate teacher reflection and this can potentially enhance EMI teachers’ confidence in adopting translanguaging practices to improve student’s learning experience.

It is important to note that engaging in translanguaging does not necessitate a fully bi/multilingual EMI teacher. What is needed is the teacher’s willingness in privileging students’ full linguistic, semiotic and sociocultural knowledge and engaging in the joint construction of knowledge with their students. The classroom participants’ acts of orchestrating resources during the process of co-learning is a process of translanguaging where both the teachers and students go beyond the school’s EMI policy and linguistic codes, transcend modalities and make full use of each other’s knowledge for enabling meaning-making and creating a more equitable learning environment for students and teachers (Curry and Cunningham, 2000). For example, a research study by Woodley (2016) demonstrates how a monolingual teacher can teach a linguistically diverse class effectively
where the teacher and students contribute their funds of knowledge to the class during the process of knowledge construction (see section 3.2.1.1 in chapter 3). Hence, even though bi/multilingualism is a valuable resource, it is vital for teachers to develop an ability to create a translanguaging space which encourages plurilingual dispositions, so that when students are encouraged to utilise their full linguistic and multimodal repertoires, students will be less inhibited to translanguage.

Nevertheless, if the goal of using translanguaging in the classroom is to empower the students to utilise all their linguistic and semiotic resources, it is not enough for the EMI teachers to simply offer a translanguaging space for students and develop their language proficiency on their own (Rajendram, 2021). The results of this study demonstrate that while it is important to construct opportunities in EMI lessons for promoting English acquisition (Lo and Macaro, 2012), teachers can consider integrating students’ familiar linguistic, sociocultural and semiotic resources into the learning opportunities. As Lin (2019) and Li (2018) argue, the aim of bi/multilingual education is not to replace students’ multiple resources with school-recognised codes. Rather than resisting students’ agentive use of translanguaging, it is necessary for teachers to acknowledge that these resources constitute a holistic repertoire of the student that is constantly expanding for communication. This requires both teachers and students to develop a critical awareness of the factors that may facilitate or hinder their opportunities for engaging in translanguaging. This includes the historical, ideological, political and social factors that affect their linguistic usage, the official English-only policy that privileges English over other languages, and the unofficial policies both in or outside the classroom that shape their beliefs towards particular languages. Hence, I suggest that the objective of EMI could be expanded to include enhancing one’s communicative repertoire by assisting them to connect their familiar everyday linguistic and cultural knowledge with the target linguistic and cultural knowledge (Li, 2014a). By doing so, it potentially develops the students’ capacity in making use of the best available resources and knowledge for achieving content learning and meaning-making in the classrooms.

It is significant to acknowledge the macro and micro-level of EMI policy which can present a barrier to a translanguaging pedagogy by promoting English usage at the expense of other languages. EMI has raised important concerns regarding the complicated interrelationships between language use and content learning (Lin, 2006; Macaro, 2018). Although the rationale of using L2 as the medium-of-instruction is well-grounded in SLA theories, it is clear that selecting the choice of medium-of-instruction is not simply an educational issue since it depends on the implementation conditions and other sociocultural and political factors (see section 2.2.2 in chapter 2). Selecting a particular named language as the medium-of-instruction can have an impact on
students’ content subject learning, language development and overall school performance. Medium-of-instruction can also serve to produce educational inequality and injustice for minority students. In the case of HK, changing from EMI to CMI for most of the schools in 1997 was challenged by many stakeholders since it is likely to hinder the students’ efforts to enter the global economy and thus upward socio-economic mobility in the future (see chapter 2). However, using EMI can also create another layer of inequality as not all teachers and students are well-prepared to teach and learn the content subjects through English as the L2 which may hinder the students’ learning progress. Therefore, it is important to examine the complex interplay of social, cultural and political contexts and pedagogy and language learning theories in order to better understand the consequences of medium-of-instruction policies on educational opportunities and outcomes.

The major challenge for policymakers and educators is to envision plurality in EMI policy which is more responsive to language equity and educational access (i.e. teaching students through their familiar language) and students’ learning outcomes. Although using EMI is highly favoured by various stakeholders in many parts of the world, educators and policymakers need to seek for an alternative approach that can improve students’ English proficiency without acting on the mother-tongue and replacing local culture. It can be argued that EMI in HK constitutes a violation of the language rights of the Cantonese-speaking students since several studies (e.g. Lo and Lo, 2014) have shown that EMI implies the prioritisation of English language development over the students’ general cognitive development. The question that raises from this is whether the entrenched EMI education violates the students’ language right or adopting CMI denies access to socially prestigious EMI education and therefore the prospect of educational and occupational advancement. As argued by Benson (1997), the CMI policy is consonant with the fundamental language rights of the Cantonese-speaking students. Benson argues that medium-of-instruction issue is not just a choice between L1 or L2-medium but of a fundamental right to mother-tongue education. Hence, when implementing a language policy, one needs to consider the role of mother-tongue education as well as the demand for the L2 in the society.

In this study, I have demonstrated that translanguaging helps to uncover the misconception of the monopoly of English as the norm in EMI classrooms. This prompts the policymakers to recognise translanguaging as an empowering tool for promoting linguistic diversity in the EMI classrooms and maximizing language users’ full linguistic and semiotic resources in knowledge construction. Such a perspective treats the multilinguals’ ability to speak multiple languages and deploy various semiotic and sociocultural resources as an asset instead of a hindrance affecting their learning processes (Li, 2018). The responsibility for implementing pedagogical strategies to meet the needs of multilingual students should not be left to individual EMI teachers. It is necessary to develop
explicit policies at school and provincial levels to support the students’ usage of home languages in the classroom. Therefore, policymakers need to consider how EMI as conforming to monolingual practices contradicts the translanguaging approach to language education. There is a need for policymakers to come up with equitable policies that promote multilingualism as a norm and develop official structures and resources for implementing translanguaging as a pedagogy within the educational system.

One solution to reduce the negative impact of EMI is to adopt a plurilingual model which can offer discursive spaces for multiple languages along with English (e.g. Annamalai, 2004; Sah, 2020) in order to resolve the conflict between empowering students with English and empowering them with their familiar local languages. In the long term, it is necessary for HK to develop a robust and socially responsive bi/multilingual education system which can accommodate the local and the wider Chinese contexts and the actual demand for and interest in English. A bi/multilingual educational approach can take different forms, such as 90:10 ratio model (i.e. a language education model which places a greater proportion of the majority/minority language); a 50:50 model (i.e. a model which emphasises equal amounts of majority and minority language); or a model in between, depending on the students’ and teachers’ abilities (e.g. 80:20, 70:30) (Soltero, 2004). When selecting a single bi/multilingual education model, it is necessary for the government to take into account of the students’ needs, the school ecology and the sociolinguistic realities in the society (Lin, 1996) in order to ensure a balanced growth in content and language acquisition and use of more than one named language.

