The Effects of Focused Memorisation, Delayed Character
Introduction, Character Colour-Coding, and a Unity Curriculum on
the Character Learning of Beginner CFL Learners

Caitríona Osborne

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Dublin City University

Supervisor*:*

Dr Qi Zhang

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Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Doctor of Philosophy (Ph.D.) is entirely my own work, that I have exercised reasonable care to ensure that the work is original, and does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

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Caitríona Osborne

(Candidate) ID No.: 14211378   Date: _____

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Publications

Publications

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Presentations

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List of Abbreviations

ALTE: Association of Language Testers in Europe

BBC: British Broadcasting Company

CCC: Character colour-coding

CEFR: Common European Framework of Reference for Languages

CFL: Chinese as a foreign language

CLIL: Content and language integrated learning

CLPS: Chinese Language Proficiency Scales for Speakers of Other Languages

CNNIC: China Internet Network Information Centre

CPPCC: Chinese People's Political Consultative Conference

DCI: Delayed character introduction

DCU: Dublin City University

EACEA: Education, Audiovisual & Culture Executive Agency

EBCL: European Benchmarking Chinese Language

FE: Formative evaluation

FM: Focused memorisation

GCSE: General Certificate of Secondary Education

HSK: *Hanyu Shuiping Kaoshi* (Chinese proficiency test)

MIC: Meaningful interpretation and chunking

NCCA: National Council for Curriculum and Assessment

NPCR: *New Practical Chinese Reader*

OECD: Organisation for Economic Co-operation and Development

REC: Research Ethics Committee

RTÉ: Radió Teilifís Éireann

SE: Summative evaluation

UC: Unity curriculum

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Abstract

The Effects of Focused Memorisation, Delayed Character Introduction,

Character Colour-Coding, and a Unity Curriculum on the Character Learning

of Beginner CFL Learners

Caitríona Osborne

Teaching Chinese as a foreign language (henceforth CFL) has undoubtedly grown in popularity worldwide over the past number of years. CFL was first introduced as a module in Irish third-level institutions in the year 2006-2007, around the time when the first Confucius Institutes were founded in Ireland in University College Dublin and University College Cork. In 2014, a short course entitled 'Chinese Language and Culture' was introduced to the junior cycle of Irish secondary schools. It was compiled by the National Council for Curriculum and Assessment (NCCA) and provided a set of guidelines for teaching CFL from the beginner level. More recently, in 2017, it was announced that CFL would be introduced as a State-examined subject on the Leaving Certificate curriculum within 10 years.

The following describes a quasi-experimental study with a focus on teaching Chinese characters to beginner learners in an Irish secondary school. Approximately 90 participants aged 14-16 years were divided into four groups, whereby each group was taught beginner-level Chinese under one teaching method of focused memorisation (FM), delayed character introduction (DCI), character colour-coding (CCC), or the unity curriculum (UC), which places equal focus on reading, writing, speaking, and listening. Participants were taught for one academic year, during which they conducted four formative evaluations – testing learning progress – and two summative evaluations – testing learning outcomes. These evaluations comprised exercises such as listening dictation, character recall and recognition, using characters in sentences, reordering sentences, and producing Chinese text.

Findings from the current study show that a combined methodology of FM, CCC, and UC is possibly beneficial to beginner learners when learning character composition and how to use characters in a variety of contexts, while feedback from participants also demonstrated that the characters were one of the main difficulties in their learning of CFL. Evidence-based recommendations for a future CFL teaching methodology are therefore supplied in the current research, while recommendations for a CFL programme are also discussed.

Chapter 1: Introduction

1.1. Overview

The past number of years has seen a rise in the popularity of teaching CFL (Chinese as a foreign language) worldwide (Lewis, Simons, & Fennig, 2018; Ministry of Education of the People's Republic of China, 2018). It is seen that in English-speaking countries such as Australia, the United Kingdom (UK), and the United States (US), CFL is being taught at various levels in the primary, secondary, and tertiary sectors. As the focus of the current research is on secondary school beginner learners in a setting whereby English is the medium of instruction, it is useful to examine the development of teaching CFL at the primary and secondary level in other English-speaking countries.

In the case of Australia, CFL has been taught widely at the primary and secondary levels for over 40 years (Orton, 2017). Still, it is reported that pedagogy and resources are underdeveloped, leading Orton (2017) to call for more research to be conducted in the area of teaching Chinese to native speakers of English. Looking to the UK, it is estimated that while teaching CFL has a long history, it has mostly developed at the primary and secondary levels over the past 15-20 years (Zhang & Li, 2010). As of 2010, it was also reported that CFL was available in approximately 10 percent of secondary schools in England, equating to approximately 400 schools, while some of these schools have even made CFL a compulsory subject for their students (ibid.). More recently, from 2010 to 2017, the number of students learning Chinese for their GCSE (General

Certificate of Secondary Education) exams rose by 41 percent, from 2,542 students to 3,575 students (Tinsley & Board, 2017). In the US, substantial growth in CFL programmes in both primary and secondary education was witnessed from 2004-2008, whereby over 500 additional CFL programmes were created, resulting in a 200 percent increase from 262 courses to 779 in just four years (Xiao, 2011). Similarly, the number of primary and secondary schools offering CFL programmes increased from 0.3 percent to 3 percent of schools in the US in one decade (from 1997-2008) (ibid.). In fact, Yue (2017) describes how currently there are not enough CFL teachers to meet the demands of schools providing CFL programmes, while at the same time, there is a shortage of CFL teacher training programmes.

In examining the situation of CFL teaching in Ireland, it is seen that formal schooling of CFL actually began much later than Australia, the UK, and the US. In 2014, the first formal introduction of CFL saw a short course being introduced for years one to three of secondary schools in Ireland. This short course comes in the form of a set of guidelines advising on themes to be covered and does not detail a specific course outline. The course is not compulsory for schools to offer and given that a detailed course description is not published alongside these guidelines, it is likely that those partaking in this short course will exit at varying levels. While the course offers an excellent introduction to the Chinese language and culture to students in Ireland, it is not yet a State-examined subject. However, the government indeed sees the importance of teaching CFL in secondary schools with former Minister for Education, Richard Bruton, announcing in

2017 that Chinese would be introduced as a Leaving Certificate[1] subject within 10 years under the *Languages Connect* strategy plan. As this will be the first instance of Chinese as a State-examined subject in Ireland, it is worthwhile to explore the existing CFL research from a range of sources as outlined here and in Chapter 2. While the findings of the current research will be useful in the context of Ireland, it is worth noting that they could also have implications for other CFL beginner learners worldwide.

1.2. The research questions

The existing ample research in the field of teaching CFL currently focuses mainly on participants' ability and strategies in recalling and recognising characters (e.g. Cao et al., 2013; Guan, Liu, Chan, Ye, & Perfetti, 2011; Shen, 2005) as well as innovative practices (e.g. Hoenig, 2009; Matthews & Matthews, 2007; Shen & Xu, 2015), while generally control groups are used (e.g. Packard, 1990; Xu & Padilla, 2013). As a result, there appears to be a lack of studies that examine the effectiveness of a number of different methods, taking into consideration both skills of character composition and the ability to use characters in a variety of contexts, over one academic year.

