**School of Education**

# The interactions of 'Mandarin as a second language' teachers in Content and Language Integrated Learning classrooms

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# DECLARATION

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

**Human Ethics** (For projects involving human participants/tissue, etc) The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007) – updated March 2014. The proposed research study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), which is part of a larger research project led by Professor Oliver, Approval Number # HRE2017-0272.

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# ABSTRACT

Content and Language Integrated Learning (CLIL), which aims to simultaneously improve the proficiency of the target language (TL) and develop understanding of the non-language subject, has been widely implemented all over the world. In this study, a CLIL programme that teaches both Mandarin as a Second Language (MSL) and mainstream content (namely maths, science, art and physical education) at a primary school in Western Australia is investigated. A specific focus of this study were the teachers' interactions during the class and students' responses to these. This was done in order to understand how a CLIL approach can contribute to child second language acquisition. To achieve this, a mixed method approach was employed. This included 24 hours of observation in Maths classes, detailed field notes and relevant interviews with Year 1-4 CLIL teachers. Data were also collected from 100 students (aged 6-10 years old). The results suggest that the teachers' interactions facilitated SLA. This was achieved through the employment of various strategies such as Meaning-focused Input (MFI), to help their students understand both the language instruction and the content; Corrective Feedback (CF) including input-providing and output-prompting feedback; Focus on Form (FoF) episodes; and the use of L1 by teacher, to assist students' understanding. The findings also showed that the students produced Meaning-Focused Output (MFO) during student-teacher interactions (a feature that has been documented to support their L2 learning); uptake by the students, which included more Immediate Uptake (IU) than Delayed Uptake (DU), although there was a decreasing trend with the increasing age of students; and the use of L1 by students to support their L2 production. However, a number of issues were not fully investigated particularly interaction from the students' perspectives. This was because of the restrictions imposed as part of the Ethical requirements of the Education Department; the small sample size and the length of the research; and, the limited types of data collection. So despite the findings suggesting considerable utility for CLIL, there is clearly

much further research needed in this area.

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# CHAPTER 1

# <u>Introduction</u>

## 1.1 Introduction

This chapter begins with the background information that describes the context of the research, drawing upon the current literature about the process of second language acquisition, specifically within CLIL settings. Next, gaps in the relevant research are identified to further inform the research questions. The aims and objectives of the current study are outlined to set the stage for the research study. Lastly, a summary of this chapter is provided.

## 1.2 Background of the study

There is a long tradition of investigations about language teaching and learning. In 1993, Halliday described three aspects of language learning – "learning language, learning through language, and learning about language" (p.113), all of which directly relate to the topic of this research. More recent studies have focused on the integration of language as a medium of teaching and learning content (Díaz Pérez, Fields, & Marsh, 2018). These aspects are of relevance to the current study, which is concerned with Content, and Language Integrated Learning (CLIL).

First developed in Europe and now spread throughout the world, over the last three decades CLIL has increased in favour for second and foreign language learning (Catholic Education Sandhurst, 2017). For example, in Australia, where the current research was conducted, CLIL has become one of the three primary and popular types of language learning programs with others including Intercultural Language Teaching and learning (ILT) and Communicative Language Teaching (CLT) (Lo Bianco & Slaughter, 2009). However, compared with these other teaching methods (e.g., CLT), CLIL is a relatively new language teaching approach and further

empirical research on its process and outcomes are required, especially within the context of Australian classrooms. This is the focus of the current research, which was conducted in a CLIL program in a primary school in Western Australia. The research objectives are stated next.

### 1.3 Aims of the research

CLIL supports the learning of the target language by using it as the language of instruction during non-language subject teaching with the students' responding interactively in these lessons. In this way, CLIL focuses on integrating content knowledge and language acquisition supported by the use of appropriate teaching strategies in the lesson. For example, in Spain a teacher delivers the content of subjects (maths, science, arts, etc.) to students by using English, which is a foreign language. In this way, during classroom interaction, teachers provide content information using the target language, and support this by using additional strategies, such as focusing on the linguistic forms of the target language as they relate to the content. This approach, therefore, is purported to facilitate both understanding of subject area and second language (L2) learning.

Within the literature English has been the mostly widely investigated target language. In the current study, however, Mandarin is the language of instruction in a CLIL setting making this is an unusual context. Furthermore, in the area of instructed second language learning (ISLA), there has been a dearth of research about CLIL with regard to teachers' practices and their students' responses. Therefore, the current study examined these two aspects of the interactional features of CLIL (i.e., teacher and student interactions), in the CLIL classrooms of young learners.

The age of the learners is especially important as the predominance of studies of SLA, including ISLA, have mostly been based on the findings of adult learners. This has happened despite the differences between child and adult learners being well

recognised (see Oliver & Azkarai, 2017). Hence, there is a need to conduct further research on the process of child SLA, particularly in the context of CLIL settings. Therefore, this study will contribute to an understanding of the process of how SLA is facilitated within a Mandarin as Second Language (MSL) program in a child CLIL settings.

To do this the current study addresses two research questions:

1) How do teachers support SLA through their interactions in a CLIL MSL classrooms?

2) How do the learners respond to the teacher interactions?

## 1.4 Organisation of the study

This thesis includes six chapters. Following this current Introduction chapter, is Chapter 2 which provides an overview of previous studies related to the current research and informs the research questions of this study. Specifically it examines: second language acquisition (SLA), especially those interactional features that are purported to facilitate SLA, Content and Language Integrated Learning (CLIL) methodology, and the use of first language (L1). This review focuses in particular on the research pertaining to young learners.

Chapter 3 presents the methodological approach adopted in this study. A mixed methods design was employed enabling the collection and analysis of data from different perspectives. Justification for this approach is also provided. The primary data of this study came from classroom observations of the interactions that occurred between teachers and their students and semi-structured interviews, with analysis of these undertaken and comparison over time done. This is followed by the analysis of data, and a discussion of validity and ethical issues.

Chapter 4 provides the key findings based on the analysis of research data. Results

are described and presented in tables and by figures to provide visual representation of the outcomes.

The interpretation of the findings is presented in Chapter 5. This is based on each research question, the related findings are discussed and linked to the previous relevant research. The comparison with other research and the explanation of the current findings are given.

Chapter 6 provides a conclusion to the current study. It focuses on the pedagogical implications of the research findings. The limitations of the current study are outlined and recommendations for further research presented.

### 1.5 Summary

This chapter first gave an overview of the current study. Next it introduced the background of the research area. Then the research objectives were presented. This was followed by a description of the structure of the thesis, which included a brief outline of the content of each chapter.

# CHAPTER 2

# <u>Literature Review</u>

## 2.1 Introduction

In this chapter, first a description of the Content and Language Integrated Learning (CLIL) approach in second language acquisition (SLA) is provided. Second an overview of those interactional features proposed to support second language acquisition are examined. Third, a discussion of the contribution of L1 to L2 learning is outlined. Next, there is a focus on research into child second language acquisition (Child SLA). Lastly, this chapter is concluded with a brief summary.

## 2.2 CLIL and Second Language Learning

### 2.2.1 What is CLIL?

Content and Language Integrated Learning (CLIL) is regarded as an innovative way to teach a second language. Although described by Marsh in the mid1980s (Marsh, 2002), it had emerged from the successful Canadian immersion programs that began in the 1970s and that continue in North America to the present day (Cenoz, Genesee, & Gorter, 2014). Despite this connection, CLIL differs substantially from immersion instruction. While in immersion programs almost all of the instruction is delivered only in the target language with little or no use of mother tongue, in CLIL the target language is used as the medium of instruction and, when appropriate, the learners' mother tongue is also incorporated into the teaching of the mainstream curriculum subjects. These may include subjects such as Arts, Science, Social Science, and Mathematics.

CLIL has a range of features that make it different from Immersion and other types of bilingual education. The language of instruction is usually one that the student will use at school, but not regularly outside the classroom (Dalton-Puffer, Nikula, &

Smit, 2010). Moreover, CLIL teachers are often non-native speakers of the target language, in other words, they are more content-experts than the foreign-language experts. Even so, the focus is on both language and content. Because of its simultaneous attention to both content and language, it is described as a 'dual-focused approach' (Coyle, Hood, & Marsh, 2010). Furthermore, although the first "L" in CLIL may refer to any language, English has often been the language of instruction in the many studies undertaken in this area. However, in the current study Mandarin is the medium of instruction making the current study quite a unique context.

In recent times there is an increasing interest in CLIL, which may be explained by the increased push for globalization in education. For example, CLIL has been widely implemented across Europe since the 1990s with the aim of improving the second language proficiency in those contexts. This has occurred because of changes to the educational policy in European countries, reflecting the increasing importance given to the area of second language education (Perez-Canado, 2012).

Despite these distinctions, the label CLIL is often used internationally as the umbrella term for a number of second language educational practices such as immersion instruction, bilingual education and content-based instruction (CBI). While some use these terms interchangeably, others maintain that these approaches are distinct (e.g., Coyle et al., 2010). The main difference between CLIL and other content-based approaches is that the content involves subject-related topics, academic disciplines or professional occupations (Wolff, 2007). Others describe CLIL as providing a 'multiple focus, safe and rich learning environment, (an approach that involves) authenticity, active learning, scaffolding and cooperation' (Mehisto, Marsh, & Frigols, 2008). It is claimed that the importance of learner autonomy (Adamson, 2014) and motivation (Doiz, Lasagabaster, & Sierra, 2014), as well as authenticity (Pinner, 2013), are important in successful CLIL classrooms (Banegas, 2015). It is also argued that CLIL should have outcomes that are both

content and language-related so that they support the acquisition of content, and general language learning skill-related outcomes (Mehisto et al., 2008).

### 2.2.2 CLIL Principles

It is claimed that learning content by using L2 as the medium of instruction provides opportunities to learn content and language within meaningful contexts, and together this stimulates the learners' background knowledge, whilst at the same time fostering interactions between learners and teachers or learners and their peers (Xanthou, 2011). In this way, both the academic and social aspects of the target language learning are improved. CLIL language learning also supports both the development of cognitive skills and meaningful communication. In other words, the systematic integration of content can lead to both conceptual enrichment and linguistic progression (Coyle et al., 2010; Piquer &Gales, 2015). Finally, it has been proposed that all of these aspects (as described above) are achieved through the 4Cs framework of CLIL, namely, content, communication, cognition and culture (Coyle et al., 2010).

These four aspects of CLIL each have specific goals. Firstly, content involves thematic learning and the development of skills and understanding. Secondly, for communication, the aims relate to the language of learning, language for learning and language through learning (Coyle et al., 2010). Next, cognition refers to the higher and lower order thinking skills based on Bloom's taxonomy (1956) (Krathwohl, 2002). The former usually consists of problem-solving or hypothesising, whereas the latter includes understanding, remembering and applying new knowledge. Finally, culture relates to 'self' and 'other' awareness, citizenships, identity and progression towards multicultural understanding. Therefore, where possible, CLIL teachers aim to incorporate each of these four aspects into their learning outcomes (Coyle et al., 2010).

### 2.2.3 Benefits and challenges in CLIL

Previous research shows the advantages of integrated learning in the acquisition of target languages and it also shows that CLIL students achieve a higher level of foreign language proficiency compared to the non-CLIL students (Admiraal, Westhoff, & de Bot, 2006; Loranc-Paszylk, 2009; Navés, 2011; Pérez-Cañado, 2011; San Isidro, 2009, 2010). That is, CLIL students achieve the same or even higher scores than the non-CLIL students, including those who have had between one to three years more language learning experience (Lasagabaster, 2008; Navés, 2011; Navés &Victori, 2010).

It has been proposed that the CLIL classroom provides a more naturalistic way of learning than traditional foreign language classrooms. In fact, it has been suggested that CLIL provides a similar learning environment to that in which babies acquire their mother tongue (Mehisto, 2008). That is, CLIL not only provides abundant exposure to the target language, but exposure that involves language that is cognitively of a higher order. Furthermore, by focusing on content, language use is increased through CLIL (Dalton-Puffer, 2007) and the learners' level of anxiety decreased (Jiménez Catalán & Ruiz de Zarobe, 2009), leading to an environment conducive for language learning.

Despite the benefits of CLIL, there are also a number of challenges. The scarcity of research and especially how the use of L1 may contribute to the success of language learning in this context are areas requiring attention (Cenoz, et al., 2014). Although the results of previous studies are supportive of CLIL, more research with designs reflecting the concerns of practitioners need to be undertaken (Bruton, 2011). It is the intention of this research to do this.

This study is framed within the interactionist paradigm, which refers to learners processing linguistic information within their communicative environment. To date this theoretical position has only been adopted in a few CLIL studies, and fewer still

have focused on how these interactional features may contribute to SLA in CLIL (see for example García Mayo & Lázaro Ibarrola, 2015). There is a particular need for empirical evidence explaining the potential of CLIL as an approach that can contribute to language learning (Cenoz et al., 2014), especially in this case for young L2 learners. Although it appears to be an effective program (see Oliver, Sato, Ballinger, & Pan, 2019), further research is needed.

## 2.3 Interactional features that support SLA

A number of L2 interactional features, including those that are used in CLIL settings, have been shown to support SLA. In turn, these have been linked to a number of theoretical explanations as to why this is the case. These include the input hypothesis, the interaction hypothesis, the role of corrective feedback, the output hypothesis and the contribution of focus on form.

### 2.3.1 The Input Hypothesis

Early research on how languages were learned, both in L1 and L2, mostly followed a behaviourist orthodoxy. Language acquisition was explained as based on imitation and 'habits formation' (Bloomfield, 1933). Similarly, early second language acquisition suggested that input provided the basis of what was imitated, and which language habits were formed. As a consequence, for example, Fries (1957) proposed that L2 learning difficulties emerged from L1 habits.

Later, a different account of the function of input in language learning was proposed. Specifically the Input Hypothesis, outlined by Krashen (1985), suggested that an essential requirement for language acquisition is sufficient comprehensible input. He claimed that learners learn language by understanding that which is just beyond their current stage of interlanguage development (i.e., their personal learning trajectory). In this way, learners' receptive skills, listening and reading, can be enhanced due to

the high exposure to the target language (TL). The essential role of input within CLIL continues to be well supported and thus abundant opportunities for such comprehensible input as provided by teachers, underpins a great deal of current day pedagogy as being essential for language learning.

Furthermore, CLIL is an environment where the level of semantic information is such that learners have enhanced opportunities to process and to learn this information. It is proposed that the conceptual differences presented as part of CLIL lessons deepen the understanding of content knowledge and trigger additional semantic language learning (Heine, 2010). Whether or not there is abundant comprehensible input in the current CLIL setting, where Mandarin is the language of instruction, is one focus of the current research.

### 2.3.2 The Interaction Hypothesis

For decades now interaction has been deemed to play a key role in SLA. Initially, the Interactional hypothesis was proposed by Long (1980, 1983) and then updated in 1996 (Long, 1996). Although he supports a role for comprehensible input, he also claims it is insufficient. In his early research, Long described how the conversational structure of interactions between Native Speakers (NS)/ Non-native Speakers (NNS) appeared to be facilitative of acquisition (Long, 1980). Specifically, he described how interaction provides opportunities for learners to receive comprehensible input, but also to produce output and to get feedback on their attempts – three crucial aspects that support language learning (Long, 1996).

Negotiation for meaning is the central to the interaction hypothesis. It is the process that occurs when there is a breakdown in communication, specifically when L2 learners cannot understand their conversational partner. As learners and their interlocutors work to overcome the communicative issues this becomes the driving force that improves both comprehension and L2 development (Long, 1996). The

primary components of negotiation for meaning are confirmation checks, clarification requests and comprehension checks (Gass, Mackey, & Ross-Feldman, 2005). Confirmation checks occur in the form of a question where the listener repeats the source of confusion often using rising intonation, such as the question of 'do you mean…?'. In contrast, clarification requests, also used by the listener employ questions to elicit extra information from the interlocutor based on the meaning of their utterance, such as 'what do you mean?'. Lastly, comprehension checks are used by the speaker to check the listener can understand what was said, (e.g., do you understand what I am saying?).

In addition, the interaction hypothesis aligns with the output hypothesis (discussed in the following section) to some extent in that learners' participation in interaction, especially that leading to negotiation for meaning, can alert learners to their failures to make themselves understood. This failure has the potential to push learners to refine or reformate what they say. Therefore, learners informed by the input they receive, refine their output consciously and attain higher levels of awareness and control of the language they are learning (Wesche, 1994).

CLIL classrooms, where there is a focus on meaning because the content of the class is predefined by the curricula, provide an ideal site for opportunities where learners interact spontaneously in the TL and do so with a high level of authenticity (Zydatiß, 2007; Surmont, Craen, Strugs, & Somers, 2014). However, some suggest negotiation for meaning does not occur frequently in language classrooms (Foster, 1998; Eckerth, 2009). Others indicate that the focus in such classrooms is more on linguistic accuracy, such as that which occurs through negotiation of form, and so there is a more 'didactic' function and feedback with a corrective intention (Ellis et al., 2001; Lyster, Saito, & Sato, 2013). Whether or not this is the case in CLIL classrooms is also the focus of the current study.

### 2.3.3 Corrective Feedback

Over the last two and a half decades a number of research studies have investigated corrective feedback (CF). CF is defined as the responses to the utterances of learner that involves an error (Ellis, 2006). As Chaudron (1988) described it some time ago, CF is a complex phenomenon with various functions. An extensive body of research now provides strong support for the effectiveness of CF, however, this may be contextually determined. For example, one meta-analysis of CF research found that in laboratory studies interactions between two individuals (i.e., a researcher and a learner) resulted in more significant effect sizes than those in the classroom studies (Mackey & Goo, 2007). In contrast, in classroom studies, particularly those exploring interactions between teachers and their intact classes of students, feedback is rarely directed to individuals, but rather to the whole class (Li, 2010). The current study focuses on CF in the CLIL classroom to examine that nature of it in this context.