At the micro-level of the EMI classrooms, teachers can act as policymakers (Menken and Garcia, 2010) which can ‘contest or temper those top-down policy mandates by paying more attention to fluid, multilingual, oral, contextualised practices at the local level’ (Hornberger and Link, 2012: 245). Teachers are advised to be flexible and open to making adjustments to their lessons based on the current linguistic practices of their students. Their pedagogical practices should attempt to create opportunities for students to harness the full affordances of the linguistic, semiotic and spatial repertoires in order to deepen their engagement and enhance their understanding of the content knowledge. Through identifying the different translanguaging sub-spaces that are manifested in the EMI classrooms, it allows teachers to understand the nuanced and distinct features of these sub-spaces. Teachers can also better understand the affordances of each sub-space, thus enabling them to better design pedagogical activities in a more engaging way by building in different translanguaging sub-spaces.
10.6 Limitations and Future Directions for Research

This study has several limitations. First, it must be noted that the findings of this study cannot be generalised to other EMI classroom contexts given the contextualised nature of the study. Since this study adopts a case-study approach, this study is restricted to four EMI teachers’ translanguaging practices and two content subjects (i.e. mathematics and history) from two HK EMI secondary schools. The teacher’s translanguaging practices may differ in other grades, other subject areas or in other EMI schools. Although the findings cannot be generalised to other contexts due to the central role of the specific context under study, what a MCA analysis provides is not empirical but analytical generalisation (Yin, 2009), where each interactional feature is evidence that ‘the machinery for its production is culturally available, involves members’ competencies, and is therefore possible (and probably) reproducible’ (Psathas, 1995: 50). That is, the findings are likely to be generalisable as descriptions of what other EMI teachers can do in other classroom contexts, given the similar array of interactional and linguistic competencies as the students in this study. Moreover, instead of its generalisability, this study aims to reveal the complexity of translanguaging practices and the detailed process of creating various translanguaging sub-spaces in EMI classrooms. Particularly, through triangulating the MCA analysis with video-stimulated-recall-interview data, this study is able to project multiple realities that may occur in translanguaging practices depending on different perspectives available from the teachers.

Second, the data collection period was too short and varied. For example, I have only collected EMI mathematics classroom data in teacher A’s classrooms for two weeks and I have collected EMI history classroom data in teacher B’s classroom for two months (see chapter 4). The study originally aimed to observe history and geography EMI classrooms for over a semester (i.e. four months). However, it was not possible because of the following reasons: first, the social protest in HK discouraged teachers from participating in my study since their teaching practices would be video-recorded. I had difficulty in recruiting participating teachers who were willing to be observed for an extended period of time. Second, the COVID-19 pandemic prevented me to conduct my project from January 2020 to May 2020 due to the school suspension in HK. School teaching was only resumed in June 2020 and also from September 2020 to November 2020. For practical reasons, I had to shorten to data collection period and make comprises with different teachers. Eventually, I managed to video-record forty-one lessons (i.e. 1,530 mins of classroom video data) which is a satisfactory amount of data for a doctoral study. Furthermore, I did not document the teachers’ and students’ social practices during recess or after school since I am only focusing on EMI classroom interactions. In the future, I hope to conduct a longitudinal case study.
by examining the affordances of translanguaging by different teachers in different EMI classrooms and subject areas. This can enrich our understanding of how using translanguaging can lead to positive or negative outcomes on students’ content acquisition and English language development.

Third, as the focus of the study is on the teachers’ use of translanguaging during the classroom interactions, I did not conduct semi-structured or video-stimulated-recall-interviews with students. I relied a lot on the video-stimulated-recall-interviews that were conducted with teachers in order to elicit information about the students’ reactions to the teachers’ translanguaging practices. Nevertheless, I acknowledge the fact that using ethnographic interviews could be a way for me to understand students’ contributions to the classroom talk which could potentially shape the teacher’s translanguaging practices. I did several ethnographic interviews with a number of students during recess period since I was interested in their responses in the classrooms. Future research can conduct video-stimulated-recall-interviews with individual students in order to allow students to make sense of the teachers’ and also their own translanguaging practices. This can potentially yield interesting insights into students’ beliefs about the effectiveness of the EMI teachers’ translanguaging practices in achieving the specific pedagogical goals.

Fourthly, this study does not offer any quantitative data that shows the correlation between the teachers’ use of translanguaging in the EMI classrooms and the outcome of the students’ content subject performance. In order to establish the efficacy of a translanguaging pedagogy for content and language learning purposes, future research can also include students’ assessment data in order to closely examine the link between the teachers’ translanguaging practices and the students’ development of content and language acquisition. The quantitative evidence can potentially complement and triangulate the MCA analysis. This could result in valuable insights regarding how the affordances of the EMI teachers’ translanguaging practices are transferable to the student’s academic learning outcomes.

Another issue that this thesis has is that the thesis restricts the amount of data excerpts analysed. This may give rise to the issue of the representativeness of the analysed extracts in this thesis. For reporting purposes, I can only select the representative extracts instead of presenting all the transcribed instances of EMI teachers’ translanguaging practices. Due to the nature of micro-analysis of classroom interactions which requires researchers to offer a detailed examination of sequences of interaction. Hence, such a method imposes a limit on the amount of data that are manageable to a single researcher in order to prevent compromising the quality of the micro-analysis. In order to address this concern, the following aspects are considered:
1) the presented extracts being directly or indirectly comparable to other extracts (ten Have, 1990);
2) the deviant cases being considered (Ford, 2012).

As ten Have (1990) argues, regardless of a single-case (i.e. one particular extract) analysis or collections of instances (similar or different), MCA analysis ‘is always comparative, either directly or indirectly’ (ten Have, 1990: 34). That is, the analysed extracts are interrelated to illustrate how the interactional features recurrently occur (by relevantly similar instances) or how the features are employed in dissimilar ways (by deviant instances). Additionally, based on my classroom observation, I select and transcribe the ‘critical moments’ or ‘a point of significant, an instant when things change’ (Pennycook, 2004: 330) particularly related to the teachers’ translanguaging practices. In this regard, this study focuses on the quality of the MCA transcriptions and analysis of ‘critical’ moment of teachers’ translanguaging phenomena, instead of prioritising the amount of data transcription and analysis.

Lastly, although the findings have illustrated that the EMI teachers have drawn on various linguistic, multimodal, technological and spatial resources to support students’ content learning and deepen students’ engagement, the findings have framed teachers’ translanguaging practices in a positive light. It is possible that the teachers’ translanguaging practices may not be always understood and accepted by all students within the classrooms (e.g. the teacher’s use of the iPad’s camera functions for creating playful talk in chapter 7). Therefore, it is worth investigating how translanguaging can exclude those who find themselves unable to participate in the classroom interaction for different reasons.