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[1] The final diet of exams in Irish secondary schools.

Therefore, the research questions of the current study are:

What methods are more effective for learning character composition?

What methods are more effective for learning character use?

Is one teaching method more long-term effective than others when teaching

character composition and character use?

Firstly, it is useful to describe the working definitions for 'effectiveness', 'long-term',

and 'short-term' in the current study. In terms of defining 'effectiveness', the main goal

was to ascertain how various teaching methods affect each of the four group's academic

performance. Therefore, when looking at the effectiveness of a certain method, the

evaluation results obtained by each group were examined (see Chapter 3, section

3.3.3.5). That is to say, if a group continually scored relatively high percentages of

correct answers in the recall section for example, then this method could be effective in

enhancing recall of character composition in the current research. On the other hand, if a

group continually scored relatively high percentages of incorrect answers, then this

method could be deemed ineffective for a given section in the current research. In terms

of short-term and long-term learning, the short term refers to the first half of the study

and includes the first and second formative evaluations and the first summative

evaluation, while the long term refers to the second half of the study and includes the

third and fourth formative evaluations and the second summative evaluation (see

Chapter 3, section 3.3.3.5). Burke (2010) describes that a formative assessment is one

that is frequently administered during the course of learning in order to determine any

items or topics that students are finding difficult, allowing teachers or instructors to

make any changes to their teaching as necessary. A summative evaluation is different in that it is administered after a specific learning segment, and therefore assesses students' proficiency of an item or topic (ibid.).

Secondly, the teaching methods employed in the current research concern the teaching of Chinese characters as these are deemed to be one of the most difficult aspects of learning CFL (see Chapter 2, section 2.1.5). When learning CFL, native speakers of English who are accustomed to one specific writing system may find difficulty in attempting to learn a new writing system at the same time as trying to learn a new language. In terms of the practice of teaching CFL, Shen (2015) describes how one of the main challenges is finding a balance between character learning and overall CFL learning. Therefore, the current study addresses the effectiveness of focused memorisation (FM), delayed character introduction (DCI), character colour-coding (CCC), and a unity curriculum (UC) – that encompasses all four skills of reading, writing, speaking, and listening – in terms of both character composition, and the use of these characters in a variety of contexts. The current research therefore provides pedagogical recommendations for teaching CFL to beginner learners who are native speakers of English, as well as specific recommendations for the proposed Leaving Certificate CFL programme.

1.3. Structure of thesis

The breakdown of chapters is as follows.

Chapter 2 provides a review of the literature concerning Chinese language in general and the teaching of CFL. The teaching methods adopted in the current research are explored, while the previously unexplored areas that the current research addresses are also highlighted.

Chapter 3 addresses the methodology employed in the current research. The quasi-experimental research design is explained, while the quantitative and qualitative aspects of the research are also developed.

Chapter 4 presents the first set of qualitative data: a biographical questionnaire; and the first set of quantitative data: the four formative evaluations.

Chapter 5 presents the second set of quantitative data: the two summative evaluations; and the second set of qualitative data: a feedback questionnaire.

Chapter 6 discusses the findings in relation to the research questions. The short-term and long-term effectiveness of the methods are discussed in relation to learning Chinese character composition and the use of Chinese characters. In addition, recommendations

for a CFL methodology are made, as well as recommendations for a new CFL

programme.

Chapter 7 provides conclusions, addresses the limitations, and recommends areas for

future research.

Chapter 2: Literature Review

This chapter outlines features of the Chinese language and reviews the literature associated with the main theme of the current research: teaching Chinese as a foreign language.

It begins with an overview of Chinese including the global significance of the language. Following from this, the teaching of Chinese as a foreign language, including the methods chosen for this research, is discussed. The chapter concludes by demonstrating the potential contributions of the current research to the field of teaching CFL.

2.1. An introduction to the Chinese language

Firstly, Chinese is the language with the highest number of native speakers worldwide (e.g. Lewis et al., 2018), while the official language of China is Mandarin Chinese (Dillon, 2009). Chinese is also an official language of the United Nations (United Nations, 2017) and an increasing number of native speakers of English are learning Chinese as a foreign language (e.g. Li, 2015; Starr, 2009; Suryadinata, 2017; Zhang & Reilly, 2015). Yet, what is also noted among these and other scholars (e.g. Everson, 1998; Shu, 2003; Zhang & Lu, 2012), is the difficulty in learning Chinese as a foreign language. Taking native speakers of English as an example, there are very few similarities between Chinese and English (Kane, 2006). McNaughton (2005) notes the uniqueness of the Chinese writing system, and states that although orally diverse, the

different dialects of Chinese can communicate through the writing system, as the characters convey the same message irrespective of the dialect (McNaughton, 2005; Yin, 2016). Therefore, it is worthwhile to address some unique features of the language including grammar, the writing system, and tones in the following sections.

2.1.1. Chinese grammar

In the initial stages of learning CFL, the basic word order is the same as that of the English language (Abraham, 2013). In addition, there are no morphological changes in tense, number, person, gender, and case (ibid.). This suggests that a native speaker of English should have few problems when composing basic sentences at the beginner level. However, in order to begin reading simple sentences and therefore see written examples of grammar patterns, a beginner must first master some basic Chinese characters to facilitate reading.

2.1.2. The basics of writing and speaking

There are two types of writing systems in Chinese known as the traditional and simplified (Du, 2015; Huang, 2017; McBride-Chang, Lin, Fong, & Shu, 2010). The traditional writing system generally contains more strokes than the simplified writing system, which came about after a number of Chinese character simplification movements that took place in the People's Republic of China during the 1950s (Du, 2015). The current study focuses on simplified Chinese, as this is the official language of Mainland China, and is also one of the official languages in Singapore.

It is unknown when exactly Chinese characters came into existence, yet they have been used for the past 3,300 years (Yin, 2016). There are around 200 radicals in the Chinese language (McNaughton, 2005). These radicals are the basic elements that form Chinese characters or may constitute words themselves (ibid.). Although dictionaries have recorded over 50,000 characters in existence, around 7,000 are frequently and generally used in modern China (Yin, 2016). Furthermore, knowledge of 3,500 characters would enable one to understand 99 percent of characters in magazines, newspapers, and general books (ibid.).

Each morpheme, or smallest unit of meaning, in Chinese is composed of one syllable (Abraham, 2013), which is represented by a character. This syllable contains an initial sound and a final sound (ibid.). In the common spoken Chinese language, there are 21 initials and 38 finals (Liu et al., 2007). Correct pronunciation of these combinations of initials and finals in each syllable is vital, as an incorrect pronunciation will produce a different meaning in the delivery (Abraham, 2013). This correct pronunciation not only refers to initial and final sounds but also to the intonations of each syllable (ibid.) as Chinese is a tonal language (Dingxu, 2016). There are four tones in Chinese that can be applied to a morpheme (Abraham, 2013; Dingxu, 2016). These include the first (or level) tone, the second (or rising) tone, the third (or falling rising) tone, and the fourth (or falling) tone (ibid.). Quong (2007) describes how each tone should sound. The first tone is quite high-pitched, the second sounds like a question being asked, while the third sounds like an incredulous question as in 'What! Really?', and the fourth tone sounds like a definite statement, as in a definite response to an incredulous question.