CF has been identified as consisting of different types. First, based on a descriptive study of French immersion classrooms, Lyster and Ranta (1997) identified six types of CF, and then classified them into two bigger categories – reformulations and prompts (Ranta & Lyster, 2007). The former provides target reformulations of non-target output to learners, including recasts and explicit correction; the latter supplies numerous signals that push learners to self-repair, including metalinguistic clues, clarification requests, repetition and elicitation. Later, Sheen and Ellis (2011) suggested a similar classification of CF in oral strategies that explained the differences between reformulations and prompts as well as implicit and explicit CF. They also distinguished between conversational and didactic recasts (Sheen & Ellis, 2011), based on the study of paralinguistic signals (Schachter, 1981). Another form of CF are recasts, a type of feedback that are often described as an implicit move (Long, 1996; Long & Robinson, 1998), however, later research suggested that they can also be explicit depending on their characteristics and context, such as types of changes that made in the initial utterance, length and linguistic targets (i.e., Nicholas,

Lightbown, & Spada, 2001; Sheen, 2004; Sheen & Ellis, 2006). More recent research has focused on comparisons of the effectiveness of different types of CF (i.e., Lyster, 2004; Ammar & Spada, 2006; Algarawi, 2010; Yang & Lyster, 2010; Ellis, Loewen, & Erlam, 2006; Ellis, 2007; Sheen, 2007; Saito & Lyster, 2012), with a particular examination of the utility of positive and negative evidence contained within such feedback.

First, positive evidence is information about what is possible and appropriate in the target language. It occurs by exposing learners to target exemplars in the input, whereas, negative evidence is information about what is not possible in the TL and it is often provided through explanations or corrections (Long, 1996; Gass, 1997). Based on the types of CF, explicit correction provides both positive and negative evidence; prompts provide negative evidence only; whereas recasts provide not only positive but also negative evidence, if the learner regards the feedback as a signal that an error occurred.

Thus CF may either be explicit or implicit (Lyster et al., 2013). Some studies suggest feedback is best provided in the form of a recast, as it is a type of implicit CF does not interrupt the flow of the communication (Long, 1996; Goo & Mackey, 2013). For example, Long (2015) indicates that recasts have a reliable 'track record' in the acquisition of both L1 and L2 by providing implicit negative feedback and that both teachers and students can pay attention to both form and meaning within tasks and subject-related study. However, others suggest that explicit feedback (i.e., explicit correction) is easier for learners to recognise, which may have an influence on learners' language development (Lyster, 2004; Loewen & Philp, 2006; Lyster & Ranta, 2013).

Feedback can also be input-providing as well as output-prompting (Lyster & Ranta, 2013; Goo & Mackey, 2013). Input-providing feedback provides models of the correct linguistic forms to learners (i.e., positive evidence). Output-prompting

feedback on the other hand elicits the correct form from the learners. There is a long debate on the effectives of these two types of CF. Empirical and theoretically motivated research has investigated and provided support for the advantage of input-providing feedback (i.e., Long, 2007; Goo & Mackey, 2013) and output-prompting feedback (Lyster, 2004; Lyster & Ranta, 2013). As consequence other researchers have suggested that teachers should provide a range of different types of feedback in the class (Lyster & Ranta, 2013; Ellis, 2017).

The current study investigates teachers' behaviours, including their provision of different types of CF in the classroom. Specifically it examines the types of feedback provided and the extent to which this occurs.

### 2.3.4 The Output Hypothesis

Although some theories of SLA do not deem it to have an essential role in L2 development (i.e., Krashen, 2003), others show strong support for the role of output. In the Output Hypothesis, as first proposed by Swain (1985; 1995; 2005), the word 'output' is used to indicate the outcome, or product, of the language acquisition. Swain proposed that the act of producing language is an important part of the process of SLA. She suggested that learners need to be pushed to produce outcome in order to acquire the target language, including developing more complex and accurate syntax.

According to Swain (1985; 1995; 2005) there are three functions of output in SLA. Firstly, there is the noticing or triggering function, next the hypothesis-testing function, and finally the metalinguistic or reflective function. With respect to the noticing or triggering function, it is claimed that learners may be aware of the content, but they find it hard to express the TL (Swain, 1995). In other words, the task of producing the TL may prompt L2 learners to recognise some of their linguistic problems. Next it is proposed that hypothesis testing provides a 'trial run'

for learners reflecting how to express their intent either in speaking or writing (Swain, 1995). Finally, the reflective function of output allows learners to notice the 'gap' between the input they receive and the output they produce, which is an important step for language learning (Doughty & Williams, 1998). This is because it helps learners to pay attention to those areas of their L2 they are struggling to comprehend and to produce (Swain, 1985; 1995; 2005). The metalinguistic or reflective function also involves the output learners employ to reflect upon the language they produced themselves or that produced by others.

Related to this is the type of learning is something that can occur as a result of learners collaborating, especially when they engaging in dialogue with others (Donato & Lantolf, 1990). Specifically, Swain and Lapkin (1995; 1998) described how 'collaborative dialogue', that is when L2 learners work together to solve linguistic problems and build or co-construct knowledge of language, helps them to mediate problems and arrive at solutions in ways that they cannot necessarily do by the learners themselves. In this way, they describe collaborative dialogues as a source of language learning.

Furthermore, as learners usually process language semantically, they are more likely to grasp the primary meaning of utterance even if they do not need to process all parts of linguistic forms. However, learners have to consider the linguistic forms when they are pushed to produce language. Such awareness also triggers those cognitive processes key to SLA, which in turn expands their general linguistic knowledge or consolidates their background knowledge (Swain & Lapkin, 1995). For example, in a study of adult ESL learners, Izumi (2002) found that learners could achieve a higher level of learning under the output condition, and it helped them to build durable memory by triggering a deeper level of form processing.

Later studies examined whether the production of modified output actually facilitated L2 learning. For example, Loewen (2002) investigated the nature, occurrence and

effectiveness of incidental focus on form episodes (FFEs) in the context of a communication-centred class. The reactions of the teacher were classified into two types: those that provided learners with answers (i.e., recasts), and those that pushed learners to produce answers (i.e., clarification requests) (Lyster, 1998). It was found that in the immersion context where the study was undertaken, learners were more likely to modify their output successfully when they were pushed to do so. However, Loewen (2002) also found that learners were more likely to produce the TL correctly when provided feedback. For example, when communication breakdown occurred or CF provided learners employed the new linguistic structure in communication. In this way, learners were able to revise their initial hypothesis about the linguistic structure of the TL.

Finally, output promotes production practice, fluency and automaticity – elements regarded as an essential role in language use and learning (i.e., DeKeyser, 2001; DeKeyser, 2017; Lyster & Sato, 2013). Previous research proposes that L2 learning entails a gradual transition from effortful use to more automatic use of the TL, through practice and feedback in meaningful contexts. In order to promote continued L2 development in classroom settings, opportunities for contextualised practice with feedback are needed. Automaticity, which can be defined as the speed and ease with which learners produce tasks ultimately, is the result of a process of automatization (DeKeyser, 2011). It is closely related to the speed of processing as well as utterance fluency (Segalowitz, 2010).

CLIL classrooms involve additional language learning objectives and specific opportunities for communication and language use (DeGraaff, Koopman, Anikina, & Westhoff, 2007). Based on Westhoff's SLA penta-pie model (2004), what is considered as essential for CLIL teaching includes opportunities for output production through teacher-student interaction and different forms of student interaction. Therefore, in the current research, how learners respond to opportunities to produce comprehensible output are explored.

### 2.3.5 Focus on form

A further concern in SLA is whether and how to include grammar and other forms of linguistic instruction in the classroom. Previous research claimed that input and interaction alone are insufficient and that a degree of 'focus on form' is essential to push learners beyond communicatively effective language towards the target like second language ability (Doughty & Williams, 1998).

Long (1991) describes the distinction between a 'focus on form' (FoF) and 'focus on forms' (FoFs). The former draws students' attention to linguistic components, which is raised by the focus of meaning or communication during the class, allowing them to notice their problems during production (Long & Robinson, 1998). It is regarded as an advantageous way for learners' attention to be drawn to particular linguistic features. Nunan and Carter (2001) see FoF as an ideal context in which teachers and students can focus on the features of language whilst primarily being engaged with meaning. This view is also promoted by Long (1996) and supported by Doughty and Williams (1998), Ellis (2001) and many others. In contrast, FoFs consists of treating linguistic features in isolation from the context and in a non-communicative, meaning based way. Whilst language practitioners, particularly in a traditional classroom continue to promulgate this synthetic practice (Ellis, 2001), its effectiveness has been consistently drawn into question in the SLA literature.

As a way to address this, Ellis (2001) extended the notion of FoF and proposed form-focused instruction (FFI), which is an umbrella term for any type of instruction that gives attention to language forms. He also suggested that FoF could occur during meaning-focused language or communicative activity. He outlines how FoF can be either planned or incidental. In planned FoF, teachers have previously prepared which forms the learners will focus on, while in incidental FoF, attention to language form emerges as a result of communication. To explore this in practice, Ellis, Basturkmen and Loewen (2001) undertook a study to describe how a FoF occurs during Focus on Form Episodes (FFE). They did this because FFE provides a useful

way to analyse when such a focus on linguistic form starts and then when it ends. They found in classrooms that such episodes maybe teacher-initiated or student-initiated, such as when students ask questions about linguistic forms (Ellis et al. 2001). This categorization provides a useful mechanism for exploring FoF in the current study.

### 2.4 Use of L1 in CLIL

As indicated above, one important debate surrounding CLIL centres on the use of L1 in the classroom. Whilst one of the primary goals of CLIL is to provide abundant and meaningful exposure more L2 input (as per the Input Hypothesis put forward by Krashen), CLIL does not exclude L1 use. Because students may not be able to process L2 input effectively (Slimani, 1992), especially when the CLIL language or content is complex and/or abstract, causing difficulties for the learners, teachers may switch to L1 to provide translations or give examples or explanation in L1 (Lin, 2006).

L1 use may also be beneficial in CLIL classrooms for social and affective purposes (Nikula, 2007) especially with regard to facilitating the interactions between the teacher and students. It has also been suggested that teachers can elicit responses from students if they code-switch to L1, especially when no response has been proffered by students in the L2 (Then & Ting, 2011). Next, in contrast to the idea that different languages exist as discrete entities, more recent research suggests that the abilities of learners to process the target language and their skills relevant to learning the L2 are shared between different languages (Cummins, 2000). Therefore, it has been proposed that the use of L1 can facilitate L2 learning instead of hindering it (Jiang, 2004). Other research suggests that employing both L1 and L2 leads can trigger the rise of metalinguistic capabilities in CLIL students (Surmont et al., 2014). For example, students' metalinguistic awareness and literacy development can be cultivated by highlighting the differences between the target language using the L1 in

the classroom (García & Vazquez, 2012). In addition, another study found that L1 use is a vital tool for students when they need to mediate their mental processes, such as handling complex tasks and meeting cognitive demands (Swain & Lapkin, 2000). Therefore, using L2 only may deprive students of a useful tool for mental processing, one that reduces their cognitive load (McMillan & Turnbull, 2009).

Even so, other scholars are more cautious about the use of L1, suggesting it needs to be 'limited', 'judicious' and 'theoretically principled' (McMillan & Turnbull, 2009). However, even the definition of 'judicious' in this context is not uncontroversial. Macaro (2005), for example, suggests limiting the use of L1 to around 10-15% of turns in the L2 classrooms because otherwise there may be an adverse effect on L2 learning. However, the use of L1 in the real classroom varies remarkably. Research in Canadian immersion and European CLIL classrooms has found that teacher may use little or even no L1 (Nikula, 2007; McMillan & Turnbull, 2009).

More recently the potential of L1 use in the CLIL classroom has gained increasing support within the narrative of 'translanguaging' pedagogies. Translanguaging is a phenomenon that occurs in many L2s, especially L2 classrooms, in that students may answer a L2 question in their L1, use L1 in group work, or use L1 to read materials which can support teachers' instructions in the L2. Underpinning this perspective is the idea that the use of students' multiple languages can facilitate the learning processes and outcomes (García, Flores, & Woodley, 2012). CLIL has been found not only to support the development of bilingualism, but that L1 plays as important role in supporting L2 learning (Naves, 2009). It achieves this by establishing a supportive and secure environment for the students who are often beginner learners.

## 2.5 Child Second Language Acquisition

In the field of second language acquisition (SLA), fewer studies have been conducted about the process of child SLA than adult SLA. The following sections

explore the development of child SLA, distinguishing between the differences of adult and the child SLA, specifically examining the influence of age on SLA, and discussing the similarities and differences in the ways adult and child learners, and younger and older child learners interact in the SLA contexts and in CLIL settings.

### 2.5.1 The development of Child SLA

In the late 1900s and early 2000s, the majority of second language acquisition (SLA) studies focused on adult learners. This is despite the fact that initially SLA research began with investigations of child L2 learners (Dulay & Burt, 1974). Although there were child L2 studies when the field of SLA began, for example:

> Ellis (1984) who investigated the formulaic speech among ESL young learners in the early stage of their second language development;
>
> Sato (1984) who focused on the interlanguage among two ESL young learners in Vietnam over a period of 10 months;
>
> Chaudron (1988) who evaluated the behaviours of teacher and students in language learning contexts and especially the interactions between them;

and so on, as Lightbown and Spada (1993) indicated, most research on child L2 learners was generally based on similar constructs that had already been explored in adult SLA research. Furthermore, as Oliver (2002) suggested, many child L2 pedagogical practices were based on findings of adult SLA. However, in more recent times, there has been more child SLA studies, some of which have examined and extended their focus and the contexts in which children learn a language, including in immersion and CLIL settings.

To explore the process of child SLA, research has examined the differences between child and adult SLA, including how learners of different ages process and engage in acquiring their L2, these differences are discussed in the following sections.

### 2.5.2 Child SLA and the Age Factor

One key area of SLA research has been the examination of the effect of age and, in particular, studies addressing the question of when is the best time to begin learning a language? Initially, explanations of age differences used the Critical Age Period Hypothesis (CPH) to explain the impact of age (Lenneberg, 1967). The CPH proposed that the ability of learning a language is based on biological factors. The brains of younger learners are plastic while those of adults are not. As a consequence, once a specific age is reached the opportunity to successfully learn the L2 is limited and specifically once puberty is reached, learners potential to acquire a second language drops dramatically (i.e., Mayberry, Lock, & Kazmi, 2002). Later, Long (1990) claimed it is a gradual period of decline, with maturational constraints gradually impacting language learning attainment.

Despite Long's position, the relationship between age and second language acquisition remains unclear and there is continuing debate about whether it is *the younger the better* or *the advantage of being older*. For example, Ellis (1985) suggested that older learners learn faster because of their more advanced cognitive development. Based on a quasi-experimental study, Sollars and Pumfrey (1999) found that the group of older learners performed better in listening and reading than did the younger learners in the study, although the age difference in this particular study was only six months, which is a small age variation. Even so they suggested that this result could be explained by the greater cognitive development of the older learners that helped them to understand the contexts. Similar Muñoz (2006), found that a group of older child learners (aged 11) seemed to learn faster than did a group of younger children (aged 8) when they were engaged in acquiring English literacy, including grammar and writing. This view is also supported by the study of García - Mayo and García Lecumberri (2003) which demonstrated that older learners or adult learners are faster than younger learners when they learn a foreign language.

In contrast, there are other studies that have shown that younger learners learn

language more quickly and more successfully than older children or adult learners. For instance, the empirical study of Birdsong (1999) suggested that younger learners learn second language more successfully than adults. Another study compared the acquisition of aspectual morphology between two different age groups of children: one group was aged between eight to nine years, another younger group of five to six years (Ionin, 2008). Ionin found that the older child group produced more errors and these were related to the semantics of their L1. Similarly, in a study by Nicholas and Lightbown (2008) where child learners were classified as younger (aged between 2 to 7 years) or older learners (aged between 8 to 13 years) found that the SLA achievement of the younger learners differs from the older learners in both the acquisition of L1 and L2. More recently, Dekeyer (2013) reviewed the effect of age on ultimate attainment in SLA and suggested real advantages for an early start in second or foreign language learning. This position was supported in another study by Muñoz (2014) who explored the effects of age and input, indicating that the learners achieve certain benefits when commencing language learning at an early age.

Whilst these results might seem somewhat contradictory, Long (2007) described how younger learns may be slower in the beginning of their language learning journey (i.e., when learning grammar), but they can achieve a high level of learning proficiency with sufficient exposure to the TL, if they start it early enough. Similarly, Muñoz (2006) states that the early exposure to the second language, the higher level of ultimate attainment of the learners. This difference between younger learners and adults may because of the way the different aged learners acquired their L2 knowledge. Ellis (2005) suggested that younger learners have a higher level of implicit knowledge when their L2 learning starts early, whereas those who start later may achieve more explicit knowledge.

The focus of the current study are young learners and whilst investigating their exposure to implicit language knowledge via CLIL pedagogy, there is also the opportunity to explore their level access to explicit language knowledge based on

what their teachers do in class.

### 2.5.3 Child interaction

As noted above (2.3.2), interaction has a significant influence on SLA. Furthermore, previous studies have found that interaction has a positive effect on L2 development both for child learners and adult learners (Mackey & Oliver, 2002; Mackey & Silver, 2005; Mackey, 1999). However, differences exist between these age groups. For example, in a study by Oliver (1998), she investigated the way children negotiate for meaning and strategies they use, and compared these with those previous findings of adult learners (Long, 1983). She found that child learners (aged between 8 to 13 years) do negotiate for meaning during task-based interactions by using various strategies, such as confirmation checks, in a similar way to adult learners. However, children used these strategies in different proportions. For instance, comprehension checks were used less among children in native-speaker (NS)/ non-native-speaker (NNS) and NNS/NNS dyads than in adult pairings. Similarly, Mackey, Oliver and Leeman (2003) found that child learners produced more modified output during task-based interactions, whereas adult learners provided more opportunities to each other to produce modified output in pair work than did the child learners (Oliver, 2000). In a later study by   Pinter (2006), she also found differences in the strategies used during task-based interactions of children and adults, although these interactions facilitated SLA for both age groups.

With respect to different age groups of children, it has been found that younger and older child learners differ in their acquisition, just as child learners differ from adults. For example, in a longitudinal study by Jia and Aaronson (2003), of younger learners (aged 5-9 years) and the older ESL learners (aged 12-16 years), they found that the attainment of the younger learners was greater than that of older child learners. They suggested the results may be based on the different language preferences of these two age groups. However, different findings have occurred in different contexts,

such as in the EFL settings (Muñoz, 2006), which draws the attention to the context of this study, CLIL.

As described above (2.2), CLIL provides learners more hours of exposure to the TL, which may improve their language proficiency than is the case for those learners studying in classrooms adopting traditional teaching approaches (Coyle, 2007). For example, García Mayo and Lázaro Ibarrola (2015) compared child learners of different ages learning in CLIL and mainstream contexts at a primary school. They found that children in the CLIL context used more strategies for negotiation than did those children in the mainstream classes. However, a study by Azkarai and Imaz Agirre (2016) found the opposite result. It was proposed that this difference might because of the different number of tasks they involved in their studies. Even so, these studies suggest the potential opportunities of CLIL for SLA, although age differences may exist. Therefore, the current study explores the classroom-based interactions in child learners in CLIL, and for those who are younger and older.