Future research can also attempt to focus on the role of digitally-mediated interactions in constructing new translanguaging sub-spaces for expanding teachers’ and students’ translanguaging repertoire. Chapter 7 explores the affordances of the iPad for constructing a technology-mediated space in the EMI mathematics classroom. More studies can be done to study the affordance of different kinds of technological devices for allowing teachers and students to deploy translanguaging in creative ways through multiple modes of representations. This includes the linguistic (e.g. websites), visual (e.g. emojis), audio (e.g. music) and video modes (e.g. short clips).
10.7 Concluding Remarks

In EMI classrooms where some students’ English proficiency levels do not reach the threshold level, they are often prevented from mastering the academic knowledge which is often abstract and cognitively more difficult for students. Consequently, these students may lag behind in academic development in comparison to other students learning content subjects through L1 (Lo, 2015). Although there is a need for constructing opportunities for target language use in EMI lessons (Turnbull et al., 2011), this thesis argues that it is equally important to encourage fluid language practices and allow students to draw on their full linguistic and semiotic repertoires in EMI classrooms in order to alleviate the language barriers to learning academic concepts and counteract students’ linguistic insecurity in the classroom. Translanguaging refocuses the attention on knowledge construction, rather than language, so that students, with ‘weaker’ language skills in one of the languages, will not be disadvantaged by not being able to understand the English being employed by the teacher to explain abstract concepts (Li, 2018).

In order to create an equitable learning environment for deepening students’ engagement and facilitating content learning and the learning of the subject-specific language, EMI teachers’ translanguaging practices can be used strategically and spontaneously to fulfill the teachers’ pedagogical goals during particular moments of the lessons. However, it is possible that the EMI teachers’ translanguaging may not be an effective strategy to achieve pedagogical goals at particular moments in the EMI lessons as this will depend on the local language choice norms and the pedagogical rationale behind those norms. Hence, the findings of this study provide empirical evidence which allows teachers and policymakers to understand how EMI teachers use translanguaging practices in the classrooms to create translanguaging sub-spaces with the ultimate goal of deepening student engagement and involvement. This thesis advances our understanding of the EMI classroom as an integrated translanguaging space (Tai and Li, 2020) and it entails multiple translanguaging sub-spaces which afford EMI teachers and students to bring the relevant multilingual and multimodal resources and sociocultural knowledge in achieving a range of pedagogical goals. Notably, EMI teachers’ pedagogical knowledge and skills (e.g. EMI pedagogy, perceptions about translanguaging, knowledge of students’ academic and linguistic backgrounds, understanding of L2 learning, ability to identify classroom language demands, and scaffolding strategies) and their orientations (e.g. sociolinguistic consciousness, value for linguistic diversity and advocacy) are crucial for shaping teachers’ pedagogical practices in employing translanguaging to respond to diverse students’ learning needs and maximise student involvement in the EMI classrooms.
Teachers and policymakers need to understand the value of translanguaging as a potential resource for mobilising resources beyond the conventional linguistic realm which can allow teachers to enact inclusive practices into EMI classrooms for promoting students’ engagement and inclusion. Teacher education and in-service teacher training programmes should attempt to raise EMI teachers’ and teacher trainers’ awareness of the concept of translanguaging and its pedagogical philosophies and encourage teachers to create new ways of teaching in their own professional contexts. Through engaging in critical reflections, teachers can implement translanguaging pedagogy into their lessons that build on students’ full linguistic, multimodal and spatial repertoires while promoting content and language acquisition. This study can potentially encourage future researchers to adopt translanguaging as an analytical perspective for capturing the totality of knowledge of the multilinguals in a holistic way. This can be done through taking into account of all the linguistic and multimodal resources and sociocultural knowledge that the teachers and students know for constructing new meanings. It is also hoped that this study can inspire teachers in culturally and linguistically diverse classrooms to implement translanguaging as a pedagogical resource for meaning-making, thereby constructing more inclusive, transformative and engaging translanguaging sub-spaces in the EMI classrooms.


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Appendix A: Multimodal Conversation Analysis Transcription Conventions (adapted from Jefferson, 2004 and Mondada, 2018)

**Sequential and Timing Elements of the Interaction**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[</td>
<td>Beginning point of simultaneous speaking (of two or more people)</td>
</tr>
<tr>
<td>]</td>
<td>End point of simultaneous speaking</td>
</tr>
<tr>
<td>=</td>
<td>Talk by two speakers which is contiguous (i.e. not overlapping, but with no hearable pause in between) OR continuation of the same turn by the same speaker even though the turn is separated in the transcript</td>
</tr>
<tr>
<td>(0.2)</td>
<td>The time (in tenths of a second) between utterances</td>
</tr>
<tr>
<td>(.)</td>
<td>A micro-pause (one tenth of a second or less)</td>
</tr>
</tbody>
</table>

**Paralinguistic Elements of Interaction**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>:word:</td>
<td>Sound extension of a word (more colons: longer stretches)</td>
</tr>
<tr>
<td>word.</td>
<td>Fall in tone (not necessarily the end of a sentence)</td>
</tr>
<tr>
<td>word,</td>
<td>Continuing intonation (not necessarily between clauses)</td>
</tr>
<tr>
<td>wor-</td>
<td>An abrupt stop in articulation</td>
</tr>
<tr>
<td>word?</td>
<td>Rising inflection (not necessarily a question)</td>
</tr>
<tr>
<td>word</td>
<td>(underline) Emphasised word, part of word or sound</td>
</tr>
<tr>
<td>word↑</td>
<td>Rising intonation</td>
</tr>
<tr>
<td>word↓</td>
<td>Falling intonation</td>
</tr>
<tr>
<td>°word°</td>
<td>Talk that is quieter than surrounding talk</td>
</tr>
<tr>
<td>hh</td>
<td>Audible out-breaths</td>
</tr>
<tr>
<td>.hh</td>
<td>Audible in-breaths</td>
</tr>
<tr>
<td>w(hh)ord</td>
<td>Laughter within a word</td>
</tr>
<tr>
<td>&gt;word&lt;</td>
<td>Talk that is spoken faster than surrounding talk</td>
</tr>
<tr>
<td>為什麼啊</td>
<td>Talk that is spoken faster than surrounding talk (Chinese words)</td>
</tr>
<tr>
<td>&lt;word&gt;</td>
<td>Talk that is spoken slower than surrounding talk</td>
</tr>
<tr>
<td>$word$</td>
<td>Talk uttered in a ‘smile voice’</td>
</tr>
</tbody>
</table>
Other Conventions

(word)  Approximations of what is heard
((comment))  Analyst’s notes
#  Indicating the exact locations of the figures in the transcripts
+  Marks the onset of a non-verbal action (e.g. shift of gaze, pointing)
XX  Inaudible utterances
-->  The action described continues across subsequent lines
-->+  The action described ends
Appendix B: Sample Questions for Video-Stimulated-Recall-Interviews

General Questions:
1. Do you remember this moment of classroom interaction?
2. What were you trying to do at this time?
3. How were you feeling at this moment?
4. What can you see was happening during this video?