The morpheme 妈 (mā) is a prime example of the need for correct tonal pronunciation. When written, the meaning of the morpheme is distinguishable through the obvious physical differences, however when spoken, it may not be so clear. For example, using the first tone, the meaning is 'mother', yet when using the third tone, the meaning is 'horse'.

The Chinese writing system differs in many ways from the English writing system. The Chinese writing system is unique in that the characters actually consist of three elements: the sound (phonology); meaning (semantics); and shape (orthography). These elements pose a challenge to CFL beginner learners in various ways. Firstly, unlike alphabetic languages, the definite sound or meaning of a newly introduced character is unknown to a learner simply by looking at the character (see section 2.1.4). Secondly, instead of using a combination of 26 letters to form words, the minimum requirement to sufficiently understand the majority of content in common books and newspapers is around 3,500 characters. There is, however, an official system for spelling the sounds of each character's initials and finals using the Roman alphabet (Du, 2015). This is called pinyin, and it was first used in 1958 (ibid.). Pinyin allows CFL learners, and those with an understanding of the Roman alphabet, to be able to pronounce the sounds of the characters using an alphabet that is familiar to them. Zhou (2019) notes that pinyin is also sometimes used in Chinese elementary schools to facilitate students when learning to read, yet this is gradually becoming less popular.

2.1.3. Writing Chinese characters

Although the process of writing Chinese characters may seem complicated, there is a standard method to follow, as outlined by McNaughton (2005: xx-xxi) and highlighted below.

1. Write top to bottom
2. Write from left to right
3. Write from the upper left corner to the lower right corner
4. Write from outside to inside
5. When two strokes cross, draw the horizontal strokes before the perpendicular strokes
6. Where the strokes are slanted, draw the stroke slanted to the left first
7. Where symmetrical wings are present, draw the centre stroke first

There is now a variety of online sources that can help learners learn how to write by tracing the character on the screen stroke-by-stroke (e.g. ArchChinese.com, LearnChineseEZ.com, and writeinchinese.com). These sources follow the correct stroke order, allowing for a visual representation of the instructions.

2.1.4. Chinese morphology

Native speakers of Chinese conceptualise the idea of a word differently to CFL learners who are native speakers of English (Bassetti, 2005; Packard, 2004; Shei, 2014). While English words have marked boundaries, Chinese words can be comprised of multiple characters (ibid.). It was seen through Bassetti's (2005) study that most of the native speakers of Chinese viewed a word as a syntactic unit, which Packard (2004) also highlights, while most of the native speakers of English learning CFL viewed a Chinese

word as the equivalent of an English word. Similarly, Shei (2014) highlights that an easily recognisable concept can also be viewed as a Chinese word. For example, the word for 'apple' is made up of two characters in Chinese. The first, 苹 (píng), refers to a type of weed while the second, 果 (guǒ), refers to fruit in general. Therefore, despite the occurrence of two characters, the concept refers to the same English word (ibid).

The following section examines six ways in which characters can be formed. It is worth noting that, as mentioned previously, a Chinese word or concept can be comprised of more than one character.

While some Chinese characters are linked to Chinese history and culture (Kane, 2006), Flaws (1998), McNaughton (2005), and Yin (2016) describe the six ways in which a character is formed in the Chinese language. The various types of characters can be based on 1) pictures, 2) symbols, 3) sound-loans, 4) sound-meaning compounds, 5) meaning-meaning compounds, and 6) re-clarified compounds.

1. Pictures: some characters resemble the physical entity they are representing. In general, they are quite recognisable. For example, the Chinese for 'person' is 人 (rén), which also looks like a stick man.
2. Symbols: Some characters represent concepts. For example, the Chinese for 'two' is 二 (èr), and the Chinese for 'below' is 下 (xià). Here, both characters physically represent the given concepts, either by the number of strokes or the stroke positioning.

3. Sound-loans: Some characters represent a Chinese homonym whereby the sound of one character has been borrowed for another despite the meaning being different. For example, 花 (huā), can mean both 'flower' and 'to spend' depending on the context.

4. Sound-meaning compounds: Some characters contain both parts that represent their phonetic sound and parts that represent the meaning of the word. For example, the character yáng (洋), meaning 'ocean', is composed of the radical 氵 denoting water and the character for 'sheep' (羊) which is pronounced 'yáng'. In this way the radical for 'water' represents the concept while the character for 'sheep' represents the pronunciation.

5. Meaning-meaning compounds: These compounds contain radicals (the building blocks of Chinese characters that provide a clue to the meaning of the character, see section 2.1.2) that together form a concept. For example, the Chinese for 'good' is 好 (hǎo). This character is derived from the character for 'woman', 女 (nǚ), and 'son', 子 (zǐ), denoting that 'goodness' comes from this combination. More recently, new concepts have also been created using a combination of characters. Although the character 电 (diàn) originally meant 'lightning', it is used to denote 'electricity' (Kane, 2006). 电 can be put alongside a number of other Chinese characters in order to create a new word. For example, 电话 (diànhuà) literally translates as 'electric words' but is used as 'telephone'. Similarly, 电脑 (diànnǎo) is used nowadays as 'computer', but literally translates as 'electric brain'.

6. Re-clarified compounds: These compounds refer to those that have been changed over the years to allow for clarity in a given character. For example, the character 廷 (tíng) once referred to any type of court or courtyard however, to specifically highlight a king's court, the character was altered to include the radical 广, meaning that the character for a king's court was changed to 庭 (tíng).

When a new character is introduced to the Chinese language, it may involve phonetically mimicking the borrowed word (Chen, 2001). That is to say, the foreign word will be written using Chinese characters and pronounced as if it were not borrowed (ibid.). An example of such can be seen in the Chinese for 'microphone', which is 麦克风 (màikèfēng) (ibid.), pronounced 'maɪkəfʌŋ'. Taken in literal terms however, these characters read 'wheat gram wind', thus pronunciation takes precedence in this instance.

2.1.5. Reading Chinese characters

The complexity of character formation strategies has been outlined in section 2.1.4. When presented with new Chinese words, a CFL beginner learner will be unaware of the strategy used to form the characters, thus the pronunciation and meaning will be unknown unless a dictionary is consulted. For example, one may easily mistake the meaning of a character by presuming or guessing it belongs to one of the categories listed in section 2.1.4 when it belongs to another. In researching CFL learners' thoughts on what is most difficult when learning radicals, Shen (2010) found that the beginner

learners expressed more difficulty in remembering the shape and sound of radicals compared to the meaning. Indeed, Shen (2018) further describes that in reading Chinese text, word knowledge development is crucial for learners to be able to recognise the words correctly. This highlights the complication for beginner CFL learners in that their ability to read Chinese text depends on their learning of the Chinese writing system, and indeed how learning this new writing system will likely take much time due to its complexity as highlighted here and in section 2.1.4.

Previous research has shown that beginner learners will find it difficult to become accustomed to a new writing system that differs from the alphabetic language they have been using (Hoenig, 2009; Shen, 2010; Xing, 2006). Unlike new words encountered in an alphabetic language, characters cannot be sounded out phonetically. Allen (2009) notes that almost half (42 percent) of a beginner's learning time is spent learning how to write the correct composition of characters. However, many scholars also note that this building of vocabulary is essential for the development of the learner's reading and writing ability (Chang, Xu, Perfetti, Zhang, & Chen, 2014; Guan at al., 2011; Longcamp et al., 2008).