### 2.6 Summary

This chapter began with a definition of CLIL and an outline of the differences between immersion and other kinds of bilingual education. A range of benefits and challenges in relation to CLIL were also discussed. Next, those theories of SLA that appear relevant to CLIL were outlined, including the input hypothesis, interaction hypothesis, output hypothesis, corrective feedback and focus on form. The next section described the use of L1 in CLIL settings. Finally, results of Child SLA studies were outlined.

# CHAPTER 3

# Method

### 3.1 Introduction

This chapter presents a description of the methodological approach, research design, and procedures used to address the research questions as stated in the previous chapter. An overview of the methods that were used, including classroom observation accompanied by detailed field notes and the semi-structured interviews, is also presented. Next the data analysis methods, reliability, validity and ethical issues are described. Lastly, this chapter is concluded with a brief summary of the chapter.

### 3.2 Methodological Approach

The purpose of this study is to understand the language behaviours of CLIL teachers and their students in the classroom, specifically, the interactional features that occurred during their class interactions. This study examines complex issues in real-life contexts, from various perspectives and with respect to their language and culture, in this case, in relation to their L1 to L2 use (Creswell, Klassen, Clark & Smith, 2010) using both qualitative and quantitative data tools (see Mackey & Gass, 2016, pp.330-331).Hence, to understand the phenomenon, first a qualitative approach was employed to build an instrument that best fits the sample under investigation this study. Furthermore, in order to examine changes in this phenomenon over time, quantitative methods were also used to explain the qualitative data. In this way, an approach was used to address both the possibilities of biased information and confound variables that can occur in a single qualitative method, as well as the problems of low generalizability and little individual differences emanating from a single quantitative method. Thus, this study involved a mixed method design, specifically an exploratory sequential type of mixed methods (Creswell, 2018) to

overcome the limitation of using just a single method to undertake the investigation (Denzin & Lincoln, 2005). The main reasons for using a mix-method design was to achieve a comprehensive understanding of the complex issues surrounding CLIL. This was especially the case for understanding and interpreting the data from different perspectives in order to verify the conclusions that were determined. Also it enabled triangulation of the data (Sandelowski, 2003). In addition, it enabled the results to be made more accessible for readers which would not be the case if only one of the methods was employed (Dörnyei, 2007). Similarly, Bryman (2006), suggests using mixed methods enables 'Completeness', (i.e., a more completed investigation on the phenomenon by employing various research approaches), 'Explanation' (i.e., providing a better understanding of the research) and 'Context' (i.e., providing the context for interpreting quantitative data while quantitative data helps to generalizing information from qualitative data). Together these highlight the reasons for employing a mixed methods design employed in this study. This also enabled triangulation because of the multiple data sources and various data collection methods and analysis that were used to explore each phenomenon (Patton, 2015). Such triangulation is important as it strengthens the research especially when mixed methods, including using both qualitative and quantitative approaches, are used.


### 3.3 Research Design

As indicated, in the initial stage of this research, first qualitative methods of data collection and data analysis were used (Creswell, 2018). This involved mostly observational fieldwork, with the recording of impressions and reflections by the researcher (Myers, 2009), which was supplemented with interviews and documents analysis (i.e. looking at relevant school policy and curriculum documents). In addition, the primary purpose of classroom SLA research is to develop a better understanding of different processes during the classroom interactions, the influence of different types of instructions that employed in SL or FL study, and for examining variations that improve or restrain learning (Lightbown, 2000, p. 438). In this case,

the classroom-based study focused on the interactions that occurred as part of CLIL classroom processes. For this purpose, classroom observation was employed to collect descriptive contextual information about the target phenomenon (Dörnyei, 2007). Data was also collected by way of self-report in order to collect the unobservable. The second phase of the research involved a comparison of the quantitative data, including recording and analyzing the frequency of each variable (interactional features), of the classroom interactions made over time. The data collection methods are described in more detail next.

First, unstructured observations were done in a natural and open-ended way where the participants were directly observed as they engaged in their CLIL classes, with a particular focus on some aspects of interactional features that are purported to support SLA (Creswell, 2018). The manual recording of the observations included data transcriptions and detailed field notes about the targeted behaviours by the researcher, who was a non-participant observer in the CLIL classrooms. Next, semi-structured interviews with the CLIL teachers were conducted after each observation. It was intended to extract from the teachers their perceptions about their classroom behaviours and especially their thoughts in relation to CLIL pedagogy. As appropriate, the teachers' perceptions of child SLA in this context were also sought. Because of the limited time available to meet with the teachers after their lessons each interview was only of about 10 to 15 minutes in duration. However, these did occur multiple times. Next, with permission from the teachers and the school principal, the researcher attended the weekly teacher meetings, school assemblies and professional workshops with the CLIL teachers to help collect and gain extra related information about CLIL in the target school.

In addition to the above qualitative data, quantitative data were also collected and analysed to achieve better understanding of the subject of this study. This was achieved by way of class videos recorded by and provided with the consent of the teachers and school leadership for the purpose of transcriptions, accuracy checking

and field notes. These data were then subjected to detailed quantitative analysis. Comparisons over time were determined by way of frequency counts of the different types of interactional features in the same year group over three academic semesters, based on the analysis of the separate CLIL teachers and their students' interactions. The details of the data analysis procedure are provided in the sections to follow.

### 3.5 Data Collection Procedures

#### 3.5.1 Context

The majority of foreign languages (FL) taught in Western Australian schools are European languages (i.e. Italian, French, Greek) with just a few Asian languages such as Japanese and Indonesian also being taught. Most FL courses use traditional teaching methods (i.e., Audiolingualism combined with some CLT). However, the current study was undertaken in a unique context: a school that teaches Mandarin as the FL – a language that is distant from English (Chiswick & Miller, 2005; Wang, Yang & Cheng, 2009) – and also does so in an innovative way, namely using it as the medium of instruction through a CLIL approach. It should be noted that although Mandarin is not a common FL taught in Western Australia, since 2018 it has been identified as one of the priority language courses for pre-primary to year 10.

This CLIL program at the target school has been conducted since 2014. Its instigation was based on considerable investigations, observations and consultations with experts, teachers and administrators of other schools who used this approach and, in particular, the bilingual network teams in Victoria. A survey of school community was also conducted to get the consent of the parents before the program began. At the time of the data collection, the CLIL program at the target school extended from pre-primary (children aged 5-6 years old) to year 5 (children aged 10-11 years old).

Next, based on the different needs of the students and the content curriculum for each subject, Chinese Literacy, Mathematics (including Geometry and Measurement), Science, Visual Arts, and Physical Education were taught in the target language (Mandarin) using a CLIL approach, while other areas continued to be taught in English. The weekly class structure of this CLIL program included classes of Chinese Literacy which were of 1.5 hours duration, while the Mathematics and Science classes were 2 hours each, and Visual Arts and Physical Educations classes were 1 hour per week. Thus, the total hours of all Mandarin CLIL classes were 6.5 hours per week. It is also noted that the Chinese Literacy, Mathematics and Science classes were delivered to students from pre-primary to year 5, while the Visual Arts classes were taught to year 1 to year 5 students and Physical Education were taught to pre-primary students only. In this study, the researcher only observed the maths classes in year 1 to year 4.

### 3.5.2 Participants

In this research, four female teachers were observed teaching their CLIL maths classes. Each teacher was responsible for working with a different year group, specifically students in year 1, 2, 3 and 4 (i.e., students aged 6-10 years old). It should be noted that all CLIL subjects were taught by the same teacher in each year level, including Chinese Literacy, Mathematics (Geometry and Measurement), Science and Visual Arts.

Each year group was composed of approximately 25 students. Based on the school demographic report, more than half of the student population used English as their first language (L1), and another quarter of the students come from non-English backgrounds, while only a few of students (lesson than 10%) had Mandarin as their L1 or have family members who speak some Mandarin at home. That is, although this small group could be classified as heritage speakers who have some familiarity with the language, they do not read or write the language.

All the teachers are native speakers of Mandarin or use Mandarin as their first language because they that learned to speak it first and it is the language they speak best. Three also speak other Chinese dialects and languages (i.e., Hokkien, Cantonese, Malay and Li language). Their overall teaching experience ranges from eight to sixteen years while their CLIL teaching experience ranges from four to seven years. All had attended a number of CLIL workshops and conferences to improve their professional knowledge about this approach. Table 1 below provides an overview of their background information.

Table 1

**Mandarin CLIL Teachers' background information**

| Teacher | 1 (Year 1) | 2 (Year 2) | 3 (Year 3) | 4 （Year 4） |
|---|---|---|---|---|
| Age | 43 | 46 | 42 | 42 |
| Qualification | Graduate Diploma Education, BA | Graduate Diploma Education, BA | Graduate Diploma Education, BA | Graduate Diploma Chinese Language and Literature, BA; Graduate Diploma Education, BA |
| Languages in addition to Mandarin and English | Hokkien | Cantonese, Malay | None | Hainanese, Li Language |
| Overall years of teaching experience | 8 | 10 | 10 | 16 |
| Years of CLIL teaching experience | 7 | 6 | 5 | 4 |

| Professional Development attendance | CLIL Methods, Kagan Cooperative learning, Visible Learning, ICT | CLIL Methods, MAWA Conference 2019, Visible Learning, Paul Swan (Maths), Primary Connection (Science) | CLIL Methods, Kagan Cooperative learning, Visible Learning, ICT | Kagan Cooperative Learning (Maths), Visible Learning, iSTAR Learning, CLTFA Conference 2018, "Walk to Talk" WA Chinese curriculum Workshop 2018, CLIL Conference 2017, CLTFA Conference 2016, CLIL Professional Learning Day 2015 |
|---|---|---|---|---|

### 3.5.3 Procedure

As noted, the target school has four terms in each year, each of about 3 months in duration. Within each term, the actual observation period was about 2 months because of the impost of extra-curricular activities that occurred, including assemblies, swimming classes and school excursions. Thus, data collection in this classroom-based research was conducted over a period of six months, and was undertaken in three of the four academic terms of the normal school year. The data collection was undertaken in three stages.

Stage One

This first stage occurred during the pre-data-collection period and involved gaining ethics approval and getting permissions from staff at the school. As part of a larger project led by Professor Oliver, the ethics approval was tied to a previous application with permission granted from Curtin Ethics Committee (reference number HRE2017-0272). Permission was also sought and gained from the Western Australian Education Department, thanks in large part to the strong commitment and support from the school leadership team. To gain student and parental support, relevant information was also provided to them, but as no individual data was collected from the students, according to the Education Department Ethics protocols, neither student nor parental permission was required.

Stage Two

Next, this study was based on the work of Oliver, Sato, Ballinger and Pan (2019) – a study which was conducted at the same target school. Following Oliver et al., four CLIL teachers were chosen from year 1 to year 4, which allowed a consistency of data collection. This was supported by the school leadership team.

The data were collected from two sources: firstly, through classroom observations and secondly through interactions with teachers based on semi-structured interviews. These were held with the teachers after each class observation, for the purpose of confirming what happened in the class. Other interactions with the teachers also occurred on a regular basis and involved participation in weekly meetings and at teacher professional development workshops and after attendance at school assemblies.

Stage Three

Stage Three consisted of two distinct phases: the initial data collection phase and the main data collection phase, which are described next.

*Initial data collection phase*

In the first month of data collection, the class observations were recorded using detailed field notes following the CLIL Teacher's Observation Grid (See Table 2). The initial version of CLIL Teacher's Observation Grid was based on the work of Ballinger and which informed the previous study by Oliver et. al (2019). Those observations were undertaken twice a week. As shown in Table 2, three types of teachers' strategies were listed on the left column – those to support comprehension of the content knowledge, to support both language learning and content comprehension, and to support production and accuracy for their students. The researcher counted the number of these strategy categories used during the observation and recorded the result in the middle column of the table. Lastly, the teaching materials, the class procedures and any additional information related to what occurred in the class were noted and recorded in the right column. In this way, the researcher was able to observe both the whole class interactions and the specific actions of the teacher. It should be noted that the focus of observations in this initial data collection period was on the interactions between the teacher and whole class, that is, the teacher working in teacher-fronted activities, for each year group in a variety of subject areas (maths, science, art). To overcome the potential student reactions to the researcher's presence, at the beginning of the first observation the researcher was introduced and then worked sitting as a non-participant at the back of the classroom for the entire duration of the study. In this way, the students quickly became familiar with the researcher and ignored her presence in their classroom.

During the study, after each class observation semi-structured interviews with each CLIL teacher were conducted. For each interview, the teacher answered a few questions and discussed with the researcher what she had taught and why she had implemented the strategies that were observed. All details of the teachers' comments that were given during these interviews were recorded in the right column of the Observation Grid, which was highlighted by the researcher. Based on the experiences of this initial phase the Observation Grid was modified.

*Main data collection phase*

From the second month, more targeted observations were conducted by the researcher (a bilingual speaker of English and Mandarin). Specifically, the math classes for each year group were observed over the course of 21 weeks, with 7 weeks of observations per term for three academic terms. Although terms are usually 10 weeks in duration, as indicated above because of other school activities (e.g., swimming lessons, preparation for school assemblies, etc.), which interrupted the regular school schedule, only 7 weeks each term were possible for the observations. The total amount of observation time was 84 hours. However, due to the reality of classrooms, and the various interruptions that occurred, the amount of maths undertaken for each class differed considerably (Year 1 - 23 hours, Year 2 - 16 hours, Year 3 - 22 hours, Year 4- 23 hours). Therefore, two hours per class in the same period of each semester (in week 6-7) were used as the basis of comparison. It should be noted that these 2 hours (2 maths classes) were chosen because of the regularity of the scheduled classes which involved either reviewing the content of previous classes or teaching new content. In this way, a total of 24 hours of observation was used as the basis of analysis for this research.

As occurred in the first month of the data collection, in the main study phase detailed field notes were undertaken to record the interactions between the teacher and the whole class using the Observation Grid as shown below (See Table 2). This allowed for a systematic record to be kept showing the strategies used by the teachers during the whole class activities. Also, as permitted by the target school, the researcher used class video recordings made by the teachers at the school to check the accuracy of the manual transcripts of the interactions. In this way, the research question, 'how do students respond to CLIL teacher?' could be investigated.

Table 2

**CLIL Teacher's Observation Grid**

| Strategies to support comprehension | Number | Comments |
|---|---|---|
| Physical representation (i.e. body language, visuals, realia) to convey meaning | | |
| Scaffolds meaning (i.e. students' contributions, drawing on previously covered class content) | | |
| Comprehension checks that require students to demonstrate learning | | |
| Strategies to support both language learning and comprehension | Number | Comments |
| Repeats a word or phrase | | |
| Rephrases a word or phrase | | |
| Slows down speech | | |
| Strategies to support production and accuracy | Number | Comments |
| Questioning that encourages extended discourse (open-ended; follow-up questions) | | |
| Output-oriented activities | | |
| Communicates expectations regarding language use | | |
| Uses peer grouping (pair, TPS, small groups) | | |
| Provides feedback on meaning. | | |
| **Total** | | |

### 3.6 Data Analysis Procedures

The data analysis procedure was undertaken in five steps: As a first step in the analysis, the initial target lesson recordings were transcribed. It should be noted that the initial target lesson recordings were recorded by hand by the researcher and this was done during the observations and also following the interviews; these were then checked and revised based on the class videos. Only those interactions in the teacher-

fronted activities that were relevant to the content being taught (i.e., maths) were transcribed, interpreted and then analysed. The field notes and semi-structured interviews with the teachers where interrogated to provide confirmation and contextual information about the interactions. It should be noted that the classroom interactions related to personal communications and classroom management were not transcribed nor analysed. The teacher-fronted activities varied from 12 to 20 minutes in each one hour maths lesson, and so the scores were normalised by dividing them by the length of the lessons. Once this was done the results in the CLIL Teacher's observation Grid were counted and a total was given.

For the second step, all initial transcriptions and number counts were checked for accuracy. As described previously the video recordings made by the teachers at the school were used to complete this check. In this way, all errors and omissions could be identified and corrected.

Next, the transcripts were coded with the basis of analysis being turns – with one turn containing one or many words and several utterances in combination. For example, in Excerpt 1 where the teacher was holding a triangle she stated her instruction using two sentences, and these counted as one 'turn'.
Excerpt 1:

Teacher:今天林老师要讲不同的形状，它的大小以及颜色。这是什么形状？

（*Today, Lin Laoshi is going to teach different shapes, its sizes and colours. What shape is it?*）

A total of 533 turns formed the basis of analysis.

Next, to analyze the actions of teachers and responses of students in the CLIL classroom, various interactional features were categorized to address relevant research questions. For example, the research question about the teaching strategies

that were provided to support SLA in the class interactions, the MFI, CF, FFE and Use of L1 by the teachers were observed. In contrast MFO and Use of L1 by the students were documented to examine how the students responded to such interactions.

Specific details about these categories of analysis (as per Table 2) are as follows:

i. **Meaning-focused input (MFI)** is where the teacher provided help to the students' comprehension by using images, objects, videos, or pictures. In this way, the understanding of their students was scaffolded.

ii. **Meaning-focused output (MFO)** is where it appears that students pushed themselves to produce comprehensible output.

iii. **Corrective feedback (CF)** is where teachers provided feedback to the students both in terms of their accuracy and comprehension.

iv. **Focus on form episodes (FFE)** is where the teacher drew students' attention to the linguistic forms explicitly by providing emphasis and comments or giving gestures.

v. **Use of L1** is where teachers or their students employ L1 (English) during their interactions.

The coding within each of these categories was of two types, what the teachers did in their interactions and what the students did in response. The student interactions also included FFE that they initiated.

Then, a second rater who also speaks both Mandarin and English checked the coding of 25% of the data. Disagreements were discussed and coding modified as appropriate. The same second rater then coded the remainder of the data independently. Simple agreement of 89% was gained. The disagreements between the two raters were then checked and coded by a third rater.

As a last step in the analysis of teachers' behaviours, the frequency of each category of analysis was calculated by dividing it by the observing hours of analysis for each

term and each year respectively (Table 3). For example, the occurrences of corrective feedback (CF) made by the CLIL teacher in year 1, were calculated per term and for the whole year (i.e., 6 CF over 2 classes in term 1, 10 CF over 2 classes in term 2, 7 CF over 2 classes in term 3; 17 CF over 6 classes in total), and then it was divided by the number of total observing hours per term and per year (i.e., 6 CF divided by 2 hours, resulting in 3 CF per hour in term 1; so as to 5 CF per hour in term 2 and 3.5 CF per hour in term 3; 2.83 CF per hour in total). In this way, the researcher compared the changes in teaching strategies made by each CLIL teacher over time. Specifically to show the changes that occurred for the different strategies over three terms of the same academic year the results were tabulated showing the MFI, CR, FFE, and L1 use for the teachers over the three terms (these results appear in the following chapter).