Examples of Specific Questions related to Student Engagement:
1. Have you planned this learning experience for everyone?
2. Were you having everyone in mind when doing this?
Appendix C: Ethical Approval from UCL Institute of Education (Main Study)

Ethics approval confirmation

Flag for follow up.

Sin, Pui
Fri 01/11/2019 15:39
To: Tai, Kevin Wai Hin

Dear Kevin Wai Hin

Thank you for sending in your ethics application.

I am writing to confirm that ethical approval has been granted by the UCL Institute of Education for your doctoral research project titled:

Translanguaging in Hong Kong English Medium Instruction Classrooms: A Linguistic Ethnographic Study of Classroom Interaction and Teachers’ Reflection

This ethical approval has been granted from 1st November 2019 and the document you provided has been saved to your student file.

Please can you upload the approved ethics form to your UCL Research Student Log https://researchlog.grad.ucl.ac.uk/.

I wish you all the best for your forthcoming research.

Best wishes,

Pui

Ms Pui Sin
Programme Administrator | Academic Programmes Office | Centre for Doctoral Education | UCL Institute of Education | 20 Bedford Way London WC1H 0AL
Phone: +44 (0) 20 7911 5544 | Email: p.sin@ucl.ac.uk | Web: https://blogs.ucl.ac.uk/cde/

Please note my working days are normally Wednesday - Friday.
Doctoral Student Ethics Application Form

Anyone conducting research under the auspices of the Institute of Education (staff, students or visitors) where the research involves human participants or the use of data collected from human participants, is required to gain ethical approval before starting. This includes preliminary and pilot studies. Please answer all relevant questions in simple terms that can be understood by a lay person and note that your form may be returned if incomplete.

Registering your study with the UCL Data Protection Officer as part of the UCL Research Ethics Review Process

If you are proposing to collect personal data i.e. data from which a living individual can be identified you must be registered with the UCL Data Protection Office before you submit your ethics application for review. To do this, email the complete ethics form to data-protection@ucl.ac.uk. Once your registration number is received, add it to the form* and submit it to your supervisor for approval. If the Data Protection Office advises you to make changes to the way in which you propose to collect and store the data this should be reflected in your ethics application form.

Please note that the completion of the UCL GDPR online training is mandatory for all PhD students. The link is here: https://www.ucl.ac.uk/legal-services/ucl-general-data-protection-regulation-gdpr/gdpr-online-training

<table>
<thead>
<tr>
<th>Section 1  Project details</th>
<th>Translanguaging in Hong Kong English Medium Instruction Classrooms: A Linguistic Ethnographic Study of Classroom Interaction and Teachers’ Reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Project title</td>
<td>Translanguaging in Hong Kong English Medium Instruction Classrooms: A Linguistic Ethnographic Study of Classroom Interaction and Teachers’ Reflection</td>
</tr>
<tr>
<td>b.</td>
<td>Student name and ID number (e.g. ABC12345678)</td>
</tr>
</tbody>
</table>
| c. | **UCL Data Protection Registration Number** | Z6364106/2019/10/12 7  
Date issued: 21\textsuperscript{st} of October 2019 |
| d. | Supervisor/Personal Tutor | Professor Li Wei |
| d. | Department | Department of Culture, Communication and Media, UCL Institute of Education |
| e. | Course category (Tick one) |   | PhD \( \square \)  
DEdPsy | X  
EdD |
| f. | If applicable, state who the funder is and if funding has been confirmed. | Economic and Social Research Council (ESRC) |
| g. | Intended research start date | 3\textsuperscript{rd} of February 2020 |
| h. | Intended research end date | 30\textsuperscript{th} of June 2020 |
| i. | Country fieldwork will be conducted in | Hong Kong |
| j. | Has this project been considered by another (external) Research Ethics Committee? |   | Yes \( \square \)  
No \( \square \)  
\( \Rightarrow \) go to Section 2 |
| j. | External Committee Name: | Date of Approval: |

*If yes:*  
- Submit a copy of the approval letter with this application.
Proceed to Section 10 Attachments.

Note: Ensure that you check the guidelines carefully as research with some participants will require ethical approval from a different ethics committee such as the National Research Ethics Service (NRES) or Social Care Research Ethics Committee (SCREC). In addition, if your research is based in another institution then you may be required to apply to their research ethics committee.

Section 2 Research methods summary (tick all that apply)

|       | Interviews | X | Focus groups | □ | Questionnaires | □ | Action research | □ | Observation | X | Literature review | X | Controlled trial/other intervention study | □ | Use of personal records | X | Systematic review ⇒ *if only method used go to Section 5.* | □ | Secondary data analysis ⇒ *if secondary analysis used go to Section 6.* | □ | Advisory/consultation/collaborative groups | □ | Other, give details: |

Please provide an overview of the project, focusing on your methodology. This should include some or all of the following: purpose of the research, aims, main research questions, research design, participants, sampling, data collection (including justifications for methods chosen and description of topics/questions to be asked), reporting and dissemination. Please focus on your methodology; the theory, policy, or literary background of your work can be provided in an attached document (i.e. a full research proposal or case for support document). Minimum 150 words required.

This study aims to study the nature of translanguaging practices in Hong Kong secondary English-Medium-Instruction geography and history classrooms. This study will conduct a 4-month linguistic ethnographic investigation in Hong Kong EMI secondary geography and history classrooms. Methodologically, this study will integrate Multimodal Conversation Analysis (MCA) with Interpretative Phenomenological Analysis. MCA is different from conventional Conversation Analysis since MCA focuses on the multimodal dimension of talk-in-interaction. This unique combination involves observing participant’s pedagogical practices over time as well as understanding the teachers’ reflections on classroom practices. This study will explore how translanguaging is employed to achieve the teachers’ pedagogical goals at particular moments in the lessons and how teachers’ understandings of their translanguaging practices are articulated through interviews. This requires me to video-record the classroom practices, conduct semi-structured interviews and stimulated recall interviews with participating teachers, conduct ethnographic interviews (i.e. informal conversations) with teachers and students,
Section 3 Research Participants (tick all that apply)

<table>
<thead>
<tr>
<th></th>
<th>Early years/pre-school</th>
<th>Ages 5-11</th>
<th></th>
<th>Adults please specify below</th>
<th></th>
<th>Unknown – specify below</th>
<th></th>
<th>No participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Young people aged 17-18

NB: Ensure that you check the guidelines carefully as research with some participants will require ethical approval from a different ethics committee such as the National Research Ethics Service (NRES) or Social Care Research Ethics Committee (SCREC).