In light of the aforementioned characteristics of the Chinese language, one can assume that the teaching methods of CFL are of utmost importance, particularly in the case of character learning. The teaching of such a contrasting writing system to beginner learners not accustomed to Chinese characters means that an instructor will need to dedicate time to teaching the correct character composition, pronunciation, and meaning

of the word or concept. As a result, different methods have been explored in order to equip learners with a strong foundation of the language. Indeed, there is also an ongoing debate in addressing the most effective way to teach characters to native speakers of Chinese (Adamson, 2004; Han, 2005; Lam, 2011). Further information on specific methods adopted by instructors to teach CFL to beginner learners can be seen in section 2.3.

2.2. The significance of Chinese language on a global level

As mentioned previously, Chinese is the language with the highest number of native speakers. In 2014, the British Broadcasting Corporation (BBC) reported that approximately one in five people in the world speak some form of Chinese, and that there are over 800 million Mandarin Chinese speakers in the world. In 2018, it was noted that the number of Mandarin Chinese speakers had increased to approximately one billion worldwide (Lewis et al., 2018). While these and previous statistics address the rise in native speakers worldwide, the following examines the variables that play a role in the increasing popularity of teaching and learning CFL worldwide.

2.2.1. China's economy

The World Bank Group (2019) provides some insights as to why the effect of China's economy on the world is so great. Since 1978, market reforms in China have influenced the rapid economic growth (World Bank Group, 2019). China's GDP has also increased

by an average of 10 percent per year since then, which the World Bank Group (2019) notes as the highest constant development by a large economy. Recently, China has become the second largest economy in the world (Jenkins, 2019), while it is likely to become the largest economy within a matter of years (ibid.). As well as this, China had reached all Millennium Development Goals by 2015 (World Bank Group, 2019). These eight Millennium Development Goals, put in place by the United Nations (United Nations, 2016), include: eradicating extreme poverty and hunger; achieving universal primary education; promoting gender equality and empowering women; reducing child mortality; improving maternal health; combatting HIV/AIDS, malaria and other diseases; ensuring environmental sustainability; and global partnership for development. The World Bank Group (2019) notes that not only has China achieved these goals, it has also been instrumental in the achievement of these goals on a global scale, proving the effect on global economies.

It cannot be ignored that with this growing economy, China's political power is also increasing, despite the government taking the position that involvement in other countries is purely for economic reasons (Kroeber, 2016). Indeed, China's role as both buyer and supplier carries benefits for both the world economy and individual countries (ibid.). Nevertheless, China's rising economy is one of the reasons for more and more people to begin learning Chinese as a foreign language (e.g. Jiani, 2017), while Li (2019) also points out that the boost of CFL teaching in China occurred at the same time that the country was witnessing a surge in economic growth. A number of other reasons for the growing popularity of learning CFL are highlighted in section 2.3.1.

2.2.2. The rise in number of CFL learners

As explained previously, Mandarin Chinese is the official language of China. According to the Organisation for Economic Co-operation and Development (OECD) (2013), an official language is one that "has legal status in a particular legally constituted political entity such as a State or part of a State, and that serves as a language of administration." Mandarin also holds the title of 'national language' of China, which means that Mandarin represents the Chinese nation (Li, 2015). Therefore, with the rise of China's economic power in the world, learning Mandarin is undoubtedly on the rise, while China is also host to hundreds of thousands of international students each year (Jiani, 2017). The Ministry of Education reported that in 2017, some 489,200 international students from 204 countries and territories arrived in China to further their studies (Ministry of Education of the People's Republic of China, 2018). In addition, Li (2019) highlights reports that over 100 million people are either learning or using Mandarin outside of China.

With this growing number of Mandarin learners, schools offering Mandarin as a subject are also seen to be on the rise in the cases of England, the United States, and Australia as previously mentioned in Chapter 1 (see section 1.1). However, among these a great variation in standards and development of CFL programmes is seen. While Australia has experience of teaching CFL in primary and secondary education for over 40 years, the likes of the UK, and Ireland in particular, are still very much behind. For example, in Ireland, the Chinese short course introduced to the junior cycle of second-level education is optional and is not assessed or graded by the State Examinations

Commission as with other languages on the curriculum. If it were a State-examined subject, students would have a more structured programme, and would possibly be extrinsically motivated as a result of being examined by the State. Fortunately, government plans aim to see CFL as a Leaving Certificate subject as part of a 10-year strategy for improving the foreign language skills of Irish students (Department of Education and Skills, 2017). As students in Ireland will therefore leave school with only two years' experience of learning CFL, it seems that effective teaching methods should be researched and implemented to provide students with the best opportunity for language acquisition in a relatively short period of time.

An initiative set up by the Chinese Ministry of Education has resulted in a worldwide growth in the number of CFL learners. Confucius Institutes, established in 2004, are non-profit public institutions that typically partner with academic organisations around the globe to promote Chinese language and culture (Zhou & Luk, 2016). Since their establishment, they have spread rapidly around the world and there are now approximately 500 institutes worldwide (Hanban[2], 2014). Three functions of the Confucius Institutes as listed on the Hanban (2014) website include:

> To make policies and development plans for promoting Chinese language internationally;
> To support Chinese language programs at educational institutions of various types and levels in other countries;
> To draft international Chinese teaching standards and develop and promote Chinese language teaching materials.

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[2] 'Hanban' is the colloquial abbreviation for the Office of Chinese Language Council International/Confucius Institute Headquarters.

These functions therefore focus on promoting CFL teaching and learning and on creating standards in teaching. Two Confucius Institutes were set up in Ireland in 2006-2007 in University College Dublin and University College Cork, and 12 Confucius Classrooms were also set up in Ireland at this time (Hanban, 2014). Indeed, Ireland appears to see the importance of teaching and promoting CFL through these, and from plans to introduce CFL as a Leaving Certificate subject.

It is also quite popular to seek online applications or websites when learning Chinese, as these are easily accessible through a phone or tablet. Moloney and Xu (2016) note that many learners of Chinese are availing of these online resources either in addition to attending CFL classes or independently. In fact, Lin et al. (2015) have noted in their research among international students that up to 62 percent are using an online Chinese learning application. However, McCarty, Sato, and Obari (2017) also describe some of the potential limitations to learning a language online, such as requiring self-discipline, the impersonal aspect, and of course prolonged screen time. Specific to language learning online, this lack of personal interaction may make it difficult to practise communicating in Chinese, and when an item is not fully understood, questions may not be easily answered as in a physical classroom with a trained instructor.

To sum up, CFL classes are on the rise worldwide be it in schools, private institutions, or through online learning. While it is positive that some institutions are providing CFL classes, it can be difficult to monitor the quality of online learning tools despite their growing popularity. It seems apparent that CFL should first be taught to beginner

learners using effective teaching methods delivered by trained instructors. In the current research, more information is made available on teaching CFL effectively, thus assisting in improving the learning outcomes of CFL beginner learners.

2.3. CFL research

The following section looks at previous studies undertaken that examine various teaching methods of CFL. Firstly, the history of teaching CFL will be looked at before analysing new and innovative methods for teaching Chinese characters that are being explored nowadays.