Similarly, for the analysis of students' responses to the teacher interactions, the number of each category were calculated in the same way, dividing the occurrences of each by the time per semester and over the whole year in total. It should be noted that the students' responses mostly came from the same or a small number of students in the teacher-fronted activities only (Note: Again these results appear in the following chapter).

Finally, a comparison was made to examine the differences for each category between the four year groups, both from the perspectives of teachers' interaction strategies and the students' responses.

### 3.7 Reliability and Validity

Reliability refers to the consistency of information that is collected across time among the same participants (Dörnyei, 2007). As described above, in this study triangulation was used to ensure consistency of data sources and across the methods of data collection. This was done because triangulation increases the feasibility of

measuring what the researcher attempted to measure. For example, the semi-structured interviews that occurred after each class observation allowed for any confusions and problems to be checked. Also, the second rater was used (twice) to ensure that the codling of categories were systematic.

Validity refers to the accuracy of the conclusion based on the information collected and interpreted by the researcher. In other words, validity concerns the truthfulness, and in terms of qualitative data, the trustworthiness of the findings. Again the use of triangulation, this time in relation to data analysis helped ensure the validity of findings. It also reduced the bias of the researcher by allowing CLIL to be investigated in a more holistic way (Patton, 2015). For example, the recorded videos borrowed from the school enabled transcripts and coding categories of analysis to be checked to ensure their accuracy.

### 3.8 Ethical issues

This research followed the human research ethical guidelines required by the university's ethics committee and by the Education Department of Western Australia, under which jurisdiction the target school belonged.

*Informed Consent*: All participants are from a primary school in the southern area of Perth. First, permission to conduct research was sought from the Principal of the school. Then, informed consent was sought and gained from each of the CLIL teachers. All participants were provided opportunities to withdraw from this research at any time. Next, relevant information was also provided to the students and their parents. As indicated previously, as no individual data were collected from students neither the students nor their parents were required to provide permission based on the Education Department Ethics protocols.

*Confidentiality:* The privacy of all individual and group participants was respected

by the researcher. Pseudonyms were negotiated with the individual, group participants, and the school. They were assured that no identifying information would be used in this study and in further publications. They were also told that all information that participants provided would be used to fulfil the aims of the research only.

Researcher's reflexivity

*Risks:* Risks associated with this research constitute breaches of anonymity of individuals and the school. Anonymity ensured risks to the integrity of individuals and groups were minimised. The researcher confirmed confidentiality agreements with any third party involved in the processing of the initial data or thesis preparation to preserve the anonymity of all participants.

### 3.9 Summary

This chapter introduced the research design and described in detail the research procedures. A mixed method approach was employed to understand the language behaviours of CLIL teachers and their students in the classroom. Classroom observation accompanied by field notes was chosen as the primary data collection methods. These data were supplemented by semi-structured interviews and quantitative data coding. Moreover, the research design was based on a triangulated approach, which involved multiple sources for both data collection and data analysis, which also ensured the reliability and validity of research findings. Finally, the ethical issues surrounding this research were addressed.

# CHAPTER 4

# <u>Results</u>

### 4.1 Introduction

In this chapter, the results of the nature of the classroom interactions, based on the analysis of data collected during observations and the informal interviews, are presented. In doing so, the responses to the two research questions (as listed in Chapter One) are provided. The quantitative results are presented in the following way: For the teachers' interactions across different year levels according to meaning-focused input (MFI), corrective feedback (CF), focus on form episode (FFE) and use of L1 by teachers (L1T) (4.2.1) and, then for these teachers' interactions over time (4.2.2); next the students' responses within these interactions including meaning-focused output (MFO), uptake of CF, and the use of L1 by students (L1S) are presented (4.3.1 and 4.3.2). The qualitative results, including findings based on the detailed field notes and informal interviews are presented and integrated throughout. Lastly, there is a brief summary to conclude the chapter.

### 4.2 Patterns of Teacher Interactions

Based on the analysis of the data collected of the teachers' language in all four classrooms, it was apparent that there were various patterns of interactions. There are presented below:

### 4.2.1 Teachers' Interactions by Year Levels

The first research question related to the four teachers' interactions with their students in the different year levels. The interactions between the teachers and their students were observed and the frequencies of different features calculated based on the normalised sample over the three terms. The different features were categorised

based on the data and informed by the literature. They included the following: meaning-focused input (MFI), corrective feedback (CF), focus on form episode (FFE) and use of L1 by teachers (L1T). To allow comparison, the frequency of each category was calculated as a figure per hour (based on 24 hours of total teacher interactions representing 6 hours per year level), as shown in the table below (Table 3).

Table 3

**Mandarin CLIL Teachers' total interactions**

|        | MFI | /hr  | CF | /hr  | FFE | /hr  | L1T | /hr  |
|--------|-----|------|----|------|-----|------|-----|------|
| Year 1 | 66  | 11   | 25 | 4.17 | 13  | 2.17 | 22  | 3.67 |
| Year 2 | 46  | 7.67 | 9  | 1.5  | 7   | 1.17 | 0   | 0    |
| Year 3 | 25  | 4.17 | 18 | 3    | 0   | 0    | 4   | 0.67 |
| Year 4 | 39  | 6.5  | 5  | 0.83 | 11  | 1.83 | 0   | 0    |
| Total  | 176 | 7.33 | 57 | 2.38 | 31  | 1.29 | 26  | 1.08 |

As can be seen in Table 3, there were 176 instances of MFI produced by the four teachers. There were 57 instances of the teachers providing corrective feedback and 31 FoF episodes. During the interactions, the teachers employed L1 (English) 26 times. A comparison of the findings show that the teacher of Year 1 employed the most amount of MFI (11 times per hour), corrective feedback (4.17 times per hour), focus on form (2.17 times per hour), and the use of L1 during teaching (3.67 times per hour). The teachers of Year 2 and 4 were more likely to provide MFI (Year 2 = 7.67 and Year 4 = 6.5) and focus on linguistic forms (Year 2 = 1.17 and Year 4 = 1.83), and less likely to employ L1 during teaching (Year 2 = 0 and Year 4 = 0). The teacher of Year 3 provided more CF (3 times per hour), some MFI (4.17 times per hour) and employed minimal amounts of L1 (0.67 times per hour), and no FoF (0 per hour). These different interactional features and how they appeared in the data, including the teachers' comments about their use, are discussed in detail next.

**4.2.1.1 Meaning-focused input (MFI)**

All four teachers provided MFI in a variety of different ways. For example, when introducing new terms they would point at a model, draw the example on the white board to illustrate it, or even have the student(s) assist in demonstrating a new term. In the Year 1 class for instance, the teacher moved a paper toy down and said "往下" (going down); In Year 4, the teacher drew a rectangle on the white board, pointed at all sides and said "这是周长。" (This is the perimeter.); In the Year 2 class, the teacher lifted a student up off the ground and moved her from the left to the right and said "这是平移。" (This is sliding.). When discussing this with the teachers, all four recounted a similar idea that they used the visual example as means of introducing a new term. The Year 1 teacher went further explaining that this was important in terms of effectiveness and efficiency: "It works well and saves time."

Another way that MFI was achieved was through repetition. The teachers were often observed either repeating themselves or sometimes repeating what the students said to enhance the input. It should be noted, however, that this strategy occurred more often in the classroom of the younger students (Year 1 and Year 2). The teacher of Year 2 explained her use of repetition as being a way to scaffold the students' understanding of both the content and the language. She also added: "The content of Year 2 is more or less based on what they learnt in Year 1. I give students time to think what they learnt previously by repeating myself. I can tell from their faces they are recalling their knowledge and this thinking time is worth it."

Next, teachers were observed to providing MFI in an implicit way that gave clues and examples based on students' background knowledge so as to elicit new content knowledge encouraging the students' deduction. To achieve this the teachers also used body language, especially gestures to assist them in their teaching. This way of providing MFI was found to occur in all four of the classrooms. For example, the Year 2 teacher elicited the meaning of 'slide' by building on her students' previous

knowledge:

Excerpt 2:

*After the teacher reviewed 'turn', 'big' and 'small' by using a chicken toy.*

Teacher: 以小鸡玩具为例，小鸡要平移，它可以转吗？

(*Take this chicken toy as an example, if it slides to here, does it turn?*)

*Silence…*

Teacher: 看小鸡的嘴巴在左边，如果老师把它平移到这里，它的嘴巴是在左边还是右边？

(*Look, the beak of chicken is on the left. If I slide it to here, where is it, left or right?*)

Child 1: 左边。(*Left.*)

Teacher: 很好, 那小鸡的嘴巴还在左边，它有转吗？

(*Good, if its beak keeps the same side (left), does it turn?*)

Child 2 & 3: 没有。(*No.*)

Teacher: 好，那现在老师把小鸡平移到这里，它有变大吗？

(*Good. Now let me slide it to here, does it (size) grow bigger ?*)

Students: 没有。(*No.*)

Teacher: 恩，没有。我把小鸡平移到这里，它有变小吗？

(Right, it doesn't. What if I slide it to here, does it (size) become smaller?)

Students: 没有。(*No.*)


The next example comes from the Year 4 class. When the teacher tried to introduce the formula of calculating perimeter, she firstly reviewed 'length' and 'width' before showing the students how to calculate the perimeter in a rectangle (i.e., by adding the length of all four sides or two sides multiplied by two):

Excerpt 3:

Teacher: 长方形的长是多少厘米？(*What's the length of this rectangle?*)

Students:八厘米。(*8 centimetres.*)

Teacher: 对，宽是多少厘米？(*Correct. What's the width of this rectangle?*)

Students:四厘米。(*4 centimetres.*)

Teacher: 对了。这个长方形的周长等于什么？(*Right. How to calculate its perimeter?*)

Child 1: 这四条边加起来。(*Add together all four sides.*)

Teacher: 对了，我们还可以怎么算？(*Right. Any other way?*)

*Students discussed with each other.*

Teacher: 好，我们看这两条边(长)和这两条边（宽）是不是各自一样长？

 (*All right. These two sides (length) and those two sides (width) are the same respectively, right?*)

Student: Yes.

Teacher:四条边加起来就等于将长和宽相加的2倍，这样算(长方形)周长跟我们之前的结果一样吗？

 (Adding all four sides means the length plus the width and times 2, if we do this, is it the same result as we calculated earlier?)

*Students busy with calculating.*

Child 1 & 2: 是一样的。(*Yes.*)

Teacher：那我如果用这个方法（公式）算前面那个正方形，周长跟之前算的是一样的吗？

 (*What if I calculate the perimeter of that square, is it the same result we got earlier?*)

*Students keep calculating.*

Students: 是的。(*Yes.*)


The Year 4 teacher stated her idea of delivering new content by deduction,

 I prefer to have them draw inferences about their relevant knowledge than just

tell them the formula. It's a good way to help them summarise what they have learnt and memorise the new content. I believe learning maths is similar to learning the L2.

The Year 2 teacher built on the idea suggesting that using existing knowledge to develop new understanding improved the students' motivation,

I feel the relationship between their previous knowledge and the new 'difficult' term may improve their motivation. Even if they can't pronounce the term at first, they willingly guess the general meaning by using what they've already got (understand). They seem excited every time they deduce the right answer. This curiosity or the motivation to explore the unknown is important.

Although the language used for classroom management was not transcribed and coded, it was observed (and recorded in the field notes) that some of the instructions did serve to provide MFI to the students. For example, classroom management language often included idioms, songs, chants and ancient poems in the TL (Mandarin) – the meaning of which were very transparent. Furthermore, some of this language served to reinforce the language used in the content teaching. For instance, when the Year 3 teacher asked questions, some characters or terms she used in her classroom management earlier were the same as those used in her content teaching (i.e., the characters for question and answer):

Excerpt 4:

*Sample instruction of classroom management:*

老师问问题，我们来回答。 *(We answer the question when the teacher asks.)*

Teacher: 你需要回答下面这些问题，什么是回答问题？老师问问题?

（*You're going to answer these questions. What does it mean? The teacher asks the question?*）

Students: 我们来回答! (*We answer the question!)*

Teacher: 回答…问题…什么是回答问题？

(*Answer…the question… What does it mean?*)

Child 4: Answer…

Child 5: Answer the question!

Teacher: 对了。(*Correct.*)

The Year 3 teacher indicated that she intentionally used the same language patterns for classroom management as she did for content teaching as a way to provide lots of input to the students in order to help them "engage with the TL unconsciously in the long term". Therefore, from the data it is clear that the teachers provided MFI by using models, drawing examples or even using the students to illustrate concepts and language; they also repeated themselves or recycled the content of students produced to reinforce acquisition; or provided information based on their students' background knowledge; and sometimes assisted language learning by using the language of classroom management that included the same language patterns of instructions as the content teaching.

### 4.2.1.2 Corrective feedback (CF)

The data showed that the teachers did provide corrective feedback when errors were produced by students in the TL. As mentioned in Chapter two, CF can be classified into either input-providing or output-prompting (Lyster & Ranta, 2013; Goo & Mackey, 2013). In this research, the results are analysed based on these two types of CF, with explicit correction and recasts being categorised as input-providing feedback (as they provide a model of the correct linguistic forms), while confirmation checks, metalinguistic comment, clarification request and prompts have been categorised as output-prompting feedback.

In terms of the first category (input-providing feedback), recasts represent the

reformation of students' errors (i.e., the linguistic form) by the teacher; whereas explicit correction means the teacher corrects a student explicitly. For example, with respect to a recast when providing instruction about the steps and directions of a toy car's movement demonstrated by the Year 1 teacher, one student made an error and the teacher then provided the correct form as a recast:

Excerpt 5:

    Student 1: 后面一步。(*One step back.*)

    Teacher: 向后一步。(*One step backward.*)

The other type of input-providing feedback observed in the data was explicit correction, an example of which was observed in the Year 1 class. When describing the number of triangles in a model of a pyramid held by the teacher, one student made a linguistic error and then the teacher provided explicit feedback:

Excerpt 6:

    Student 1: 恩…二个三角形。(*En… "èr gè" (two) triangles.*)

    Teacher: 对不起，没有二个，是两个。(*Sorry, not "èr gè", it's "liǎng gè" (two).*)


When interviewed, the Year 4 teacher described her rationale for doing this as follows: "It is straightforward to provide the correct form to students, especially those 'difficult' new words." The Year 1 teacher provided further reasons for providing this type of feedback: "When their meaning is right, but with the incorrect form, I think it's important to give them correct linguistic form directly."


In terms of the second category, output-prompting feedback, the different types can be explained as follows: confirmation checks usually appear when the teacher confirms with the student what they have heard.; metalinguistic comments are when the teacher provides explanations about the correct linguistic forms; clarification requests are when the teacher seeks clarification about what the students have said; and, prompts usually occur when the teacher elicits students' language so that they

can produce the correct response. Examples of each of these are provided below:

In this example from the Year 4 teacher she provided confirmation checks to determine that she had understood correctly. When answering a question about how to calculate the area of a rectangle, one student produced an utterance that lacked clarity and the teacher then responded with a confirmation check:

Excerpt 7:

Student 1: 那个长的乘那个短的。(*The long (side) times the short (side).)*

Teacher: 你是说长乘宽吗？(*Do you mean the length times the width?)*

Student 1 nodded.

An example of a metalinguistic comment was observed in the Year 1 class. The class had been discussing the direction of movements as illustrated in picture cards:

Excerpt 8:

*The teacher shows the card representing 'move forward'.*

Student 1: 恩…向后。(Er…*Move backward.*)

*The teacher uses body language and then explains the concept.*

Teacher: 你的脸往前，这是向前。(*Move forward. It means you face forward.*)

Student 1: 向前。(*Forward.*)

In the next example, a clarification request is made by the Year 1 teacher again when engaged in the lesson about the directions of a toy car controlled by the teacher:

Excerpt 9:

Student 1: 那个…应该是…往右走…一步。(*Er…maybe…turn left…one step.)*

Teacher: 什么？(*Pardon?)*

The following example is a prompt and comes from the Year 3 class. The students tried to describe the name of the angle being demonstrated on white board and the

teacher said:

Excerpt 10:

Teacher: 什么是直角？直角是…Ri…。

    (*What is "zhí jiǎo" (right angle)? "zhí jiǎo" is Ri…*)

Student 1: Right angle！

Teacher: Right angle，对了。(*Correct.*)

The Year 3 teacher provided the following explanations of why she interacted in this way: "I use more prompts and explicit correction strategies to help students to produce the correct version of their meaning. I find both of them (types of feedback) are necessary in the class." The teacher from Year 1 added: "Besides giving clues about the TL (prompt), explaining the form of the TL is also needed with primary level students." And the Year 2 teacher said: "The general idea of the difference between their L1 and L2 (grammatical form) is dual work, but at times necessary, even for a simple word. And actually I found my students quite enjoy this process, they are hugely interested."

When a calculation was undertaken comparing the provision of different types of CF, it was found that overall, there were 61% (35 instances in total) that were output-prompting CF and 39% (22 instances) that were input-providing CF (see Table 4 below).

Table 4

**Frequencies of input-providing feedback and output-prompting feedback for each year**

|  | Input-providing Feedback | /hr | Output-prompting Feedback | /hr |
|---|---|---|---|---|
| Year 1 | 17 | 2.83 | 8 | 1.33 |
| Year 2 | 2 | 0.33 | 7 | 1.17 |
| Year 3 | 3 | 0.50 | 15 | 2.50 |
| Year 4 | 0 | 0 | 5 | 0.83 |
| Total | 22 | 0.92 | 35 | 1.46 |

As can be seen in Table 4, the highest occurrence of input-providing CF was observed in Year 1 (2.83 times per hour) and these were most often in the form of a recast (Year 1: 10 recasts and 7 explicit corrections). Input-providing CF was rare in all the other year levels and when it did occur the two instances in Year 2 were in the form of explicit corrections, two instances of explicit corrections and one instance in Year 3 in the form of a recast, and none in Year 4. In contrast, the output-prompting CF responses were more frequent. Most were provided in the Year 3 (2.50/hour) and these were mostly in the form of prompts (Year 3: 13 prompts, 2 metalinguistic comments, 0 confirmation check and 0 clarification request). The second most common form of output-prompting CF strategies occurred in the Year 1 class (1.33/hour) and these were most often in the form of metalinguistic comment (Year 1: 3 metalinguistic comments, 2 confirmation checks, 2 clarification requests and 1 prompt). In Year 2 and then in Year 4 the output-prompting CF responses were much less frequent (1.17/hour and 0.83/hour respectively). Instances of the different types of output-prompting CF were, therefore, also less common (Year 2: 3 metalinguistic comments, 3 prompts, 1 confirmation check and 0 clarification request; and Year 4: 4 prompts, 1 confirmation check and no metalinguistic comments nor clarification requests). Therefore, the teachers from Year 2 to Year 4 were more likely to provide

out-prompting feedback than input-providing feedback while the Year 1 teacher gave more input-providing feedback than output-prompting feedback. Based on the results of different patterns of CF, it does seem that both the age of the students and the individual differences of the teachers may have influence on the type of CF provided.