Section 4 Security-sensitive material (only complete if applicable)

Security sensitive research includes: commissioned by the military; commissioned under an EU security call; involves the acquisition of security clearances; concerns terrorist or extreme groups.

<table>
<thead>
<tr>
<th></th>
<th>Will your project consider or encounter security-sensitive material?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Will your project consider or encounter security-sensitive material?</td>
<td>Yes *</td>
<td>No X</td>
</tr>
<tr>
<td></td>
<td>Will you be visiting websites associated with extreme or terrorist organisations?</td>
<td>Yes *</td>
<td>No X</td>
</tr>
<tr>
<td>b.</td>
<td>Will you be storing or transmitting any materials that could be interpreted as promoting or endorsing terrorist acts?</td>
<td>Yes *</td>
<td>No X</td>
</tr>
</tbody>
</table>

* Give further details in Section 8 Ethical Issues
## Section 5 Systematic reviews of research (only complete if applicable)

<table>
<thead>
<tr>
<th></th>
<th>Will you be collecting any new data from participants?</th>
<th>Yes</th>
<th>*</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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<table>
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<tr>
<th></th>
<th>Will you be analysing any secondary data?</th>
<th>Yes</th>
<th>*</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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* Give further details in **Section 8 Ethical Issues**

*If your methods do not involve engagement with participants (e.g. systematic review, literature review) and if you have answered No to both questions, please go to **Section 8 Attachments**.*
### Section 6 Secondary data analysis  (only complete if applicable)

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<tbody>
<tr>
<td>a.</td>
<td>Name of dataset/s</td>
</tr>
<tr>
<td>b.</td>
<td>Owner of dataset/s</td>
</tr>
<tr>
<td>c.</td>
<td>Are the data in the public domain?</td>
</tr>
<tr>
<td></td>
<td>If no, do you have the owner’s permission/license?</td>
</tr>
<tr>
<td>d.</td>
<td>Are the data special category personal data (i.e. personal data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, or trade union membership, and the processing of genetic data, biometric data for the purpose of uniquely identifying a natural person, data concerning health or data concerning a natural person’s sex life or sexual orientation)?</td>
</tr>
<tr>
<td>e.</td>
<td>Will you be conducting analysis within the remit it was originally collected for?</td>
</tr>
<tr>
<td>f.</td>
<td>If no, was consent gained from participants for subsequent/future analysis?</td>
</tr>
<tr>
<td>g.</td>
<td>If no, was data collected prior to ethics approval process?</td>
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</table>

* Give further details in Section 8 Ethical Issues

If secondary analysis is only method used and no answers with asterisks are ticked, go to Section 9 Attachments.

### Section 7 Data Storage and Security

Please ensure that you include all hard and electronic data when completing this section.

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<tbody>
<tr>
<td>a.</td>
<td><strong>Data subjects</strong> - Who will the data be collected from?</td>
</tr>
<tr>
<td></td>
<td>Classroom interaction data will be video-recorded in the classrooms. Teachers will be interviewed, and the semi-structured interviews and stimulated recall interviews will be audio-recorded. Ethnographic interviews (i.e. informal conversations) will be carried out with the teachers and students and it will be audio-recorded. Teachers and students will be the main participants of my research project.</td>
</tr>
<tr>
<td>b.</td>
<td><strong>What data will be collected?</strong> Please provide details of the type of personal data to be collected</td>
</tr>
</tbody>
</table>
This study requires me to video-record the classroom practices, conduct semi-structured interviews and stimulated recall interviews with participating teachers, conduct ethnographic interviews (i.e. informal conversations) with teachers and students, write field notes when observing the classrooms and take photos of the classroom environment in order to understand the linguistic landscape of the classroom.

c. **Is the data anonymised?**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>X</th>
<th>No*</th>
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Do you plan to anonymise the data?

<table>
<thead>
<tr>
<th></th>
<th>Yes*</th>
<th>X</th>
<th>No</th>
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Do you plan to use individual level data?

<table>
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<tr>
<th></th>
<th>Yes*</th>
<th>X</th>
<th>No</th>
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Do you plan to pseudonymise the data?

<table>
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<tr>
<th></th>
<th>Yes*</th>
<th>X</th>
<th>No</th>
<th></th>
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* Give further details in **Section 8 Ethical Issues**

e. i. **Disclosure** – Who will the results of your project be disclosed to? The findings will be published in academic publications and conferences.

ii. **Disclosure** – Will personal data be disclosed as part of your project? No it will not.

f. **Data storage** – Please provide details on how and where the data will be stored i.e. UCL network, encrypted USB stick**, encrypted laptop** etc.

Any data and personal information collected will be strictly confidential and analysed anonymously. Video-recordings and interview data will be securely stored through UCL network and encrypted USB stick (256 bit encryption) and the PhD student will use the video/audio recordings and the transcripts only for training and research purposes.
** Advanced Encryption Standard 256 bit encryption which has been made a security standard within the NHS

### g.

**Data Safe Haven (Identifiable Data Handling Solution)** – Will the personal identifiable data collected and processed as part of this research be stored in the UCL Data Safe Haven (mainly used by SLMS divisions, institutes and departments)?

- [ ] Yes
- [x] No

How long will the data and records be kept for and in what format? **The data will be stored securely by the researcher via the encrypted USB stick and it will be stored for at least 5 years.**

Will personal data be processed or be sent outside the European Economic Area? (If yes, please confirm that there are adequate levels of protections in compliance with GDPR and state what these arrangements are) **No**

Will data be archived for use by other researchers? (If yes, please provide details.) **No.**

### h.

If personal data is used as part of your project, describe what measures you have in place to ensure that the data is only used for the research purpose e.g. pseudonymisation and short retention period of data’

Anonymized screen shots will be used in my research study to make sure that the images of the students are not visible and identifiable. Moreover, I will also explain to the students and their parents that participation in this research study is voluntary and this would not affect their education in any way. Students and parents will be fully informed by information letter and they can choose to opt out at any stage. Students who have opted out will not be captured on film at all and they will seat somewhere which avoids accidental capture while ensuring that they have their normal educational experience.

With the teachers’, students’ and parents’ permissions, one or more video cameras will be set up in advance, so as to record the classroom interactions. The video camera will be used only to record the actions of the teacher and the students. The students will not have to do anything that they would not normally do. Names uttered in the video recording will be digitally obscured and the original recording destroyed. Teacher or students may feel uncomfortable when they are being recorded in the classroom/interviews. I will explain the rationale of my research projects to the teacher, students and their parents in person and explicitly state that only my supervisor and I will be allowed to review the video data.
**Section 8 Ethical issues**

Please state clearly the ethical issues which may arise in the course of this research and how will they be addressed.