2.3.1. History of teaching CFL

Xing (2006) describes that teaching CFL to learners in China is seen to date back to the Tang Dynasty, or seventh to ninth century. However, Zhu (2010) states that the teaching of CFL by professionally trained academics only began in the 1950s. Herbert Giles, an English sinologist (Aylmer, 1999), wrote a book entitled: *Chinese without a Teacher* in 1872. Giles was accepted into a student internship programme in China, where he served as a consular officer handling jobs such as a teaching assistant and an interpreter for twenty-six years (Aylmer, 1999). In his book, Giles (1872) attempts to teach the basics of Chinese to foreign language learners. The book focuses on the pronunciation of various Chinese words, ranging from numbers to a section dedicated to phrases a housewife may need in various scenarios (Giles, 1872). It lacks the teaching of character

composition, instead using the English language to describe the unique sounds of Chinese (ibid.). In other words, while useful as an introduction to the sounds of Chinese and some basic phrases, it does not offer much else in terms of acquiring the language. Indeed, Giles (1872) describes it as a superficial introduction to the language.

Between 1966 and 1971, the teaching of CFL ceased as a result of the Cultural Revolution, and up until five years after this, the number of CFL learners increased minimally (Zhu, 2010). Yet nowadays, along with an increase of CFL learners worldwide (e.g. Xing, 2006), there is increasing interest in examining methods for teaching CFL (e.g. Lam, 2011; Moloney & Xu, 2016). While the method of memorising characters had been strongly advocated since the Han Dynasty (206 BC–220 AD) (McDonald, 2011), there are now many criticisms of this traditional teaching method. The main issue is that this method does not typically allow for critical thinking or imagination when learning, resulting in students purely memorising facts rather than attempting to make connections between concepts, while questioning or challenging their instructor is also a rarity (Di, 2016).

The teaching of CFL is seen to have changed largely after the People's Republic of China was recognised by the United Nations in 1971 (Zhu, 2010). After this development, China became more internationalised and opened up to many countries, particularly in the West (ibid.). Simplified characters and pinyin were then used in the UN's official documents, and Chinese language classes were introduced to universities in the US (Lai, 2004). Naturally, the teaching and learning of CFL began to gain

popularity with this improved relationship with other nations (Xing, 2006). Not only did

more foreign students travel to China to learn the language, but many more instructors

were also being trained in teaching CFL (Zhu, 2010). It was also at this time that more

research began to be compiled on topics such as second language acquisition and

pedagogy (ibid.).

The popularity of learning CFL was sparked by China's major reforms by Second

Generation leaders in 1978 (Zhu, 2010). These reforms refer to China's shifting of focus

from political movement towards developing the economy (Fang, Garnaut, & Song,

2018). As part of these reforms, China looked to foreign investors in order to achieve

economic development goals (United States International Trade Commission, 2007).

Because of this, more and more foreign students were attracted to studying Chinese

language and culture in China (Zhu, 2010). Naturally, as a result, the demand for CFL

instructors was also very much on the rise. Teachers who had graduated after the

Cultural Revolution and who had majored in Chinese or foreign languages assisted in

filling these teaching positions, and during this time the improvement of teaching

materials allowed for the teaching of various levels of CFL. In Chinese universities,

research into CFL textbook compilation was prevalent, and it was during this period that

the *Practical Chinese Reader* was first published (Zhu, 2010). In fact, it is still popular

when teaching CFL today (ibid.).

Research in Chinese universities not only included textbook compilation but also

contributed to curriculum development, assessment, and pedagogy in CFL through

departments set up to teach CFL to foreign students (Lu & Zhao, 2011). Training and certification processes for teachers of CFL became more formalized around this time, and now CFL instructors must hold two certificates denoting their proficiency in Mandarin Chinese and in teaching (Zhu, 2010). The establishment of professional journals, such as *Chinese as a Second Language Teaching and Research (CASLAR)* and *Chinese as a Second Language (CSL),* allows for CFL research to be published and widely communicated.

Xing (2006) notes that from the grammar-based teaching methods as highlighted by Zhu (2010) and Davies (2007), methods of teaching CFL developed to function-based and communication-based. Function-based methods are defined as equipping the student with the ability to function in the language according to their needs (Germain, 1982). On the other hand, communication-based methods focus on teaching communicative competence (Richards, 2006). This includes teaching students how to use the language in a variety of contexts, teaching communicative strategies, and training students to create and understand different text types (ibid.).

In recent years, Lu and Zhao (2011) noted the prevalence of CFL programmes in the world including university programmes aimed at various levels and other short-term training courses. It is also noted that when the Chinese economy and political situation are in turmoil, the popularity of CFL drops, and subsequently when the Chinese economy is booming, the popularity rises (Xing, 2006). This demonstrates that CFL learners may be influenced by the status of Chinese politics and the economy (ibid.).

Indeed, a multitude of other factors are likely to influence this growing number of CFL learners, including numbers of heritage learners, travel, employment, social interaction, or interest (Cruickshank & Tsung, 2011).

2.3.2. Studies in CFL

Moloney and Xu (2016) also note this relationship between the rise of CFL teaching and learning in the world and China's strong economy. They conclude that the expansion of CFL teaching calls for more instructors and, further to this, innovative methods for the successful acquisition of Chinese. To them, innovation signifies creativity in thought and practice (ibid.). In light of this, the following sections explore studies conducted in CFL research that examine various methods for teaching and acquiring CFL.

As mentioned in Chapter 1 (section 1.2), previous research focusing on character learning in the field of CFL demonstrates a focus on testing participants' recall and recognition skills, rather than their skills of using characters in various contexts. The following section (section 2.3.2.1) therefore highlights studies relating to learning characters, which demonstrates the focus on character composition in previous CFL research.

2.3.2.1. Studies focusing on character composition

Studies focusing on the learning of characters and evaluating character recall and recognition skills are widespread in the area of CFL research (e.g. Cao et al., 2013; Guan et al., 2011; Longcamp et al., 2008; Shen, 2005; Shu, 2003; Tan, Spinks, Eden, Perfetti, & Siok, 2005; Xu, Chang, Zhang, & Perfetti, 2013). Apart from the writing system being completely different to that of most CFL learners' mother tongues, Tan et al. (2005) note another reason for the focus on characters in CFL research. They describe the four main components when it comes to learning a language. These are: reading; writing; speaking; and listening (ibid.). While it is clearly seen that the writing system must be mastered in order to communicate sufficiently in a language in written form, Tan et al. (2005) make a further claim that when learning Chinese, writing the characters can also have potential to improve the reading skills of learners, demonstrating benefits of learning characters for other aspects of CFL acquisition.