### 4.2.1.3 Focus on form episode

The teachers were observed drawing their students' attention to linguistic form by employing FoF strategies. They did this in various ways, such as using rising intonation, through gestures or by demonstrating the pronunciation of a particular character or word and providing stress for this when doing so. For instance, rising intonation was used by the Year 2 teacher when she focused on the specific Mandarin characters of mathematics:

Excerpt 11:

Student 1: 科学? (*"kē xué" (Science)?*)

*The teacher raises her tone.*

Teacher: 不对。这是数↗学。(*No, this is "shù xué" (maths).*)

The Year 1 teacher provided FoF when she demonstrated the specific pronunciation by stressing its tone (the falling tone) when describing time:

Excerpt 12:

Student 1: 九点一<sup>bān</sup>半？(*Half past nine?*)

*The teacher emphasises the pronunciation of the falling tone of the Mandarin character.*

Teacher: 中文里这叫做<sup>bàn</sup>半↘点。(*This is called "bàn diǎn" (half past nine) in Mandarin.*)

The next example was observed two turns after Excerpt 11. The Year 1 teacher emphasised the tones again by using gestures:

Excerpt 13:

*The teacher demonstrates time using a clock.*

Teacher: 现在几点了？(*What's the time?*)

Student 2: 八点半。(*Half past eight.*)

*The teacher emphasises the falling tone by using her finger.*
Teacher: 八点半。So that is "半"。(*Half past eight. It's called "bàn"*

*(half).*)

Both the Year 1 and Year 4 teachers employed FoF (2.17 per hour and 1.83 per hour respectively) more frequently than the other teachers (see Table 3). The Year 2 teacher did so, but less frequently (1.17 per hour) and, in contrast, the Year 3 was not observed engaging in this type of interaction during her class at all (0 per hour). The prevalent use by Year 1 teacher was explained by her in this way: "FoF is a must do strategy based on the linguistic level of my students." The Year 2 teacher agreed stating that "I know there is some basis of the TL amongst my students in Year 2, but there are many more linguistic forms they need to be aware of." The Year 4 teacher made a connection between content and linguistic form,

> When the content becomes more complex, like we did in the last lesson – calculating the area of the 2D shapes, there is still a need to ensure the linguistic form of each term and fill the gaps (in their knowledge) from their past three years. (Laughing) I did the 'final check'.

In summary then, the FoF strategy was used, such as through rising intonation, gestures and stress in all year levels, with the exception of Year 3.

### 4.2.1.4 Use of L1

The teachers were observed using L1 (English), especially when giving complex instructions and when explaining new content during their teaching. Most examples were observed in the Year 1 and Year 3 classes. Both of these teachers described how their interactions were influenced by the individual differences of their students

and also by the content they were teaching. For instance, when teaching her student how to calculate the difference between two times, the Year 1 teacher engaged in the following way:

Excerpt 14:

*The teacher demonstrates by using a clock.*

Teacher: Nine o'clock, that's the time your lesson starts. Eleven o'clock, that is the time we all have a recess. How many hours between 9 o'clock and 11 o'clock?

Student 1: Can I use the clock… I mean turning the hour hand to count?

Teacher: Yes, you can. Tell me how many circles does the hour hand turn?

Student 1: Two.

When explaining this, the teacher said, "I think using some L1 is appropriate in my class, especially when the content is complex." Also, this teacher explained that her students are beginners with less background knowledge in the TL, but also in their L1, and that this influenced the teaching strategies she used. For instance, when the teacher discussed with her students the differences between 'clock wise' and 'anti-clock wise', some students were uncertain about these concepts:

Excerpt 15:

*After the teacher demonstrates two terms by using cards.*

Teacher: 看，有什么不一样？(*Look, what's the difference?*)

*No answer.*

Teacher: 再来，顺时针, 逆时针。(*Again, clock wise. Anti-clock wise.* )

Students: 顺时针, 逆时针。(*Clock wise. Anti-clock wise.)*

Teacher: What's the difference?

*Silence…*

Child 1: Er… This is left (turn), that is right (turn) in a clock. (*Child 1 uses body language.*)

Teacher: What does that mean?

Child 1: Not so sure…

Teacher: OK, not sure. Who else?

*Silence…*

Child 2: … The anti-clock goes left. (*Child 2 uses gestures.*)

Teacher: It means against the clock. So, the clockwise one goes this way, and the anti-clock one goes that way.

Another example of teacher employing L1 was also observed in Year 1 class. The teacher introduced the term of 'half past…' (Thirty minutes) when describing the time:

Excerpt 16:

*The teacher demonstrates by using a clock.*

Teacher: OK, what's the time?

Child 1: Half past nine.

Teacher: 九点半。 The minute hand points to here (30 minutes), so this is called "半（点）". (*Half past nine. This is called "bàn" (half).* )

The next example of employing L1 by the teacher was observed in the Year 3 class. The teacher asked students to measure the length when some students were not sure about the term length:

Excerpt 17:

Teacher: 我们要测量长度，什么是长度？

　　　　(*We're going to measure the "cháng dù"(length). What is "cháng dù"(length)?*)

Child 1: Measure the size？

Teacher: No. We can measure the plane, measure the volume, measure how much…Measure the time. 但今天我们要测量长度,长度，我需要一个名词，名词。

　　　　(*But we're going to measure 'cháng dù', 'cháng dù'. This is a noun, a*

*noun.* )

*Silence…*

Child 2: En…length.

Teacher: Good. Length.

Therefore, it can be seen that the teachers employed L1 to assist their teaching, and scaffold students' grasp of the content knowledge based on the complexity of the content and also the different levels of their students' proficiency in the TL.

Next, the findings of the different interactional features, for each year level are discussed according to how they changed over time.

### 4.2.2 Comparison over time

As noted, in this section, the findings for the different interactional features over three academic terms for each year level are discussed. Examples and comments from the field notes and interviews are integrated as appropriate.

### 4.2.2.1 Modified input

During the course of this study, it appears that the amount of MFI decreased over time for those students in Years 1 and 2, but remained fairly consistent for Year 3 and 4. Specifically, the decreasing provision can be seen for the Year 1 teacher who provided MFI: 14.5 times per hour in Term 1, 13.5 times per hour in Term 2, and 5 times per hour in Term 3, and the Year 2 teacher: 14 times per hour in Term 1, 6 times per hour in Term 2, and 3 times per hour in Term 3. The consistency of the provision of MFI by the Year 3 teacher includes: 4.5 times per hour in Term1, 3.5 times per hour in Term 2, and 4.5 times per hour in Term 3, and for the Year 4 teacher: 6.5 times per hour in Term 1, 6.5 times per hour in Term 2, and 6.5 times per hour in Term 3. This is shown in Figure 1 below, with the x axis representing the

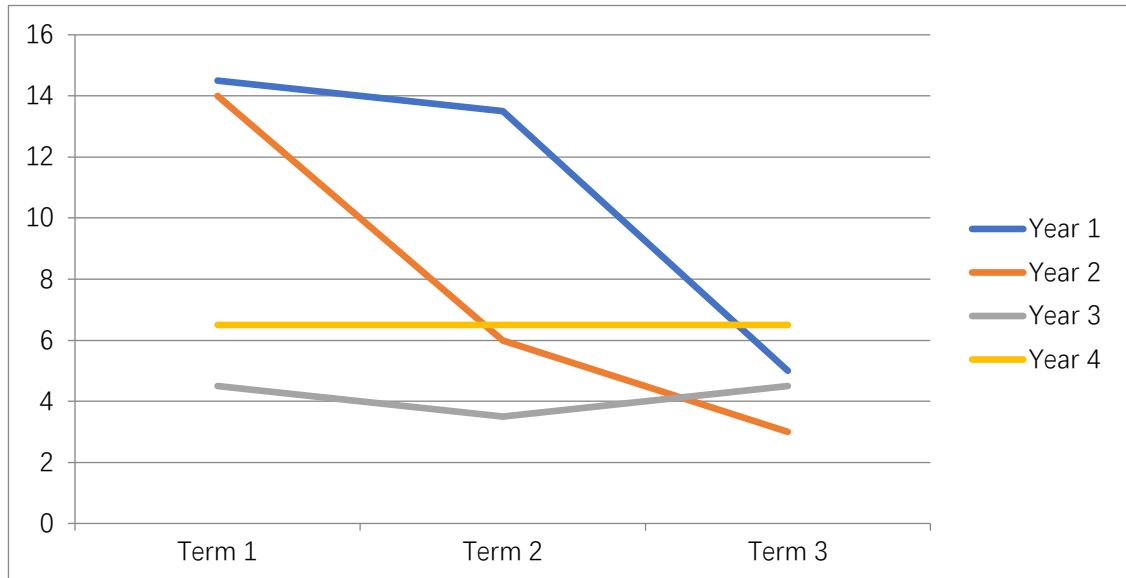three academic terms, and the y axis the frequency per hour.



Figure 1 Hourly frequencies of MFI over three academic terms

The Year 1 and Year 2 teachers indicated that this change in MFI over time reflected the changes in their students' conceptual understanding and their low TL proficiency. Specifically new content was introduced in term 1 (i.e., the names of 3D shape in maths), and was mostly done using realia with accompanying abundant MFI to help students understand. With their increasing understanding and development, both maths knowledge and their TL competency, the teacher gradually removed scaffolding, particularly visual supports, as less was needed in term 2 and term 3. As the Year 1 teacher explained,

> As far as I see, the frequency of input mostly depends on the difference of each group of students. For example, I'm using more comprehensible input with this Year 1 group than I did with the 'Year 1' group last year.

The Year 4 teacher explained that her use of MFI was consistent because the level of abstraction (in maths) was the same across the terms,

> It feels like the information I need to provide stays at the same level throughout the 3 terms. The content of each term is equally challenging for students and maybe even much harder in the last term. For example, we do the calculation of

perimeter in single 2D shape in term 2, and then it goes up to the calculation of area and volume in 2D and 3D shapes in the third term.

Therefore, the results over time for MFI reflect the declining need in the classroom of Year 1 and Year 2 while the teachers of the higher year levels provided same amount of MFI across three terms because of the complexity of the content they were teaching.

### 4.2.2.2 Corrective Feedback

The pattern of use of CF varied across the four teachers over the course of the three terms (See Figure 2). In Year 1 there was an upward trend in the amount of CF from term 1 to term 2, but then a decline in term 3 (3.5 times per hour in term 1, 5.5 times per hour in term 2, and 3.5 times per hour in term 3). In contrast, the use of CF in Year 2 declined over three terms (2 times per hour in term 1, 1.5 times per hour in term 2, and 1 time per hour in term 3). However, the use of CF in Year 3 showed a different pattern in that it decreased slightly from term 1 to term 2, but then increased again by the last term (3 times per hour in term 1, 2 times per hour in term 2, and 4 times per hour in term 3). The CF in Year 4 was much less than in Year 1, but did follow a similar pattern in that it increased between term 1 and term 2, but then it dropped in the last term (1 time per hour in term 1, 1.5 times per hour in term 2, and 0 time per hour in term 3).
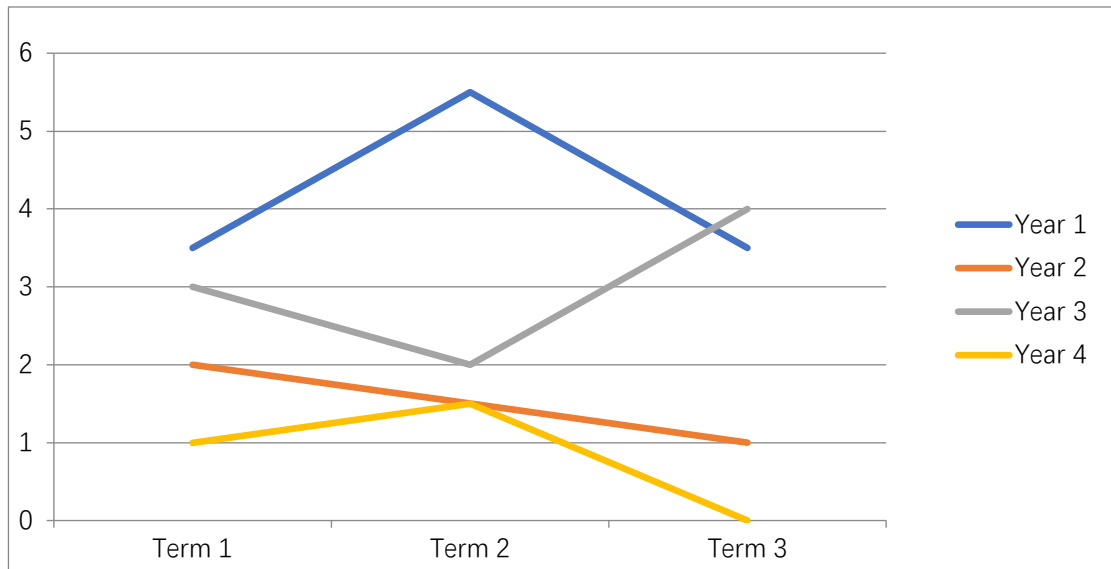
Figure 2 Hourly frequencies of CF over three academic terms

The Year 1 and Year 4 teachers were observed using more CF, such as recasts, explicit correction, and clarification request, in the second term than they did in term 1. The Year 1 teacher explained that this occurred because she needed to check that her students understood the information and terms that were taught earlier, but also providing feedback as required. In comparison the Year 2 and Year 3 teachers were observed employing CF such as prompts, as a way to revise content and linguistic knowledge taught in the previous term. For example, the Year 2 teacher said,

> It's always good to review the 2D shapes (learnt last year) while we are learning the new 3D shapes (this year). This allows me to check what they still remember and what they forgot. You know kids might forget everything just after a holiday!

The Year 3 teacher added, "I gave lots of CF when we learned and reviewed the map in the third term. I know it is hard but they need to be pushed output, producing the correct expression, like a full sentence without any errors."

Whilst the changes in the type of CF in the four year levels related to the content being taught and the needs of the students, the difference seemed not only to do with the age of the learners, but also to other factors such as the individual style of the

teacher. This also occurred for the FoF episodes, as described next.

### 4.2.2.3 Focus on form episode

As shown in Figure 3, again there were very different patterns in the occurrence of FoF episodes between the four teachers. In Year 1 while it declined between term 1 and term 2, it then increased in term 3 (i.e., 5 times per hour in term 1, 0 time per hour in term 2, and 1.5 times per hour in term 3). In Year 2 there was a small, but gradual increase over the three terms (0.5 times per hour in term 1, 1 time per hour in term 2, and 2 times per hour in term 3). In Year 4 FFE increased between the first and second term and then decreased in the last term (1 time per hour in term 1, 3.5 times per hour in term 2, and 1 time per hour in term 3). There were no FoF episodes over the course of three terms in Year 3.
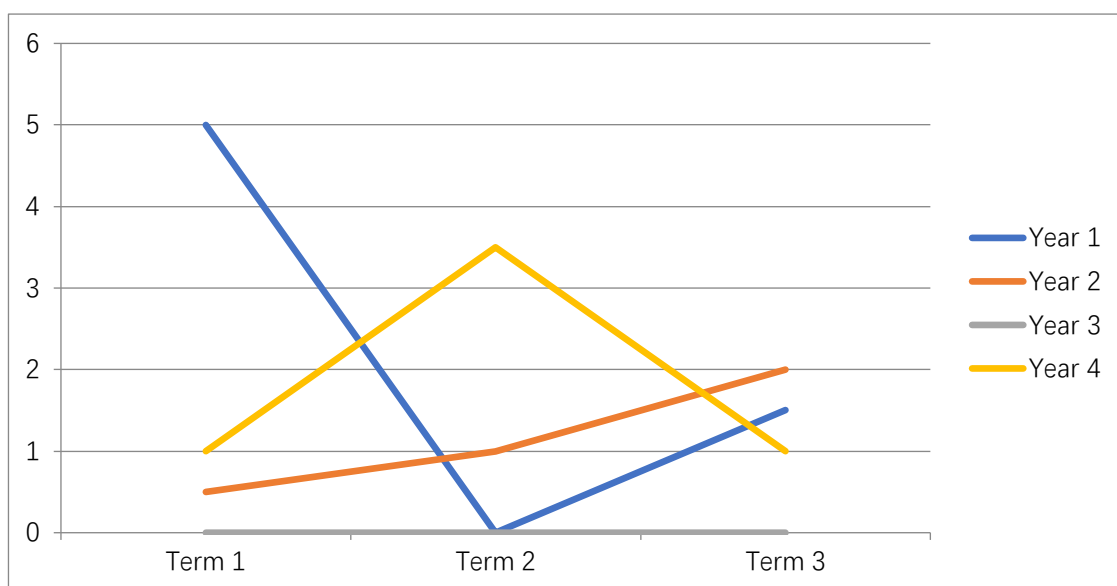


Figure 3 Hourly frequencies of FFE over three academic terms

The Year 1 teacher explained her pattern of interaction in the following way: "More new knowledge means there is a need to focus on the linguistic forms in term 1 and 3, while we have less in term 2." Despite initially using generally less FoF, the Year 2 teacher's increasing use over the course of the year may be explained by her preference for such as strategy describing it as efficient when teaching new content

and linguistic forms. The Year 4 teacher explained her increasing use of FFE from term 1 to term 2 resulting from the increasing difficulty of new content she was covering "For each academic year, there are relatively 'basic' maths concepts introduced in the first term, and then the complexity of the content increased gradually in the following terms. And, this content is linked to each other." The Year 3 teacher indicated that her lack of use of FoF might be because the content of the observed classes where they were more calculation tasks than conceptual learning of new maths terms.