All issues that may apply should be addressed. Some examples are given below, further information can be found in the guidelines. *Minimum 150 words required.*

- Methods
- Sampling
- Recruitment
- Gatekeepers
- Informed consent
- Potentially vulnerable participants
- Safeguarding/child protection
- Sensitive topics
- International research
- Risks to participants and/or researchers
- Confidentiality/Anonymity
- Disclosures/limits to confidentiality
- Data storage and security both during and after the research (including transfer, sharing, encryption, protection)
- Reporting
- Dissemination and use of findings

The students in the Hong Kong English Medium Instruction secondary classrooms are under 18 and therefore it is necessary to obtain their parent/guardians’ consent.

With the teachers’, students’ and parents’ permissions, one or more video cameras will be set up in advance, so as to record the classroom interactions. The video camera will be used only to record the actions of the teacher and the students. The students will not have to do anything that they would not normally do. Names uttered in the video recording will be digitally obscured and the original recording destroyed. Anonymized screen shots will be used in my research study to make sure that the images of the students are not visible and identifiable.

Teacher or students may feel uncomfortable when they are being recorded in the classroom/interviews. I will explain the rationale of my research projects to the teacher, students and their parents in person and explicitly state that only my supervisor and I will be allowed to review the video data.

For my study, the school principal will act as gatekeeper in my research. The school principal will sign the consent form which allows me to conduct the study at the secondary school. The teachers and students will receive a notification letters...
regarding the study. Both the teachers and students will be asked to sign the consent forms. Parents will also be provided a notification letter about the study and they will also be asked to sign the consent forms.

Please confirm that the processing of the data is not likely to cause substantial damage or distress to an individual Yes  

Section 9 Attachments Please attach the following items to this form, or explain if not attached

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<table>
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<tbody>
<tr>
<td>a.</td>
<td>Information sheets, consent forms and other materials to be used to inform potential participants about the research <em>(List attachments below)</em></td>
<td>Yes X</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td>If applicable/appropriate:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>Approval letter from external Research Ethics Committee</td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>The proposal (‘case for support’) for the project</td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td>Full risk assessment</td>
<td></td>
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</table>

Section 10 Declaration

I confirm that to the best of my knowledge the information in this form is correct and that this is a full description of the ethical issues that may arise in the course of this project.

I have discussed the ethical issues relating to my research with my supervisor. Yes X

I have attended the appropriate ethics training provided by my course. Yes X

I confirm that to the best of my knowledge:

The above information is correct and that this is a full description of the ethics issues that may arise in the course of this project.
Please submit your completed ethics forms to your supervisor for review.

**Departmental use**

If a project raises particularly challenging ethics issues, or a more detailed review would be appropriate, the supervisor **must** refer the application to the Research Development Administrator (via ioe.researchethics@ucl.ac.uk so that it can be submitted to the IOE Research Ethics Committee for consideration. A departmental research ethics coordinator or representative can advise you, either to support your review process, or help decide whether an application should be referred to the REC. If unsure please refer to the guidelines explaining when to refer the ethics application to the IOE Research Ethics Committee, posted on the committee’s website.

<table>
<thead>
<tr>
<th>Name</th>
<th>Kevin Wai Hin Tai</th>
</tr>
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<tbody>
<tr>
<td>Date</td>
<td>1st of October 2019</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Student name</th>
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<tr>
<td>Student department</td>
<td></td>
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<tr>
<td>Course</td>
<td></td>
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<tr>
<td>Project title</td>
<td></td>
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**Reviewer 1**

<table>
<thead>
<tr>
<th>Supervisor/first reviewer name</th>
<th>Li Wei</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you foresee any ethical difficulties with this research?</td>
<td>No</td>
</tr>
<tr>
<td>Supervisor/first reviewer signature</td>
<td>[Redacted]</td>
</tr>
<tr>
<td>Date</td>
<td>21st October 2019</td>
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</tbody>
</table>

**Reviewer 2**

<table>
<thead>
<tr>
<th>Second reviewer name</th>
<th>John O'Regan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you foresee any ethical difficulties with this research?</td>
<td>I am satisfied that the researcher taken into consideration all the ethical requirements for this research.</td>
</tr>
<tr>
<td>Supervisor/second reviewer signature</td>
<td></td>
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<tr>
<td>-----------------------------------</td>
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</tr>
<tr>
<td>Date</td>
<td>28.10.2019</td>
</tr>
<tr>
<td><strong>Decision on behalf of reviews</strong></td>
<td></td>
</tr>
<tr>
<td>Decision</td>
<td>Approved</td>
</tr>
<tr>
<td></td>
<td>Approved subject to the following additional measures</td>
</tr>
<tr>
<td></td>
<td>Not approved for the reasons given below</td>
</tr>
<tr>
<td></td>
<td>Referred to REC for review</td>
</tr>
<tr>
<td>Points to be noted by other reviewers and in report to REC</td>
<td></td>
</tr>
<tr>
<td>Comments from reviewers for the applicant</td>
<td></td>
</tr>
</tbody>
</table>

*Once it is approved by both reviewers, students should submit their ethics application form to the Centre for Doctoral Education team: IOE.CDE@ucl.ac.uk.*
Appendix D: Ethical Approval from the Faculty of Education, University of Cambridge (Pilot Study)

The Faculty's Three Stages of Ethical Clearance

**Stage 1** involves you in completion of this Ethics Review Checklist. This is the first stage of three. It will help you (and others) decide to what extent you need to become involved in the second and third stages. When you have completed it you (and the Faculty) will be in a position to make this judgement. Approval by an independent ‘knowledgeable person of standing’ is required in all cases. Further details are provided in Section C.

**Stage 2** will involve you in discussing any ethical dimensions of your research in some depth with another ‘knowledgeable person of standing’; this is a very likely outcome of completing the checklist. Further details are provided in Section C.

**Stage 3** will involve you in obtaining formal ‘ethical clearance’ through the Faculty of Education’s procedures; some projects will need to proceed to this stage. Further details are in Section C.

---

**Section A: Details of the Project**

**Project Title:** Classroom Interaction and Teachers' Reflections on the Functions of Translanguaging in Hong Kong Secondary English Medium Instruction Classrooms: A Pilot Study

**Name of Researcher(s):** Kevin Wai Hin Tai

Position in Faculty: Member of staff / Undergraduate student / PGCE student / Masters student / **Doctoral student** / Other research student

Email address: wht28@cam.ac.uk

Usual contact address: Hughes Hall, Wollaston Rd, Cambridge CB1 2EW, UK

Phone number: Xxxxxxxxxxxxxx

Students Only
Course of study: PhD in Education

Supervisor’s name: Dr Karen Forbes

Supervisor’s email: kf289@cam.ac.uk

Supervisor’s contact address: Faculty of Education, 184 Hills Road, Cambridge, CB2 8PQ, UK

Outline of (empirical/non-empirical) methods (staff and students)

Is a project summary or funding proposal attached which details the proposed methods?  
YES/NO

If NO, please add a project methods summary paragraph here:

This pilot study aims to study the nature of translanguaging practices in Hong Kong secondary English-Medium-Instruction mathematics classrooms. This study combines Conversation Analysis with ethnographic approach to explore: 1) how translanguaging is employed by teachers to achieve the pedagogical goals of the classroom interaction, and 2) how teachers’ understandings of their translanguaging practices are discursively articulated. This requires me to video-record the classroom practices, conduct semi-structured interviews with participating teachers, write field notes when observing the classrooms and take photos of the classroom environment in order to understand the linguistic landscape of the classroom.