However, some researchers (e.g. Allen, 2009; Shen, 2015; Ye, 2013) describe the debate that now exists as to whether or not spending so much time trying to learn the composition of the characters is beneficial to overall CFL learning. Allen (2009) claims that some learners may spend up to 42 percent of their learning time trying to master the characters, but strongly believes that this is futile as it was also documented that native speakers type characters – instead of handwriting them – 50 percent to 100 percent of the time. Shen (2015) outlines the opinion of many instructors who believe that learning to type characters instead of handwriting them saves time, reduces writing errors, and allows for sufficient communication and character recognition from an early beginner

level, as the Chinese word processor presents the user with a list of character options from the typed pinyin (see section 2.4.2). In this way, typing the characters can be seen to be beneficial as opposed to handwriting them. Zhang and Lu (2014) and Hsiao and Broeder (2014) have even conducted studies on the role of using Chinese word processors on social media to enhance character learning outcomes. However, as Tan et al. (2005) note, the writing of characters assists in the ability to read characters. Without practising the writing of characters, it appears that beginner learners only communicating via a Chinese word processor may not improve their reading or writing as much as those who learn via handwriting.

The current issue in relation to teaching Chinese characters is, according to Shen (2015), about finding a balance between learning the characters sufficiently while developing overall language learning at the same time, as this study sets out to research. Additionally, Weiping (2016) notes that a unique approach to teaching Chinese characters is also required on account of the challenges they pose to beginner learners who are more accustomed to languages using the Roman alphabet.

Studies relating to learning Chinese characters tend to evaluate character learning outcomes in relation to composition only. Some examples are outlined below.

1. Zhang and Reilly (2015) investigate the role of character writing in relation to recognising characters, while the quality of pinyin and character handwriting is also examined.

2. Grenfell and Harris (2015) examine beginner learners' strategies in learning

characters in isolation.

3. Chang et al. (2014) examine the effects of handwriting, visual chunking, passive reading, and stroke-reporting in learning characters in isolation.

4. Xu and Padilla (2013) investigate the method of meaningful interpretation and chunking (MIC) in learners' immediate learning and retention of Chinese characters in isolation.

5. Ke (1998) investigates the effects of language background on the success of learning Chinese characters in isolation.

6. Everson (1998) examines the relationship between speech and meaning through a word recognition test.

According to the examples above, recall and recognition tests are dominant in studies relating to learning characters. Weiten (2013) describes a recall test as one in which students are asked to provide the correct characters when presented with an English word or pinyin, that is, they must recall the answer from memory. A recognition test involves presenting a word to a student whereby they state whether or not the word has been previously learned and can therefore be recognised (ibid.). As a result, it can be clearly seen from the examples involving recall and recognition tests that the character composition is being examined as a separate entity from the language as a whole.

Many studies conducted in the area of examining methods for teaching CFL investigate the participants' character learning development with character recall and recognition evaluations. While characters are deemed to be important to master due to their

difficulty and their positive effect on the reading ability of CFL learners, it has been noted that perhaps too much of the learning time is spent trying to learn the composition of these characters. Furthermore, when evaluating the learning outcomes, only individual characters tend to be tested in recall and recognition tests. While the researcher values and recognises the previous research highlighting the importance of learning how to master the composition of characters as opposed to typing them via a Chinese word processor, the goal of this research was to identify the method (or methods) most suited to teaching how to use characters in a variety of written contexts, without compromising on skills in recognising and recalling the composition of learned characters. This was measured in the evaluations conducted throughout the study, whereby participants were tested not only on character recall and recognition but also in exercises testing the use of characters such as sentence formation and producing a text (see Chapter 3, section 3.3.3.5). As a result, the current study focuses on the written aspect of the language, and while oral skills were practised in the classroom, they were not tested in the evaluations.

2.3.2.2. Methods of teaching Chinese characters

While the importance of learning Chinese characters has already been addressed, the following section examines studies involving various CFL teaching methods concerning the characters.

While the studies listed in the previous section tend to evaluate the participants in similar ways in terms of character recall and recognition, the methods used to teach the

characters in the first place can vary. Shen and Xu (2015) examine the effects of

learning characters via the concept of active learning. The notion of active learning

firstly enables students to seek knowledge themselves before analysing their own

learning outcomes (ibid.). Results from their study find that when characters are grouped

rationally in a lesson, and when the characters are used in group activities, vocabulary-

learning sessions are highly effective (ibid.). Another method published by Matthews

and Matthews (2007) and Hoenig (2009) promotes the teaching of the most common

characters first before moving on to more complicated characters for successful

learning. However, it was noted by the researcher and Shen (2004), that there is a

paucity of research examining the acquisition of Chinese characters.

The characters are formed using various methods of pictures, symbols, sound-loans,

sound-meaning compounds, meaning-meaning compounds, or re-clarified compounds

as highlighted by Flaws (1998), McNaughton (2005), and Yin (2016) (see section 2.1.4).

Because there is not one set structure or rule to decipher the character pronunciation or

meaning, it is seen that repetition is commonplace in CFL learning (see section 2.4.1).

Similarly, while memorisation strategies are prevalent in China, they are naturally a

popular method for learning CFL. Hseuh (2016) has attempted to bridge the knowledge

gap in character learning by creating an innovative programme that uses pictorials for

teaching the character meaning. In fact, it is quite similar to the programme compiled by

Letterland International (2014) that is used to teach the English language alphabet to

young learners. However, this programme created by Hseuh (2016) primarily

demonstrates a link between the composition and meaning of the characters and is not

recommended to be used when first learning how to write the characters. Hseuh (2016) states that it is firstly a project to bridge the gap between the East and the West by introducing foreign learners to China and the Chinese language, and secondly is used to showcase her art. In other words, while it may be useful to see the characters come to life, there is no evidence to support any positive effects that this might have on CFL learners and their learning of character recall, recognition, and use.

To sum up, while little research is available on various methods used to teach characters, section 2.4.1 will highlight that memorisation strategies are indeed one of the more popular strategies. The fact that CFL teaching and learning is now becoming more popular, coupled with this paucity of research into character-teaching strategies, it is suggested that urgent research is required in order to decipher the most effective teaching methods of CFL to coincide with the rising numbers of learners. Further to this, the establishment of Chinese as an examined subject in Irish secondary schools in the coming years means that this research has the potential to aid the curriculum planning process. The following section therefore addresses the chosen teaching methods for the current research, including the rationale as to why they were chosen.

2.4. The teaching methods examined in the current research

Four teaching methods were chosen to assess their effects on learning character composition and character use. They are focused memorisation, delayed character introduction, character colour-coding, and the unity curriculum method which reflects

the current approach to teaching CFL employed in Irish third-level institutions, encompassing equal focus on reading, writing, speaking, and listening. The following sections will further explain these methods.

2.4.1. Focused memorisation

In Confucian thought, memorisation is seen as a requirement for successful learning (Randall, 2007). It is believed (e.g. Greenberg, 2000) that the more focus of attention one applies to the memorisation of an item, the more effective the learning outcome will be. Confucian thought also supports the idea that memorisation occurs before understanding, meaning that a topic should be memorised first before it will be understood (Randall, 2007).

Memorisation strategies are popular when both native and non-native speakers in China learn Chinese (e.g. Wang & Lin, 2018; Wang & McBride, 2016; Yu, 2018). Additionally, they are actually used widely in other subjects in China, including maths (Zhao, 2016). Yet, with these memorisation strategies, there can be little room for creativity in learning (Kim, 2005; Tan, 2001). While this may cause issue for the development of critical thinking skills, for example, it has still been reported that both students and teachers alike rely on repeated writing to facilitate learning characters (Winke & Abbuhl, 2007; Yu, 2018).