### 4.2.2.4 Use of L1 by teachers

Once more there were very different patterns of use of L1 by the four teachers over three terms as demonstrated in Figure 4. In Year 1 there was a sharp increase in the use of L1 from term 1 to term 2, but this later declined slightly in the third term (1 time per hour in term 1, 5.5 times per hour in term 2, and 4.5 times per hour in term 3). In Year 3 the amount of L1 was minimal, and when it was used it remained the same in the first two terms and then rose slightly in the last term (0.5 times per hour in term 1, 0.5 times per hour in term 2, and 1 time per hour in term 3). In contrast, there was no L1 use by the teachers in Year 2 and Year 4.
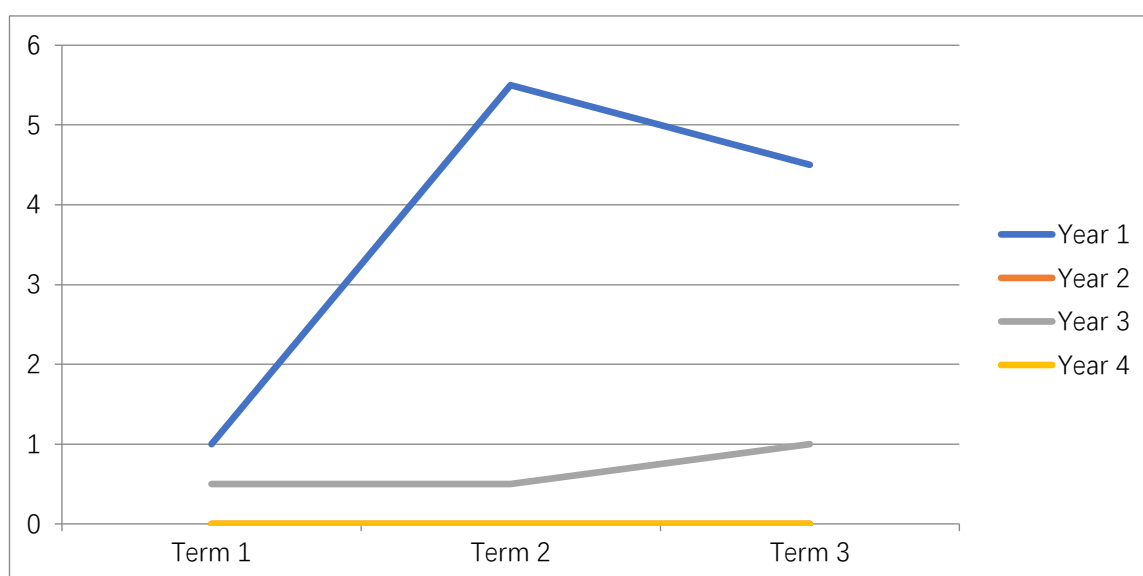


Figure 4 Hourly frequencies of L1T over three academic terms

The Year 1 teacher explained the result of this type of interaction in her class in the following way: "There is more use of L1 in the class because of the elementary language level of students in their L2". That is, the teacher found that using L1 could help with her students' understanding of new content. She also indicated that the use of TL saves times when she is teaching. However, the remaining teachers accounted for using less or even no L1 during their teaching because of their conscious choice not to do so. The Year 4 teacher explained she avoided L1 use as this improved her students' L2 language level. Instead of using L1 to introduce complex content she claimed that she scaffolded their understanding in their L2. As she said,

> I know they (students) can understand and are able to express their meaning with some time to think, to construct their language. Also, I don't want to spoil them if I give the meaning of the new content in L1 directly, they will be lazy.
>
> Although it takes time, it is a must-do thing in my class.

The Year 3 teacher shared the similar idea, "They (students) need to think! And actually they can do it." In this way it seems that L1 use was dependent on three aspects: the age of the students, the abilities of the students and the individual choice of the teachers.

To this point the findings have described the interactions of the teachers, the following section provides the description of the students' interactions in their classes.

### 4.3 Patterns of Student Responses

Based on the analysis of the data gathered related to the students' interactions in the four classrooms, it was clear that there were various patterns of responses. These are presented for each year level (4.3.1), followed by a comparison of these over time (4.3.2).

### 4.3.1 Student Responses by Year Levels

The second research question is concerned with the responses of the students during their interactions with their teachers. The students' responses were identified and categorised in the following ways: meaning-focused output (MFO), uptake of CF, and the use of L1 by students (L1S). Table 5 summarised the total amount of occurrence in each interactional features and its hourly frequency.

Table 5

**Students' total responses**

|        | MFO | /hr  | Uptake | /hr  | L1S | /hr  |
|--------|-----|------|--------|------|-----|------|
| Year 1 | 39  | 6.5  | 10     | 1.67 | 15  | 2.5  |
| Year 2 | 19  | 3.17 | 2      | 0.33 | 14  | 2.33 |
| Year 3 | 13  | 2.17 | 1      | 0.17 | 33  | 5.5  |
| Year 4 | 9   | 1.5  | 1      | 0.17 | 11  | 1.83 |
| Total  | 80  | 3.33 | 14     | 0.58 | 73  | 3.04 |

As shown in Table 5, there were 80 instances of MFO produced by students. The students were found to employ uptake only 14 times in total. During the interactions, students employed L1 (English) 73 times.

Over the course of the three terms of the study, the amount of output produced by the students decreased with their increasing age. Specifically the Year 1 students produced the most MFO (6.5 times per hour), followed by Year 2 students (3.17 times per hour), Year 3 (2.17 times per hour) and Year 4 (1.5 times per hour). Similarly, the highest amount of uptake occurred among the Year 1 students (1.67 times per hour), followed by those in Year 2 (0.33 times per hour), Year 3 (0.17 times per hour) and Year 4 (0.17 times per hour). Lastly, with respect to their use of L1 the Year 3 students were the most frequent users of their L1 (5.5 times per hour),

followed by Year 1 students (2.5 times per hour), Year 2 students (2.33 times per hour) and Year 4 students (1.83 times per hour). Further analysis of these findings are presented below, with examples of each feature, and supported by information from the field notes and the teachers' interviews.

### 4.3.1.1 Meaning-focused output

Students were observed producing output to express their own meaning, but with decreased frequency the older the students. Even so, MFO was produced by students in all year levels. For instance, in the Year 4 class after the teacher discussed with the class what one kilogram means, one student produced "一千克。" (One thousand grams). The Year 1 teacher accounted for why there was more produced with her aged learners: "There are more output produced by my students because of the content and because of the information or input that was provided." Another example, this time in Year 2 occurred after a class discussion about the 3D pyramid shape - one student produced the term "五棱锥。" (Pentagonal pyramid). The Year 2 teacher explained, "I think the amount of MFO might be based on the strategy I use to draw students' attention to linguistic form, like CF. In this way, the students seem to be pushed to produce their own meanings." Another teacher from Year 4 shared her idea: "When I focus on the linguistic form, the students are more likely to produce such outcomes." Despite the claims by the teachers of the older students, there was a decreasing amount of MFO produced by students as they moved from Year 1 to Year 4.

### 4.3.1.2 Uptake

Students were observed responding to or using the information which the teachers provided about their incorrect linguistic form. In other words, students produced utterances that were an uptake of their teachers' linguistic feedback. When examining the pattern of uptake it could be seen that there was a same decreasing

trend from Year 1 to Year 4 as occurred with MFO. Two types of Uptake were found and categorised based on the observations: *immediate uptake*, which is the immediate response to feedback after the teachers' correction (such as recast) and *delayed uptake* which occurs after some period of time. Immediate uptake was found in all year levels. For example, the following Year 1 student immediately used the feedback provided by their teacher,

Excerpt 18:

*The teacher shows two models of rectangle.*

Teacher: 看！这（2个长方形）有什么不一样？(*Look! What's the difference?*)

Child 1:那个大，这个小…正方形。(*That is bigger and this is smaller…Square*s.)

Teacher: 大、小，长方形。**(*The big and the small rectangles.*)**

Child 1: **大长方形，小长方形。(*The big rectangle and the small rectangle.*)**


The next example of immediate uptake was produced by a Year 2 students after his teacher provided the correct pronunciation of the specific character:

Excerpt 19:

*The teacher demonstrates by using a ruler.*

Teacher: 如果我测量的时候，一、二这里还有一半，那么这个就叫? (When I measure the length, one two and half, so this is called?)

Student: 多一边（半）。(*Longer than half ("yí biān") of it.*)

Teacher: 多一半。**(*Longer than half ("yí bàn") of it.*)**

Student: 多一半。**(*Longer than half ("yí bàn") of it.*)**


The other type of uptake, delayed uptake happened a few moments or turns after the teacher's correction. However, this type of uptake was only found once among all year levels. In this instance, the students produced uptake a few turns after the example of Excerpt 16 when the teacher turned to a new topic:

Excerpt 20:

Teacher: 看！这（2个长方形）有什么不一样？(*Look! What's the difference?*)

Child 1: 那个大，这个小…正方形。(*This is bigger and that is smaller…*
*Square*s.)

Teacher: 大、小，长方形。**(The big and the small rectangles.)**

Child 1: 大长方形，小长方形。**(The big rectangle and the small rectangle.)**

Teacher: 这是什么颜色？(*What's the colour of these rectangles?*)

Students: 蓝色。(*It's blue.*)

Child 1: 蓝色大长方形！蓝色小长方形！**(The big blue rectangle! The small**
**blue rectangle!)**

Teacher: 很好。(*Good.*)

The Year 1 teacher confirmed that there was more immediate uptake than delayed uptake in her class by saying: "It's easy to find students' uptake straight after my corrections… it's rare to find uptake a few minutes later within another topic." The Year 2 and Year 4 teachers suggested the silence after their corrections might be the time when their students processed the input or prepared for a very 'delayed' uptake at another time in the future. The Year 2 teacher added: "I find their uptake a few classes later or even in the following term, which is easy to miss. It's good to see that they produce some uptake even after a while." Therefore, it can be seen that the students did uptake their teachers' feedback, mostly immediately, but according to the teachers also in a delayed way after the teachers' corrections.

### 4.3.1.3 Use of L1 by students

Students were observed using their L1 (English) to interact with their teacher during the class. The most frequent occurrence of L1 by the students was found in Year 3 class. For example, when describing the items on the map, one student said:

Excerpt 21:

Teacher: 在我的地图上，有多少条河？河？(How many rivers on my map? Rivers?)

Student 1: Rivers.

Student 2: On the map, there are two rivers.

Teacher: 好的，那么我的地图上有…?(Ok, so on my map there are…)

Student 1 & 2: 我的地图上有两条河。（There are two rivers on my map.)

Teacher: 很好！(Excellent!)

Another example, this time from the Year 4 class, occurred after the teacher measured the weight of some apples. When she put the apples on the scale she asked:

Excerpt 22:

Teacher: 这是苹果。你知道董老师的苹果有多重吗？(*These are apples. Do you know how much these apples weight?*)

Student 1: Er…1 kilogram?

Student 2: 1.5 kilogram.

Teacher: 重？董老师的苹果有…(Weight? Dong Laoshi has…)

Student 1: 董老师的苹果有一公斤（重）。(Dong Laohi has 1 kilo of apples.)

Student 2: 董老师的苹果有一点五公斤重。(Dong Laoshi has 1.5 kilos of apples.)

Teacher: 公斤，正确。(Kilogram. Correct.)

When asked about this the Year 4 teacher described L1 use by students as a supplementary aspect of their output in the TL. She suggested that it occurred when students were trying to express themselves, but could not remember the specific word in the TL or when they need to confirm the task instructions provided by their teacher.

Next, the findings of students' responses over three terms are presented.

### 4.3.2 Comparison over time

In this section, the analysis of findings is based on the comparison over three semesters for each year level. The changes are shown by using figures and line graphs. Descriptions and examples from field notes and interviews are also presented.

### 4.3.2.1 Meaning-focused output

Although the amount of output decreased with the increasing age of students, this was not consistent over the time (see Figure 5). From term 1 to term 3, there was a decreasing trend of MFO produced by the Year 1 students (12 times per hour in term 1, and 5.5 times per hour in term 2, and 2 times per hour in term 3). This pattern, however, was different for the Year 2 students with a decrease between term 1 and term 2, but an increase in term 3 (5.5 times per hour in term 1, 0.5 times per hour in term 2, and 3.5 times per hour in term 3). In Year 3 the trend was for an increase over time (0.5 times per hour in term 1, 1 time per hour in term 2, and 5 times per hour in term 3). Year 4, in contrast remained fairly consist over time (2 times per hour in terms 1 and 2), but with a slight decrease in term 3 (0.5 times per hour).
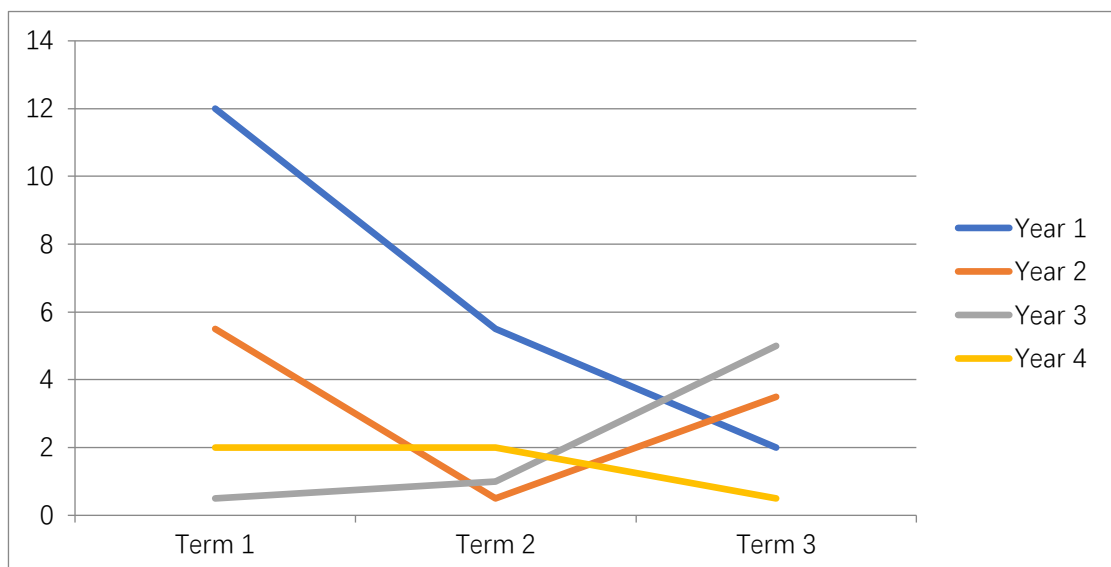


Figure 5 Hourly frequencies of MFO over three academic terms

Year 3 teacher explained the increase during the first two terms in the following way: "I can see students are pushing themselves to produce something after the information I provided earlier." "Students seem to be encouraged by this interactional mode, and enjoy producing the language with me or even with their peers." However, the Year 2 teacher indicated: "I can tell they (students) tried to produce something, but the amount of MFO might be limited by the difficulty of the content." Similarly, the Year 4 students were observed to remain 'silent' seemingly to process the complex content and tasks, and relied on prompts provided by the teacher to help with their production.

Therefore, these results might be related to the different nature of the content prescribed by the curriculum for each year and also the teaching style of the individual teachers.

### 4.3.2.2 Uptake

Overall, the Year 1 students had the highest rate of uptake (1.67 times per hour), followed by those of Year 2 (0.33 times per hour), Year 3 (0.17 times per hour) and Year 4 (0.17 times per hour). However, once again the pattern of uptake varied for the four year levels over the three terms (as shown in Figure 6 below). From term 1 to term 2, Year 1, Year 2 and Year 4 increased the amount of their uptake, whereas Year 3 remained the same. Then between term 2 and term 3 in Year 3 the uptake went up slightly, while in Year 4 it decreased. In comparison, Year 1 and Year 2 students' uptake remained the same between term 2 and term 3.
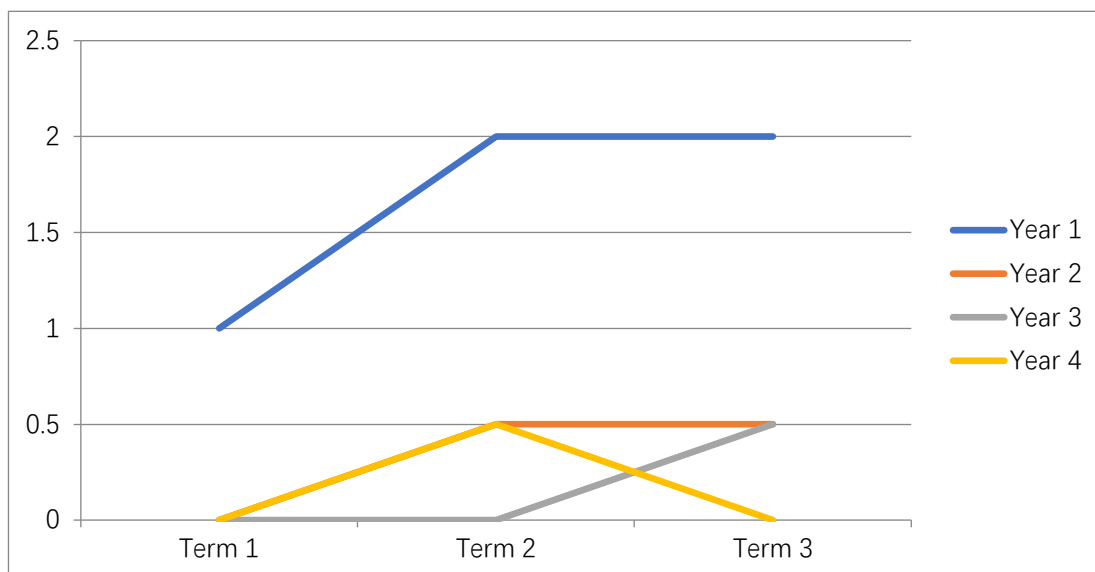
Figure 6 Hourly frequencies of Uptake over three academic terms

The Year 1 teacher said: "The high amount of uptake from students might be caused by the use of recasts during my class." Whereas the Year 4 teacher commented the low frequency of uptake produced by her students was due to the complexity of the content. She also suggested: "There might be uptake after each interactional turn, but it may not appear in it… I mean the students might do it without speaking out."

Therefore, the findings showed that the high amount of uptake in Year 1 might be seen as a response to the teachers' recasts, while the less uptake of Year 2 to 4 may be caused by the complexity of the content and individual differences of their students when responses to the teacher.