Changes to design

Do you understand that:

a) any substantive change in your research plans that would change the details appended will require you to lodge a revised summary of methods?  
YES/NO

b) any substantive change in your research plans that would change your answers to any of the questions on this form will require you to submit a revised form to the knowledgeable person of standing for approval of the revised plans?  
YES/NO
Section B: Checklist

Most of the questions on this checklist deliberately offer you just two answers (‘yes’ or ‘no’). You will probably find that you can answer many of the questions unequivocally one way or the other. However, sometimes you may wish there was an ‘it depends’ response category. If you find yourself in this position, please give the answer which suggests that, at this preliminary stage, there might be an ethical issue requiring more discussion at Stage 2, and explain the issue very briefly underneath.

Code of Practice relating to Educational Research

1a. Have you read the Ethical Guidelines for Educational Research (2018) of the British Educational Research Association (BERA)? (if you have not yet read them, the latest version is available at http://bit.ly/BERAethics2018)

1b. Is this Code relevant to the conduct of your research?  

YES/NO

If you have answered ‘no’, please briefly explain why:

1c. Do you agree to subscribe to the Code in carrying out your own research?  

YES/NO

2. Are there any aspects of your proposed research which, in the context of BERA’s Code of Practice, might give rise to concern amongst other educational researchers?  

YES/NO

If you have answered ‘yes’, please briefly list possible causes for concern below:

a. The students in the Hong Kong English Medium Instruction secondary classrooms are under 18 and therefore it is necessary to obtain their parent/guardians’ consent.

b. With the teacher’s, student’s and parent’s permissions, one or more video cameras will be set up in advance, so as to record the classroom interactions. The video camera will be used only to record the
actions of the teacher and the students. The students will not have to do anything that they would not
normally do. Names uttered in the video recording will be digitally obscured and the original recording
destroyed. Anonymized screen shots will be used in my research study to make sure that the images of
the students are not visible and identifiable.

c. Teacher or students may feel uncomfortable when they are being recorded in the classroom/interviews.
I will explain the rationale of my research projects to the teacher, students and their parents in person
and explicitly state that only my supervisor and I will be allowed to review the video data.

3a. Will you be analysing an existing data set that has already been collected by someone else
(i.e. secondary data analysis)?

YES/NO

b. If you answered YES: can you confirm that the data you will be using are either

- already available in the public domain for anyone to analyse;
or
- you have been given permission by the owner of the data set to undertake your own analysis and report
the results

YES/NO

4. Will you be collecting your own research data for the study (through such techniques as interviewing
people, observing situations, issuing questionnaires etc.)

YES/NO

If you have answered NO to question 4, you may proceed to Section C and need not answer any further
questions in this section.

Obtaining ‘Informed Consent’

5. Are you familiar with the concept of ‘informed consent’? (if you are not familiar with this
concept you should first consult the following source: page 9 of the BERA guidelines above).

YES/NO

1 This permission should only be given if the owner of the data can make it available for secondary analysis on
the basis of the informed consent they obtained from their original participants.
6. Does your research involve securing participation from children, young people or adults where the concept of ‘informed consent’ might apply?  

YES/NO

Permission is likely to be needed to report any information about people or institutions that is not in the public domain, and which you have been able to obtain due to your privileged access to the research site(s) in whatever capacity.²

If you have answered ‘yes’ to Question 6 above, please answer the following questions.

7a. Do you believe that you are adopting suitable safeguards with respect to obtaining ‘informed consent’ from participants in your research in line with the Code of Practice?  

YES/NO

7b. Will all the information about individuals and institutions be treated on an ‘in confidence’ basis at all stages of your research including writing up and publication?  

YES/NO

7c.
Will all the information collected about the institution(s) where research is based be presented in ways that guarantee the institution(s) cannot be identified from information provided in the report?  

YES/NO

Note: in a thesis written by a researcher about a research context where they have a publicly acknowledged role, it is difficult to disguise the identify of the institution whilst also providing the expected detail of the researcher's relationship with the research context.³

² Professional work (such as teaching) can involve the collection of evidence to better understand problems/issues and to evaluate innovative practice - leaving practitioners with the question of when these activities become formal research requiring informed consent. This comment is meant to highlight how the collection of data for public reporting beyond the institution (e.g. in a thesis) should be considered as a key criterion for deciding when informed consent is required.

³ At present the implicit assumption is that anonymity is always desirable*, and is always achievable. In many studies these assumptions are sound. However, a practitioner (e.g. teacher) reporting research into their own practice/institution in a thesis would normally need to be explicit about their professional relationship to the research context to give an authentic account of their research. As the staff lists of many educational institutions are in the public domain and often readily found by a web search, a thesis by a named member of staff allows the institution to be readily identified from the name of the thesis author. Given that an institution can readily be identified, this also has consequences for the degree of anonymity that can be promised to participants - for example those with named roles such as Head of Year 11, Student Voice Coordinator, Head Prefect, etc, or those identifiable from detailed reported characteristics.
If not, has the appropriate responsible person given approval for the research on the understanding that the identity of the institution cannot be protected in the report of the research.  

YES/NO

Will all the information collected about individuals be presented in ways that guarantee their anonymity?

Note: a person with a named role, or having a specific set of reported characteristics that is unique in the research context, cannot be assured of anonymity when the identity of the research site cannot be protected.  

YES/NO

If not, have these issues been explained to the relevant participants (and appropriate gatekeepers in the case of children or other vulnerable participants).  

YES/NO

7d. Will your participants be informed before the study that they may withdraw consent during the research if, for whatever reason, they felt this to be necessary?  

YES/NO

The 2018 BERA Ethical Guidelines (para. 21) expect that the same ethical principles will be applied to research undertaken in any setting, including overseas, where cultural traditions may render asking participants or parents/guardians to sign written consent forms inappropriate. Age of participants or linguistic barriers may also be constraining in some settings. “Careful negotiation, adaptation and sensitivity” will be required in such circumstances.

7e. If it is more appropriate to obtain consent in oral or graphical form rather than written form, how will this be negotiated and evidenced (e.g. will an audio recording be made)?