Randall (2007) also points out that these memorisation strategies should not be

mindless. As sufficient focusing of attention must occur for memorisation to be effective, any mindless repetition would not be beneficial to a CFL learner. In this way, it may be said that memorisation strategies can be effective, once sufficient focus is applied during the process. As a result, it is apparent that students learning under memorisation strategies should first be instructed that focus and concentration on the new item (e.g. a character) are essential.

The fact that memorisation strategies are so common in China, coupled with the fact that the Western world adopted CFL teaching methods from China when teaching CFL became more widespread (Xing, 2006), it is no wonder that memorisation strategies appear to be adopted when teaching Chinese characters. Some authors criticize the lack of creativity that memorisation strategies allow for (Kim, 2005; O'Leary & Scully, 2018; Tan, 2001). Yet, while there is little room for creativity in memorisation exercises, it is still seen to be used among students and teachers as a method for learning Chinese characters.

2.4.1.1. Studies in memorisation strategies

In light of section 2.4.1, it seems that there are mixed opinions on the notion of learning via memorisation strategies. This section therefore outlines studies conducted in relation to testing the effects of memorisation strategies and highlights how the current research differs from others.

There have been numerous publications both supporting and criticising memorisation strategies, however, studies conducted in relation to the testing of these are not as abundant. The oldest articles found dated back to the 1990s (Naka, 1998; Naka & Naoi, 1995), whose research supports the use of memorisation strategies in learning a logographic language. What is also highlighted by Winke and Abbuhl (2007) is the fact that when investigating methods used by CFL learners to assist learning vocabulary, they found that memorisation strategies were a personal choice for many. In other words, it was not necessarily upon the guidance of the instructor that they came to learn the characters in this way, but rather a natural occurrence.

A study conducted by Xu and Padilla (2013) explores a method of learning characters (meaningful interpretation and chunking - MIC) against memorisation strategies in order to decipher which is more effective. The MIC method focuses on establishing links between new items and prior knowledge in order to facilitate retention (ibid.). This study specifically questions the implications of these methods on the participants' ability to recognise and recall characters only. Furthermore, it was noted that the group learning via MIC methods showed promising results only in the short-term, and it is suggested by the authors that some degree of repetition of the characters is still needed to retain the composition (Xu & Padilla, 2013). In examining character copying in dyslexic and non-dyslexic children, McBride-Chang, Chung, and Tong (2011) also only tested character composition with recall and recognition tests. Moreover, they tested participants' copying abilities of other logographic languages previously unknown to them, so that the meaning and subsequently the understanding were somewhat ignored in this

research in favour of examining composition skills (ibid.).

In light of the few studies conducted on the testing of memorisation strategies, the following has been conducted in the current research. Firstly, the group assigned to the method of focused memorisation was taught to do so correctly. In addition to this, the group was not exposed to any other character-learning methods during this time. That is, the participants were taught via one strategy for the duration of the study as with all other groups in the study (see Chapter 3, section 3.3.3.4).

To sum up, memorisation strategies that are employed to learn Chinese characters are seen to have originated from China and are now popular in teaching and learning CFL. While publications note the need for some element of repetition in learning the characters, it can be seen that the number of studies testing memorisation strategies is low, while the testing of participants' ability to not only recall and recognise the characters but also use them in various contexts is further lacking. The current study therefore addresses these unexplored areas in examining participants' skills in recognising, recalling, and using characters in a variety of situations, thus adding to the relatively sparse literature.

2.4.2. Delayed character introduction

As Chinese characters are arguably one of the most difficult aspects of the language for beginner learners to grasp, the question of whether or not pinyin should be focused on

before being introducing a new writing system is explored by He and Jiao (2010) and Ye (2013). Described by He and Jiao (2010), delayed character introduction is a process whereby CFL learners do not attempt to learn Chinese characters until they have had sufficient time to grasp the pronunciation and other basic aspects of the language. In other words, there is a lag between initial learning of CFL basics (such as pronunciation, learning with pinyin) and learning of the writing system.

Taking a different perspective, Allen (2009) writes that learning to write characters is an inefficient use of a beginner's learning time. Not only does the skill take much time to master, but also in the beginning stages of learning CFL, learners do not yet have sufficient linguistic knowledge of the Chinese language to warrant the memorisation of characters (ibid.). Allen (2009) also makes the point that nowadays the need to be able to handwrite Chinese is becoming less frequent as technological advances persist. Not only are technologies advancing, but more and more of the Chinese population of all ages are becoming familiar with and using these technologies. For example, in a report issued by the China Internet Network Information Centre (CNNIC) in 2017, it was stated that in 2016, 95.1 percent of avid and frequent internet users used their mobile phones to access the internet, which was an increase of five percent from 2015. When observed, the use of instant messaging applications was shown to be accessed steadily throughout the day by 91.8 percent of mobile internet users (CNNIC, 2017). It was also noted that the age group of frequent internet users ranged from below 10 years to over 60 years (ibid.). This data shows that the vast majority of Chinese people of all ages are frequently typing the written language rather than handwriting it. The writing of Chinese

via technology is certainly aided through 'fuzzy-matching technique' or pinyin input method as described in the next paragraph. Another emerging feature of communication across instant messaging applications is the function of creating voice messages, whereby users may speak into their phone to quickly relay a message to receivers. In this instance, written communication is completely abandoned. It can be seen, therefore, why Allen (2009) is so persistent in his belief that handwriting is perhaps a less useful task to master when the strong and steady increase in mobile internet users across all generations in China is observed, and with this, an increase in written communication via a keypad or touchscreen rather than handwriting characters.

There are two prominent methods by which Chinese can be communicated via smartphones and computers. Firstly, there is the method of pinyin input, for example Microsoft Pinyin or Google Pinyin Input (Zhang & Lu, 2014). This is a process whereby the Chinese character is spelt using pinyin by the user who must then select the appropriate character from a list. Alternatively, there is also a character input method (Zhu & Nakagawa, 2015) whereby the user roughly traces the character onto their smartphone's touchscreen where it will be recognised by the software. Xu, Huang, Chen, and Jiang (2012) also describe this idea of 'fuzzy matching' whereby the software will attempt to match the most similar character to the one traced onto the touchscreen. In other words, while the recall of the character need not be perfect, the user again must be able to recognise the correct character. As noticed from examination of these two input methods, both require knowledge of Chinese characters. With the pinyin input method, the correct character must be selected from a list provided. With the character

input method, the character must be known before attempting to trace even a rough outline of it.

It is assumed that with technological advances on the rise, and the use of technology becoming more prevalent among all age groups in China, handwriting is on the decline and is therefore not useful to learn in the CFL classroom (Allen, 2009). However, it can be seen that in fact, of the two input methods available for smartphones and computers, knowledge of characters is still paramount in order to ensure the correct character is being used for the text in question. In addition, Tan et al. (2005) describe that writing characters benefits the learner in other aspects of learning CFL, such as the ability to read Chinese text. Moreover, the Chinese People's Political Consultative Conference (CPPCC), after having observed a decline in the practising of writing Chinese characters in schools, proposed that Chinese character writing should be formally assessed and integrated when training teachers (Liu, 2015). This proposal has gained great support from other members of the CPPCC as well as China's parliament (ibid.).