### 4.3.2.3 Use of L1 by students

As seen in Table 5 the Year 3 students used their L1 the most (5.5 times per hour), followed by Year 1 students (2.5 times per hour), then Year 2 (2.33 times per hour) and, finally, Year 4 students (1.83 times per hour). Again there were different patterns of use between the students in the four classes over the three terms, as shown in Figure 7. Specifically there was an upward trend of L1 use by the Year 1 students over time (1.5 times per hour in term 1, 2.5 times per hour in term 2, 3.5 times per hour in term 3). In contrast the L1 in Year 2 remained the same in the first two terms and then dropped in the last term (2.5 times per hour in term1, 2.5 times per hour in term 2, and 2 times per hour in term 3). For the Year 3 students their use decreased slightly over the three terms (6 times per hour in term 1, 5.5 times per hour in term 2, and 5 times per hour in term 3). The Year 4 students L1 use firstly increased and then declined (1.5 times per hour in term 1, 3.5 times per hour in term 2, and 0.5 times per hour in term 3).
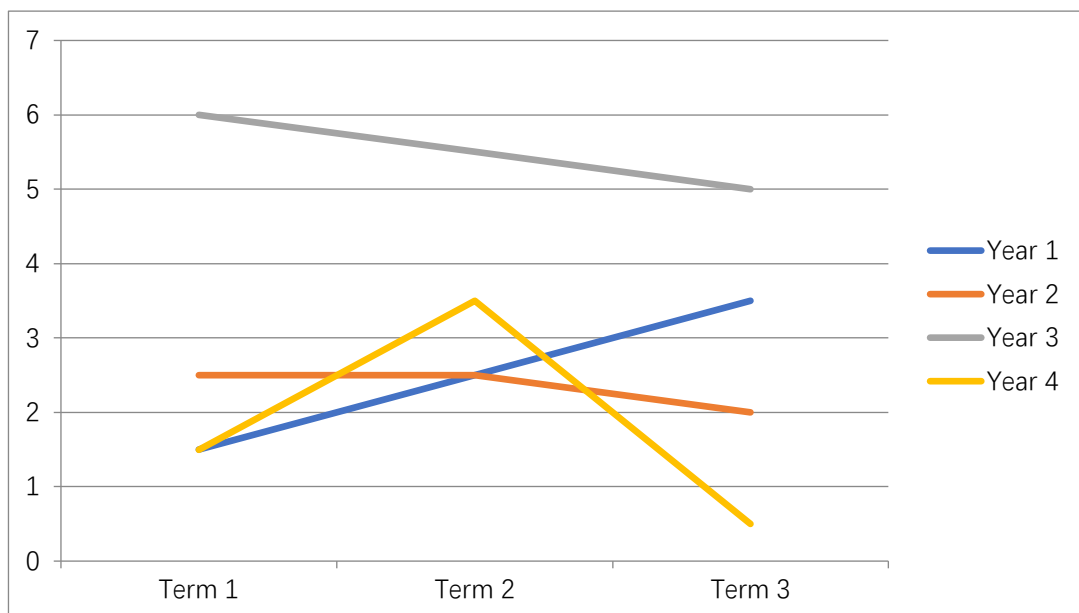


Figure 7 Hourly frequencies of L1S over three academic terms

The Year 3 teacher regarded a large amount of L1 used by students as the response to her corrective feedback strategies, such as prompts. She stated: "It's clear to see their

response or their intention to reply me, even in their L1." Year 1 and Year 2 teachers agreed with her. As the Year 1 teacher said: "It feels good to hear their responses in their L1, as the interaction goes on smoothly." However, the teacher from Year 4 saw it as the need of students to understand or to check with the meaning during the complex calculation, although the teacher herself did not employ any L1 during the class. She indicated: "I encourage them to ask me 'questions' to check the meaning of complex terms, even in their L1."

Thus, the use of L1 by students appears to depend on the content of the class and the type of interactions the teachers employ, which seem to be subject to individual differences.

### 4.4 Summary

This chapter provided a description of the findings based on the analysis of data from classroom observations and from the teacher interviews. The two research questions were addressed by presenting the frequency for each interactional feature made by teachers and by students in total and then over time. Why the different patterns of interaction may have occurred will be discussed further in the next chapter.

# CHAPTER 5

# Discussion

## 5.1 Introduction

This chapter discusses the main findings that were presented in the previous chapter and which addressed the two research questions. The first section (Section 5.2) discusses findings in relation to the teachers' interactions. Specifically it outlines possible reasons for the teachers' abundant provision of input, their creation of various opportunities for output, for their prevalent use of output-promoting corrective feedback, and for their wide use of focus on form episodes. The current findings are also compared with previous research. In addition, this discussion explores the teachers' L1 use and their rationale for doing so, their awareness of L2 development, and then how this relates to what they did in their classroom. Next, (Section 5.3) the students' responses are discussed providing possible explanations of why there was a decreasing frequency of output with their increasing age and why there was more immediate uptake than the delayed uptake after the provision of corrective feedback. The students' use of L1 is also discussed. The last section provides a brief summary of the chapter.

## 5.2 Research Question 1 (Teacher's interactions)

In this section, the key findings related to the teacher's use of five interactional features are discussed, namely: their meaning-focused input (MFI), their provision of corrective feedback (CF) both input-providing and output-prompting, the focus on form episode (FFE), and use of L1 by teachers (L1T). These findings are then discussed with respect to the teachers' comments, particularly about their L1 use and their awareness of L2 development.

### 5.2.1 Meaning-focused input

As indicated in Chapter 4, the teachers made their input accessible to students by giving examples, drawing models on the board or by using picture cards to provide visual support. They also interacted in ways that made a clear connection between the new input and the students' previous knowledge. They also used elicitation with clues that provided further meaning focused input. When asked why they interacted in such a way, the Year 1 and Year 2 teachers highlighted the idea of making their input 'accessible' and 'understandable' saying such things as: "No matter what the content is, first they need to 'understand' what I ask or state." As the Year 2 teacher indicated,

> I have to make myself (my words) 'easy' for them, which means they can understand based on their low proficiency of the TL. Honestly, it's not an easy job to do so in limited time. I usually use several kinds of ways to provide information.

In this way, the current results are similar to previous findings where it has been shown that CLIL teachers employ a number of MFI strategies in order to help their students to understand both the content and the language of instruction (e.g., Marsh, Mehisto, Wolff, & Frigols Martín, 2010; Oliver, Sato, Ballinger & Pan, 2019). In fact, it appeared that the teachers spared no effort to make input comprehensible in various ways in their CLIL classrooms. Not only did this serve to make the content accessible to the students, it also served to provide considerable exposure to the target language, which is seen as an essential condition of SLA (Ellis, 2014). Also, the 'real and meaningful' input provided in the CLIL classroom appeared to be based on the belief of the teachers that it increases the proficiency of their students in the TL (Coyle, 2007, p.548). As the Year 4 teacher indicated: "I believe it can provide opportunities to my students to produce outcomes and assist their L2 development by providing massive information (input) to them during the class."

In a similar to the way to Walqui (2006), who describes how teachers support

language learning, the teachers in this study worked to bridge the students' understanding of new concepts and connect this with the students' background knowledge. For instance, when introducing new terms of measurement (e.g., weight), the Year 4 teacher asked her students to collaborate to give examples of different units for weighing things. Later, this teacher explained,

> The reason is, first, I wanted to ask what the students know about this topic so that it is relevant to what they are learning and what they may interested to answer. Then, I can connect these ideas to our new topic today. They can feel that the knowledge they learnt in the class is not isolated, but is closely linked to their daily life. In this way, their learning efficiency will be improved.

Therefore, like Walqui (2006), the teachers were able to contextualise information to enhance learning.

The teachers were also able to provide MFI through the use of repetition - either by repeating themselves or what their students said. In doing so they appeared to assist their students' understanding of the language being covered. Of particular significance in the current context, the repetition the teachers provided in their input also supported their students' understanding of the content they were learning. For instance, the Year 2 teacher stated: "It's not just repeating myself or what my student said mechanically, but I (repeated myself) to give them a chance to ensure that they heard or learnt (the content)." In this way, the current findings reflect the suggestion of Lyster (2017) who describes it as a useful device for scaffolding content-based instruction (Lyster, 2017).

Overall, it is not surprising to find such prevalent use of repetition. Previous research has also found that teachers use repetition because of their belief that it is useful for language learning (e.g., Cook, 1994; Duff, 2000; Jensen & Vinther, 2003), particularly for enhancing the students' exposure to input (Jensen & Vinther, 2003). For example, Tomlin (1994) and Jensen and Vinther (2003) suggested that teachers' repetition supports language comprehension and acquisition. Similarly, Lyster

(1998), Oliver (1998) and Pica, Young, & Doughty (1987), suggest that it enhances and helps to improve the comprehension and performance of learners.

In addition to supporting content understanding, repetition is useful for reinforcing particular features of language. For example, the Year 1 teacher focused on specific tones and characters by repeating herself when she introduced new concepts. She suggested,

> By doing this, I'm highlighting the specific linguistic forms that students need to focus on. And students know one vital rule when listening - teachers' repetition means important tips of the content, which they need to 'open their eyes, pick up their ears' (to pay attention to it).

The Year 3 teacher also described how she used partial repetition of the students' answers with expansion to help them express themselves. She stated,

> Their answers may be not well-structured with poor logic, such as only producing single words or phrases. I can see their general idea. To assist them, I usually rephrase their words, and it can lead to a better output from them in the next turn.

This is similar to other research (e.g., Duff, 2000), which shows that the teacher's repetition can serve a number of functions - drawing students' attention to linguistic forms by rephrasing students' output, and as a way to make content clear.

Therefore, the results pertaining to MFI in this study suggests it provides optimal conditions for L2 learning and that the teachers generally used it because they also believed it helped their students' language and content learning.

### 5.2.2 Corrective feedback

Previous research shows that corrective feedback (CF) is beneficial for the acquisition of L2 (e.g., Lyster, Saito & Sato, 2013; Loewen, 2012; Sato, 2011). It promotes noticing of linguistic forms (Schmidt, 1990), and facilitates L2 learning

(Sheen, 2011; Spada, 2011). As noted in the previous chapter, this research focused on two categories of corrective feedback: input-providing and output-prompting feedback. The findings show the prevalence of output-prompting CF rather than input-providing CF in most of the year levels (except Year 1), with the teachers not only doing this, but also indicating their preference for this type of CF because it pushes their students to produce the correct answers. In this way the current findings align with previous research undertaken in classroom settings, which suggest that output-prompting CF can have a positive effect on the development of L2, compared to the input-providing CF (Oliver et al., 2019; Sato & Loewen, 2018; Yang & Lyster, 2010).

The findings did suggest some differences between the teachers, perhaps reflecting the age and cognitive development of their students. Specifically there was a preference for explicit corrections (namely input-providing CF) for the Year 1 teacher. The Year 1 teacher explained that she believes explicit corrections are an 'essential' way to ensure learning in her students with low TL proficiency. She also indicated this as a more 'effective' way to draw her students' attention to the linguistic difference (and saliency) between their L1 (English) and L2 (Mandarin): "Sometimes, it's more effective even than reformulating their errors (recasts)." Such a belief does have support in the literature - Yilmaz (2012) for instance found that overall explicit corrections were more effective than other types of feedback.

The Year 1 teacher also employed relatively the same amount of recasts as explicit corrections during her teaching, suggesting these strategies are useful for her students. She provided an analogy to explain why: "They learn to walk (Mandarin) as babies (beginners). Besides directly showing them the right way of walking (explicit corrections), they also need a hand when tumbling over the floor (recasts)." Her approach is supported in the findings of Li (2014) who compared recasts with metalinguistic corrections based on linguistic structures of Mandarin. Li found that, at least in the short term, recasts had a greater influence on the 'more-salient'

structures, especially among low-proficiency learners. Yang and Lyster (2010) also argue that recasts are useful when the linguistic structure is more salient.

In contrast, prompts mostly occurred in Year 3 and Year 4. The Year 3 teacher explained the reason for providing this type of CF (output-prompting CF) is that it provides more chances for her students to work out their linguistic problems by themselves: "As higher proficiency learners, compared with those in Year 1 and Year 2, I can see they are willing to work out errors on their own. So, some proper elicitations or clues (prompts) are important." This is similar to the claims of Brown (2009) who found that the more advanced students were more willing to attempt to use feedback if it is indirect rather than direct. Furthermore, the efficacy of prompts is supported by the work of Yang and Lyster (2010) who found that prompts, when used in the English-as-a-foreign-language (EFL) context, are more effective at facilitating the development of the English structure.

As well as the age and stage of development of the students, the differences between the four teachers use of CF also may be a consequence of their personal preference and beliefs, as well as their experience. When answering the question of why the teachers used more of one CF type, the Year 1 and Year 3 teachers appeared to share a similar belief, basing this on their previous teaching experience: "There is no fixed rules about it. I used more explicit corrections because I believe that's the best way to give corrective feedback under those circumstances." (Year 1) and "It's my decision (employing more prompts) on a basis of my previous experience and training. The real classroom is much more complex and different from a book." (Year 3). Similarly, there is increasing evidence from other studies about the effect of teachers' characteristics on their choices of CF in the classroom (Mackey, Polio & McDonough, 2004). For example, in a series of studies by Gurzynski–Weiss (2010, 2014, 2016) on Spanish FL teachers, she suggested that the teachers' CF provision varies based on three factors: their teaching experience, training in SLA and SL pedagogy, and their native language. In the current study, all four teachers are native speakers of Mandarin, but also speak other Chinese dialects or Chinese minority

languages (but not in the classroom). They have also attended similar amount of professional development courses about CLIL and other mainstream subjects. However, their teaching experiences does vary, including by the number of overall years of teaching experience and years of CLIL teaching experience. This may, in part, explain their different preferences of CF in the classroom.

Another difference between the teachers' provision and the learners use of CF maybe based on personal preference. For instance, the Year 4 teacher explained her frequent use of prompts was her preference and that of her students. She said,

> I know as the teacher, I need to make a decision on when and which kind of CF to use. But it also depends on the responses of my students, apart from my teaching experience. In my class groups, they have a particular fondness for prompts, as they prefer to work out by themselves. So I give them clues with limited time (to respond).

Similarly, the Year 2 teacher stated: "There are more 'active' students in my class. By giving either clues (prompts) or explanations (metalinguistic comments), they do a better job." Yoshida (2008) also found that teachers and students had various preferences for CF. The findings of this research which suggests some alignment between what the students want and what the teachers do differ from Brandle (1995) who found that although students preferred to correct themselves rather than being provided with the correct form, the teachers preferred to provide recasts as an efficient way to support their students. It should be noted though with respect to the current study, because of constraints imposed by ethical permission, the preferences of CF types could only be examined from the perspective of the teachers. It would be worthwhile for further research to examine potential differences between teachers' and learners' preferences for the provision of different types of CF in CLIL contexts.

In sum, the perceptions of teachers clearly influenced the type of CF they provided – what they deemed useful and appropriate. In turn, these perceptions seemed to be related to the age, development and proficiency of their students. Furthermore, in

many ways the findings of this research reflect the considerable body of previous research about the provision of CF.

### 5.2.3 Focus on form episodes

Based on the previous studies, it is widely accepted that meaning-focused instruction may not be sufficient to ensure successful L2 development, but that it should be complemented with form-focused instruction (e.g., Norris & Ortega, 2000). FonF episodes can be explained as the students' noticing and practicing the linguistic features of the TL within the meaningful exchanges, and enhancing their 'form-meaning mappings' (Ellis, 2002, VanPatten, 2004). These interactions help them use this knowledge in the real world (Lightbown, 2008). In this study, these occurred when the teachers drew their students' attention not only to content, but equally to language, which they did in a number of ways. For example, the teachers were observed using rising intonation, using gestures when demonstrating the pronunciation of a word, and providing stress when reinforcing new or problematic forms. In this way the findings of the current research aligns with suggestions in the literature that FonF is an effective way to draw learners' attention to language form when integrated into the content-based classrooms (Spada, 2011).

The use of such FonF episodes reflect the teachers' concern for their students' L2 development. For instance, the Year 1 and then Year 2 teacher stated: "They absolutely have no idea (about form) until I verbally highlight (using rising intonation and stressing their errors) their problems." and "Besides the content, they realize their language errors when I give gestures illustrating the pronunciation or specific tones." In many ways this reflects what Doughty and Varela (1998), found, namely that teachers can effectively focus on form by using stress and rising intonation to prompt their students noticing. Furthermore, as in the current study, these episodes were often found to occur after student errors.

Once again the results of this study also show individual differences between the

teachers with most use of FonF episodes occurring in the Year 1 and Year 4 classes. The Year 1 teacher explained she used FonF episodes because it suited the needs of her students. She said,

> There are many differences, but some similarities between the pronunciation of English and Mandarin (esp., Pinyin and tone system), which actually increases the difficulty for them. Besides mainly focusing on the content of the class, they, as the beginners, also need special help to 'notice' the important sounds (features). Because speaking both accurately and fluently are our ultimate goals.

Her explanation is similar to that suggested by Saito and Wu (2014) who pointed out that L2 acquisition is challenging for those learners whose phones of L1 and L2 share acoustic similarities (see the Speech Learning Model of Flege, 1995). Building on this, Loewen (2003) suggests FonF leads learners to shift their attention from a focus on meaning to noticing the linguistic features in the input, in this case the tones of Mandarin, which avoids the potential issues that occur when only focusing on meaning in the class. Furthermore, such noticing is necessary for L2 learning (Schmidt, 2001).

Building on this, the Year 4 teacher explained her employment of FonF as a way of warming-up the students before learning the new content. She stated,

> Before going on with the new content, I provide some specific information first, such as the pronunciation of the new term, to raise their awareness of relevant linguistic features. And mostly, the tones or parts of the new terms are linked to our previous lessons. By highlighting this, the students' anxiety can be reduced.

This particular procedure of drawing students' attention to phonological features without accompanying communicative pressure is similar to the procedure used by Saito (2013a; 2013b) and Saito & Lyster (2012) who investigated the English learning process used with Japanese students.

Thus, the findings of this study suggest the use of FonF is a way that teachers find effective for drawing students' attention to linguistic form, especially when learners

struggle with linguistic forms, in this case the tones of Mandarin. When this happened the teachers consciously employed a variety of FonF strategies to facilitate their students' L2 development.