For my study, the school principal will sign the consent form which allows me to conduct the study at the secondary school. The teachers and students will receive a notification letters regarding the study. Both the teachers and students will be asked to sign the consent forms. Parents will also be provided a notification letter about the study and they will also be asked to sign the consent forms.

8. The Involvement of Adults in the Research

*Some institutions or participants may welcome being acknowledged by name in a thesis, and their views should be taken into account and balanced against other considerations.*
8a. Will your research involve adults?  
YES/NO

If you have answered ‘yes’ to Question 8a above, please answer the following questions; otherwise please proceed to Question 9.

8b. Will these adults be provided with sufficient information prior to agreeing to participate in your research to enable them to exercise ‘informed consent’?  
YES/NO

8c. Will the adults involved in your research be in a position to give ‘informed consent’ themselves with respect to their participation?  
YES/NO

8d. Will these adults be able to opt out of your research in its entirety if they wish to do so by, for example, declining to be interviewed or refusing to answer a questionnaire?  
YES/NO

8e. Will these adults be able to opt out of parts of your research by, for example, declining to participate in certain activities or answer particular questions?  
YES/NO

9. The Involvement of Children, Young People and other potentially Vulnerable Persons in the Research

9a. Will your research involve children, young people or other potentially vulnerable persons (such as those with learning disabilities or your own students).  
YES/NO

If you have answered ‘yes’ to Question 9a above, please answer the following questions; otherwise move to Question 10.

In educational and social research ‘informed consent’ regarding access is often given by a ‘gatekeeper’ on behalf of a wider group of persons (e.g. a head or class teacher with respect to their pupils, a youth worker working with young people, another person in an ‘authority’ position).

9b. Who will act as the ‘gatekeeper(s)’ in your research?
Please list their position(s) briefly below and, where this is not self-evident, describe the nature of their relationship with those on whose behalves they are giving ‘informed consent’. The researcher cannot act as the gatekeeper (see 9g below).

Dr. Cecilia Tang, the School Principal of Shung Tak Catholic English College, Hong Kong

9c. Will you be briefing your ‘gatekeeper(s)’ about the nature of the questions or activities you will be undertaking with the children, young people or other potentially vulnerable persons involved in your research?  

YES/NO

9d. If another person (such as a teacher or parent of a child in your study) expressed concerns about any of the questions or activities involved in your research, would your ‘gatekeeper(s)’ have sufficient information to provide a brief justification for having given ‘informed consent’?  

YES/NO

9e. If unforeseen problems were to arise during the course of the research, would your ‘gatekeeper(s)’ be able to contact you at relatively short notice to seek advice, if they needed to do so?  

YES/NO

9f. Could your ‘gatekeeper(s)’ withdraw consent during the research if, for whatever reason, they felt this to be necessary?  

YES/NO

9g.  

i. Are you undertaking research into your own professional context/institution (e.g. with students in a school where you work)?  

YES/NO

If you answered ‘YES’ then you should identify (in 9b above) a suitable senior person who has agreed to act as an independent point of contact for participants to act as the gatekeeper, and answer the following two questions:

ii. Will you ensure that other people in the research context are aware of the identity of the gatekeeper?  

YES/NO
iii. Will you take reasonable precautions to ensure that research participants (and where appropriate their parents/guardians) know that they should contact the gatekeeper (and not you) if they have any concerns about the research?  YES/NO

Other Ethical Aspects of the Research

10. Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g. covert observation of people in public places)  YES/NO

11. Will the research involve the discussion of topics which some people may deem to be ‘sensitive’? (e.g. sexual activity, drug use, certain matters relating to political attitudes or religious beliefs)  YES/NO

12. Does the research involve any questions or activities which might be considered inappropriate in an educational setting?  YES/NO

13. Are drugs, placebos or other substances (e.g. food substances, vitamins) to be administered to study participants or will the study involve invasive, intrusive or potentially harmful procedures of any kind?  YES/NO

14. Is pain or more than mild discomfort likely to result from the study?  YES/NO

15. Could the research involve psychological stress or anxiety or cause harm or negative consequences beyond the risks encountered in normal life?  YES/NO

16. Are there any other aspects of the research that could be interpreted as infringing the norms and expectations of behaviour prevailing in educational settings?  YES/NO

17. Are there any other aspects of the research that could be to the participants’ detriment?  YES/NO

18. Will the study involve prolonged or repetitive testing?  YES/NO
19. Will financial inducements (other than reasonable expenses or compensation for time) be offered to participants?  

YES/NO

Section C

What Further Steps to Secure Ethical Clearance are Required?

Stage 1 Clearance

Interpretation of Results
If any of your answers coincide with the response options having a coloured background, then please add details of your plans under relevant items (or refer to specific sections/pages of your proposal). In this case you should assume that further discussion involving Stage 2 procedures is required because some aspect of your proposed research is likely to be ‘ethically sensitive’. In practice, many issues can be resolved at this stage.

Members of staff should be especially careful about research involving their own students (question 9g).

*If you have ticked ‘yes’ in response to one or more of questions 10 to 20, both Stage 2 and Stage 3 clearance will definitely be required.*

Stage 2 Clearance

Any ‘ethically sensitive’ responses identified by the researcher during completion of the form or subsequently by the knowledgeable person (see below) should be discussed in detail before the form is signed.

Stages 1 and 2: Approval

*All researchers need to have this form approved and signed by a ‘knowledgeable person of standing’.*

That person should first raise with the researcher any queries or concerns they have, even where the researcher considers that Stage 1 clearance is sufficient. S/he should also review the additional documentation provided and suggest modifications if needed, before giving approval.

In the case of *students* within the Faculty, this person will, in almost every case, be the person supervising your research.
Members of Faculty staff will need to exercise some care in selecting such a person. S/he is likely to be someone with considerable experience of research in a cognate area to your own and quite likely to be one of the more senior members of the Faculty. S/he should not be someone who is also involved in the research nor someone with whom you regularly collaborate (whether in relation to research, teaching or administration). The test, in every case, should be whether an outsider would judge the person chosen to be ‘independent’.

On completion of the discussion, the ‘knowledgeable person of standing’ is asked to choose one of the following three responses, to delete the other two and to affirm their views by adding their signature.

a) I have discussed the ethical dimensions of this research and, as outlined to me, I do not foresee any ethical issues arising which require further clearance.

or

b) There may be some ethical issues arising from this research. I think it would be prudent for the researcher to seek further advice and, possibly, Stage 3 clearance.

or

c) Ethical issues arise in this research which require further discussion; my advice is that Stage 3 ethical clearance should be sought.

and

I have reviewed the summary of proposed methods and any consent/information sheets provided and hereby approve them.

Name: ... Karen Forbes. ........................................

Date of discussion: ... 24/1/2019 ........

Signature of ‘knowledgeable person of standing’ ... ........................................