### 5.2.4 Use of L1 by teachers

As noted in Chapter 2, the role of L1 remains the central to debate about bilingual education. In this study, the teachers were sometimes observed using L1 as a teaching strategy in the CLIL context. The Year 3 teacher explained her frequent use of L1 (English) was a supportive strategy to assist students when the content becomes complex: "It is apparent that they need L1 support when facing new and 'difficult' concepts." And "It helps them (students) to understand the content, especially the complex ideas." This result is similar what was found in the study by Doiz and Lasagabaster (2017) when they investigated the use of L1 in Spanish CLIL classrooms and found that teachers employ L1 to assist students to understand complex notions and ideas. In another study with results similar to the current one, Gort and Sembiante (2015) found that of L1 was useful for transmitting information, for scaffolding comprehension, providing vocabulary, and as a way to provide metalinguistic cues.

Information provided by the teachers suggest their use their L1 was also tied to the idea of motivating students during classroom interactions. For instance, the Year 1 teacher said,

> For my students (beginners), they may find the new content difficult and lose confidence in their language use. At this time, appropriate L1 used can be a good way to facilitate language learning, and of course, to cheer them up (motivation).

This idea is also in line with previous studies. For example, Bensen and Çavusoglu (2013) found that teachers mostly use their L1 to encourage students to participate in class. Neokleous (2017) found L1 use is a valuable way to solve difficulties with L2 comprehension and to build a positive environment for foreign language learning. In

another study, Pavón Vázquez and Ramos Ordóñez (2019) found that teachers encourage students to use their L1 as a way to extend classroom interactions and, thereby, encouraging their engagement and motivation.

The teachers' role in shaping the use of L1 in the classroom, however, extends beyond simply the issue of motivation. Although previous research suggests the benefits of using both L1 and L2 in bilingual classrooms, researchers indicate a need for caution (e.g., McMillan & Turnbull, 2009). In this study, when asking teachers about when and how to use L1 in their teaching, all four CLIL teachers shared the same idea, represented here in a quote from the Year 1 teacher: "Although it might depend on either the content or the students' differences, mainly I have to decide (how to use it) by myself based on my previous teaching experience." A similar position by teachers has been described in the studies by Doiz and Lasagabaster (2017), Lasagabaster (2017), Méndez García and Pavón Vázquez (2012). For example, Doiz and Lasagabaster (2017) found that teachers' use of L1 is based on their personal decision to do so. Further research is suggested that seeks to establish guiding principles for teachers about how to determine when and how to use the students' L1. Furthermore, as Doiz and Lasagabaster (2017) suggest schools also may be benefit from the development of a coherent policy about first language use.

Other studies that have investigated L1 use have found an effect for age and proficiency, suggesting that the higher the proficiency of students, the lower the amount of L1 may use in the classroom (Storch & Aldosari, 2010; Swain & Lapkin, 2000). However, this was not consistent in the current study with the results showing the Year 1 and Year 3 teachers employed the most L1 use, while there was no L1 use by the Year 2 and Year 4 teachers. The Year 2 teacher explained she did not use L1 because of the 'easy' content during the observed classes: "Because we are reviewing lately. No new material in the class." And the Year 4 teacher explained it from the perspective of students' motivation: "They've been trained to have classes with a fixed pattern since Year 1. And I think there is no need to boost them up, to

get them familiar with this 'new' language by using their mother tongue."

Therefore, the results suggest teachers employ their L1 to facilitate the language learning of their students. However, it is not clear whether the influence on L1 use by teachers is based on their perceptions about student motivation and age, because of the limited time for L2 instruction or because of the constraints of the observational targets of this study. Further research is needed about these aspects to get a clearer picture on the use of L1 in CLIL settings.

### 5.3 Research Question 2 (Students' responses)

In this next section, the findings related to the students' responses are discussed, particularly the reasons for the decreasing amount of meaning-focused output (MFO) with students' increasing age, more immediate uptake than delayed uptake after CF, and the use of L1 among students.

### 5.3.1 Meaning-focused output

As noted in Chapter 2, research concerned with meaning-focused output (MFO) is motivated by the Output hypothesis (Swain, 1985, 1995, 2005) and the Interaction hypothesis (Long, 1980, updated 1996). Specifically, the latter stated that oral interactions that provide input promotes learner's internal capacities, such as attention, and pushes them to produce modified output that assists their L2 learning (Long, 1996), whilst the former suggests output extends the linguistic repertoire of learners when they attempt to produce precise meaning and in this way it promotes their L2 learning . In this study, Year 1 to Year 4 students was all observed producing MFO during the interactions with their teachers. The Year 1 teacher explained how she supported her students' output: "I think the information or input I provided during our interactions has great (positive) influence on the amount of their output." This is supported by the results where it can be seen that this teacher (Year

1) provided the highest amount of meaning-focused input (MFI) and, in return, she received the greatest amount of MFO from her students – in this way this results supports the suggestion made by Long (1996) as indicated above.

Despite their students producing less MFO, the Year 2 and Year 3 teachers were conscious of their students' MFO indicating that the opportunities for this were important, not only in their own right, but also for the uptake of corrective feedback (CF). The Year 3 teacher claimed: "No matter whether I provide prompts or explicit corrections, I see them as chances for my students to produce their output, but in an encouraging way." Furthermore, as outlined in a review by Mackey (2012), she suggested that oral interaction that provides CF for learners and opportunities to produce modified output facilitates L2 development. Moreover, the Year 2 teacher described how MFO is also related to the content of the class and other task factors: "Besides CF (such as metalinguistic comments, prompts) I provided, the amount of MFO may also be related to our content, such as task complexity." In this way, these comments reflect the findings of Nuevo, Adams and Ross-Feldman (2011), who found that the task design factors affect the amount of modified output learners' produce. However, it must be noted that their study investigated output within peer interactions. The effect of task complexity factor on the interactions between the teacher and their students is ambiguous in the current study, and so there is a need further research, particularly in the CLIL context.

The results of this research did indicate that the amount of MFO is related to the age of learners. Specifically it was found that the older the learners, the lower amount of MFO they produced. The Year 1 teachers suggested: "Younger learners might achieve more benefits from our interactions, such as negotiating for content meaning, than the older learners" which were similar sentiments expressed by the Year 2 teacher. This is also similar to the findings of Mackey, Oliver and Leeman (2003) who compared the feedback provided to both adult learners and children, finding that the children took more advantage of the opportunities for modified output than adult

learners. Extending this idea for the impact of age, Butler and Zeng (2014) investigated the possible differences between the fourth and sixth Year levels EFL learners using information gap tasks. They found that the younger learners were used more turn taking in the tasks. More recently, García Mayo and Lázaro Ibarrola (2015) investigated interactions in two primary year groups, namely younger learners (8-9 years old) and the older learners (10-11 years old), completing a picture placement task under two different conditions. They found that older learners used more L1 and negotiated less than the younger learners in both settings. Together this previous research and the results of the current study seem to suggest that age does play a vital role in the interaction that occurs during the class. However, more research is needed, especially the interactions between teachers and students within the CLIL contexts.

In summary, this study suggests that the nature and amount of input, the opportunities provided for output, the corrected feedback provided by teachers, along with the content of the lessons and the learners' age are all factors that affect the amount of MFO that occurs during the CLIL interactions. However, much further research is needed in the CLIL context.

### 5.3.2 Uptake

A crucial part of language learning is learners' uptake in response to receiving corrective feedback, and this was observed during learners' interactions with teachers in this study. As indicated in Chapter 2, in this study uptake refers to learners' modified utterance, in response to feedback that either is still in need of repair or where repair has occurred (Lyster & Ranta, 1997). Furthermore, in this study two types of uptake were investigated - immediate uptake (IU) and delayed uptake (DU).

Although uptake was observed, there was decreasing trend in uptake with increasing age among students. The Year 1 teacher explained that "I see younger children (my students) are more likely to give responses with their uptake after my CF, especially recasts." Such an observation aligns with the study of Mackey, Oliver and Leeman (2003) who found that children had more uptake than their adult counterparts in the EFL context. However, it is in contrast to another study by Oliver (2000) who found that there is no difference in the amount of uptake according to age, although her study involved adults and children, not different aged children as was the case in this study. Interestingly, however, she did suggest that there were more opportunities for uptake in pair work than in teacher-fronted activities, a setting not explored in the current study. This previous research does, however, highlight the importance of the learning context suggestion further research is needed of uptake both in pair work and in different age groups for child L2 learners in the CLIL context.

Next, the findings show more immediate uptake (IU) than delayed uptake (DU) after teachers' CF during the class. The teachers in this study attributed this finding to the differences in the types of CF they provided. For example, the Year 3 teacher indicated: "Immediate repairs (IU) might not have occurred because of the CF type (I provided) and their age." The Year 1 teacher added: "Younger learners seems more 'active' in producing repairs directly after my corrections, because the feedback types I provided." These perceptions and findings are similar to other research that explored the teachers' provision of CF and learner uptake in EFL and CLIL classrooms (Milla & García Mayo, 2014). These researchers found more IU than DU in the CLIL context and the majority of repair associated with recasts, prompts and explicit correction - similar findings to the current study. However, it is unclear whether it is influence of age alone and/or the impact of CF types suggesting the need for further research.

### 5.3.3 Use of L1 by students

In this study, students were observed using L1 (English) both in the interactions with their teachers and with their peers. Because this study focused on teacher-fronted interactions, only these are discussed below.

The findings show students use L1 to support their TL output and learning. For example, students were observed using their L1 to confirm the information provided by their teachers, such as asking about their task instructions and asking for help when they could not find the right word to express their ideas in L2 (Mandarin). The Year 1 and Year 3 students were observed employing the highest amount of L1 to clarify meaning and to help with their understanding of vocabulary, concepts and ideas. The Year 3 teacher explained this as follows: "It supports students to understand the meanings of the content." The Year 1 teacher added: "It also helps students to learn how to use the TL in the correct way." These results align with previous studies showing that the use of L1 in foreign language teaching often occurs to support understanding (Mattsson & Burenhult-Mattsson, 1999), particularly to assist students in understanding word meanings (Storch & Aldosari, 2010). The current findings also support the idea that the use of L1 facilitates learner understanding about and the correct use of the TL (Moore and Nikula, 2016).

Moreover, the current findings also show students sometimes shift to their L1 so that they can negotiate for meaning, particularly when they are not sure of their teachers' intent, as shown in Excerpt 21 (provided in Chapter 4). The teacher (Year 4) explained it this way: "I can see he is not sure of the answer, and he attempts to negotiate with me or other classmates. In these cases, the students often change to L1 by themselves." This also reflects the findings of Moore and Nikula (2016) who found L1 use is often used for interaction between students. Other studies similarly suggest that students use their L1 to initiate and maintain interactions in the class (Storch & Aldosari, 2010; Pavón Vázquez & Ramos Ordóñez, 2019) and to negotiate the language of interaction (Auer, 1988). Similarly, Pavón Vázquez and

Ramos Ordóñez (2019) observed that students automatically change to their L1 to either negotiate for meaning or to provide help to their peers in group work. In addition, students also use their L1 to express their emotions and to formulate personal comments, or to gain the teacher's attention. However, the current study involves the students' use of their L1 in the interaction with their teacher only, because of conditions of ethics approval (as indicted above) and so this is another area for further research.

In sum, the findings suggest students employ their L1 to assist their output in the TL, especially to help their understanding and to assist the correct use of their language. Students also use L1 to help with their interactions during the class, in this case, to interact with their teachers.

### 5.4 Summary

This chapter provided discussion about the primary findings based on the two research questions – teachers' interactions and their students' response during the class interactions. The chapter then outlined possible reasons for each finding, including explanations based on the teachers' comments. The findings were discussed and compared with previous studies and areas further research were suggested.

# CHAPTER 6

# <u>Conclusion</u>

## 6.1 Introduction

This chapter begins with a summary of the aims and methods of this study, highlighting the importance of this research. Then a summary of the answers to the two research questions is provided. Next, the implications for this research and suggestions for further studies are outlined, along with the limitations of this study. The chapter ends with a final concluding statement.

## 6.2 Aims & Methods

The primary aim of this research was to investigate and understand the process of Second Language Acquisition (SLA) within a Mandarin as a Second Language (MSL) child CLIL context. It should be noted that both the teaching approach (CLIL) and the language of instruction in this study (Mandarin) have been rarely investigated, especially in the context of CLIL classrooms in Australia. More specifically, this study aimed to examined MSL within CLIL from two perspectives - firstly in terms of the type of support for SLA that the teachers provided through their interactions and then the way that the students responded to such interactions. In this way the current study provides useful empirical evidence about the process of SLA within the CLIL context, especially for child learners and in a unique MSL context.

The current study was conducted at a primary school in Western Australia, with the focus being the Year 1 to Year 4 CLIL mathematic lessons. For the purpose of understanding the behaviours of CLIL teachers and their students during class interactions, this research was designed with a mixed method approach which was undertaken using both qualitative and quantitative methods. Furthermore, a

triangulated approach was employed in order to collect and analyse data in various ways. For example, data were collected from unstructured classroom observations. These were supplemented with detailed field notes and informal semi-structured interviews with the teachers over a period of six months. The accuracy of field notes and transcriptions were checked using class videos recorded by the teachers and then provided to the researcher with their consent and that of the school leadership. Finally, the data from the different year levels was compared, over time.

### 6.3 Summary of key findings

The findings from this study were presented in two ways, firstly the teachers' interactions and then the student responses. Overall, the findings suggested that the teachers' interactions supported SLA by using MFI, providing CF, using FFE and employing their L1 in the class to support the learners. Their students' responses to these teaching strategies also provided the evidence that the overall class interactions supported SLA, namely through the students' MFO, their uptake after CF and in the way they strategically used their L1 during the interactions with their teachers.

**Teacher's interactions**

As stated, the findings showed that during class the teachers employed various MFI strategies in order to help students understand the content and the language of the instruction. In doing so they made the input accessible to their students and provided abundant exposure to the target language (TL) by giving models or visual support, enhancing students' language learning by contextualising information, assisting their understanding of the TL and reinforcing specific linguistic features by way of repetition. Furthermore, the MFI strategies employed by teachers appeared to be based on their beliefs that it is beneficial for language and content learning. Together, particularly with respect to MFI, the findings reflect previous studies that suggest that teachers' actions in CLIL contexts provide optimal conditions for L2 learning.

Next, two types of CF were considered, namely input-providing and output-prompting feedback. The results showed the teachers' preference of the latter in most of the year levels. However, the teachers' beliefs, often based on their teaching experiences, suggests that the type of CF they use reflects their understanding of the age and cognitive development of their students. For example, Year 1 and Year 2 teachers regarded explicit correction as an effective way to draw students' attention to the linguistic saliency between L1 and L2 in low-proficiency students. The Year 1 teacher was also seen to frequently use recasts, which she described as a useful way of providing correct linguistic structures. In contrast, the Year 3 and Year 4 teachers considered prompts as a more effective way to facilitate the development of L2. They provided these using rising intonation, using gestures, and by providing stress when enhancing a new or problematic form. According to them, they did this to draw students' attention to content and to the TL to facilitate successful L2 development. For example, the Year 4 teacher said she drew students' attention both to the linguistic form in this case the tones of Mandarin and to the meaning both of which are necessary for L2 learning.

Lastly, the teachers described how they assisted their students' understanding of complex content and increased their motivation by using their L1 (i.e., English), but only when they deemed it necessary. Furthermore, this use of L1 once more appeared to be based on their teaching experience and personal preference.

### Students' responses

Overall, the findings showed considerable evidence of students' modified output (MFO) during their interactions with their teachers in all year levels, a feature of interaction that is purported to facilitate L2 learning. This MFO by the students appeared to be related to the input and the CF provided by the teachers. However, the amount of MFO that occurred did seem to be affected by the complexity of the lesson content and the age of learners (e.g., the amount of MFO decreased with the increase in learners' age).

Similarly, uptake was observed to decrease with the increasing age of learners. Two types of uptake were observed in this study, immediate uptake (IU) and delayed uptake (DU). Furthermore, it was found there was more evidence of IU than DU.

Lastly, students were seen to employ their L1 to support their output in L2, to assist their understanding of the content, to negotiate for meaning and also to support their production of the TL. Overall, the results provide evidence that students were provided abundant opportunities to promote their subject content knowledge and skills and to learn L2 simultaneously (e.g., by using strategies of MFI, CF, FFE and L1) in the CLIL classroom. In this way the current study provides further evidence that CLIL is a useful approach that promotes language learning, in this case in a MSL setting. Further, identifying these interactional features may help teachers and schools about how to use them during class; how their students can be supported in their response to these features, and about how effective they are for their L2 learning.

### 6.4 Research limitations and implications for further research

Despite the positive outcomes of the current study, there are issues that were not fully addressed.

First, the present study was limited to understanding CLIL interactions only from the teachers' perspective because of the restrictions imposed by the nature of the ethical permission. Next, with respect to the students' responses, the frequency of each category of interactional features had some limitations in that it is possible that the responses could come from the same or a small number of students in each 'turn' of the teacher-student interactions. At present, it is unclear what the contribution of different students may be to interactions. Therefore, further research should be undertaken investigating both the potential differences between teachers' and students' interactions, and under more conditions, such as information about the

potential responses from multiple students, including in student-student pair work or group work situations. Moreover, the current study was observational and undertaken in authentic classrooms. However, this also means that the results suggesting differences, such as those studies based on the age of the learners maybe an artefact of the conditions of the current study. Further research should be undertaken to consider how interactions vary according to teacher, students of different ages and by students in different schools.

A clear limitation of this study is the small sample size – the research was undertaken only within one school and in four classes with children aged 6-10 years, with about 25 students in each class and with each class being taught by four different CLIL teachers. A larger sample would enable verification of the interactional features, including comparing over time and according to age of the learners.

This study was further limited by the length of the research, with the hours of class observations being relatively short (6-hour per class over 3 academic terms for each Year level, 24-hour classes in total), and the content of each chosen class being quite focused. Further research should be conducted over a longer period of time with wider choice of lesson type (e.g., in mathematics and other subject areas), which may enable a better understanding of CLIL interactions.

Finally, the findings of this study were also limited in terms of types of data collected. For example, L2 development data of students were not measured. Additional research is needed in this regard.

### 6.5 Concluding statement

The primary purpose of this study was to examine the interactional features that occur within a CLIL context, in this case where Mandarin is the language of

instruction in child mathematics classrooms. These classroom interactions were investigated from two perspectives, the teachers' language features and the student responses. The research was undertaken using classroom observation, accompanied by detailed field notes, and semi-structured interviews with the teachers – all of which were used to collect data over the period of six months. The findings suggested that teachers employed various interactional features that supported their students' content and language learning, as demonstrated by the students' responses. Overall, the CLIL method generally provides abundant opportunities for learners' SLA, in this case Mandarin and also for their content learning.

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