While it is clear that despite technological advances time must still be dedicated to learning the characters, it can be agreed that perhaps too much time is spent attempting to learn characters, especially in the case of beginner learners. As a result, it is probably more useful to identify solutions such as effective methods for teaching the characters, rather than spending less time learning them. In light of this, the following section will look primarily at two studies conducted by Ye (2013) and Packard (1990) in examining the timing of introducing characters to beginner learners.

2.4.2.1. Studies in delayed character introduction

Although the notion of delaying the introduction of characters for beginner learners seems to offer a solution to the issues regarding excess time being spent trying to learn them, there is a paucity of research on this method. The following section focuses primarily on two studies conducted by Packard (1990) and Ye (2013).

Packard's (1990) study involved testing two groups of CFL learners in either a 'lag' or 'no lag' group to investigate the effects that a delay in learning characters might have on the participants' learning of CFL when compared with a group learning characters from the beginning of the course. The 'lag' group began learning the characters three weeks after the course commenced, while the 'no lag' group began learning the characters upon commencement of the course (Packard, 1990). Packard (1990) notes that a delay in teaching characters is seen to have many benefits as CFL learners will not become overwhelmed with learning both a new language and a new writing system at once, and when it is time to learn the writing system, a strong foundation in the language is assumed to assist in character acquisition. Upon completion of the study, Packard (1990) concluded that the 'lag' or delayed character introduction group performed better in areas such as being able to discriminate phonetically and transcribe new Mandarin syllables, and these participants were also more fluent in spoken Mandarin. In this way, the benefits of delaying the introduction of characters in this study are quite obvious for the spoken aspect of the language.

Ye's (2013) study also suggests that delaying the teaching of characters in CFL supports

overall language acquisition in beginner learners. When CFL learners are presented with a writing system unfamiliar to them, the ability to pronounce characters straightaway is an impossible task. Ye (2013) also makes the point as highlighted by Dew (2005), that even native speakers of Chinese learn characters through DCI. Before attending school, native speakers have already spent five or six years building on their listening and speaking skills before attempting to learn character composition. It can therefore be seen as an arbitrary task to attempt to learn characters before linguistic links can be made in beginner CFL learners.

For the data collection phase of the study, Ye (2013) conducted surveys and interviews of both CFL teachers and students in the US. While the theory states that DCI should be beneficial to CFL learners, the surveys and interviews were conducted in order to grasp the general consensus of using DCI as a teaching or learning strategy (Ye, 2013). In the responses to these surveys and interviews, Ye (2013) found that approximately 84 percent of teachers and approximately 77 percent of students were introducing and being introduced to characters at the beginning of a given course, while only 9.2 percent of teachers and 9.9 percent of students were introducing or being introduced to the characters in the middle of a semester. When asked to identify the perceived ideal time to introduce characters in CFL learning, the majority of the teachers and students favoured introducing the characters from the beginning of the course (Ye, 2013). However, as Ye (2013) also points out, this may have been because this 'no-lag' method of instruction was the method that the students were accustomed to.

In the interviews, teachers and students were asked to comment on their rationale for believing that introducing the characters in the early stages of CFL learning might be beneficial to the students (Ye, 2013). In terms of teaching characters from the beginning, teachers and students believed that this would make learning characters less difficult in the long run, and that if the teaching of characters was delayed, the students might rely on pinyin (ibid.). Other points were made in support of introducing characters at an early stage such as students' desire to learn characters from the outset and the fact that the characters were deemed to be an essential part of learning CFL (ibid.). From these results, it is seen that learning the characters is highly valued in CFL and that there are reservations surrounding DCI. It appears to be an opinion that to not teach the characters from the beginning could have negative implications on the students in the long run. However, results from Packard (1990) show that DCI does not have a negative effect on a student's learning of CFL; in fact, it was found to be more beneficial for the spoken aspect of the language when compared with introducing characters from the beginning of the course. In this way, it can be said that although it appears to be effective in some cases, there are still some reservations surrounding DCI.

To sum up, DCI appears to be quite an effective approach when teaching CFL (e.g. Packard, 1990). However, Ye (2013) has demonstrated that there are strong reservations among both teachers and students regarding DCI. On another note, the participants of Packard's (1990) study and Ye's (2013) study were university students, therefore older than the participants of the current research. The current research focuses on a different cohort of CFL learners in teaching via DCI, and here the focus is on the written aspect

of the language. The DCI group participants of the current research were introduced to the characters after approximately three weeks of beginning to learn CFL as in Packard's (1990) study. The current research contributes to the literature in examining the use of characters as well as character composition, and DCI in general, against three other methods in teaching CFL.

It is important to note that DCI, as described in this section, refers to a specific approach and strategy towards teaching Chinese characters. In the context of the current study, a working definition of DCI as a method was therefore created. Table 3.3 in Chapter 3 defines how each group was instructed under each method in the research. Here, it is demonstrated that the method of DCI, created specifically for the current research, encompassed a focus initially on pinyin, whereby the learning of characters was delayed and introduced as a final task in a given lesson after the translation of the lesson's dialogue and some oral and written exercises. Additionally, participants were not instructed how to learn these characters in their own time.

2.4.3. Character colour-coding

It is seen that Chinese characters are sometimes depicted using one of five colours depending on their tone in order to allow for greater ease in pronunciation (e.g. Boyce, 2010; Dummitt, 2008). In online dictionaries such as Pleco and MDBG, different colours are also used to denote the different tones. While no studies have been conducted to analyse the possible effects that colour-coding characters may have on

CFL beginner learners, the following will outline some benefits to using colour when learning new items in general.

The notion of using colour in teaching is quite prevalent (e.g. Jensen, 2008; Karges-Bone, 2010). Jensen (2008) highlights that colour helps to trigger the memory when retrieving information in the brain, and Karges-Bone (2010) highlights that children are generally more drawn to vibrant colours when learning, thus the suitability of using various colours in the classroom.

As mentioned previously, there is a certain element of memorisation that must occur when learning CFL. The application of colour in learning assists the memorisation process as highlighted in an article by Dzulkifli and Mustafar (2013). In an educational setting, Dzulkifli and Mustafar (2013) note that the use of colour in lessons can motivate learners, and therefore has the potential to positively affect a learner's cognition skills of not only paying attention and remembering the lessons, but also in understanding the lessons. This is particularly valuable information for the current research, as the study assesses how well participants have not only remembered the composition of certain characters, but also how well they have understood the function of the characters in attempting to use the correct character in the correct context in the evaluations (see Chapter 3, section 3.3.3.5).

Clinically, it is demonstrated that colour can assist those suffering from learning difficulties in both the learning and understanding processes (Dzulkifli & Mustafar,

2013). Even in more serious cases of Alzheimer's disease and dementia, colour is shown to enhance the memory performance of patients when used in therapy (ibid.). In demonstrating that colour can aid information retention, it can be seen as a useful entity when learning CFL.

As demonstrated, the use of colour can enhance memory and according to Dzulkifli and Mustafar (2013), it can also aid memorisation by increasing attention span. Attention drawn as a result of the use of colour then allows for greater opportunities for the information to be stored permanently in the brain (ibid.). Dzulkifli and Mustafar (2013) note that many studies have been conducted in testing these theories (e.g. Hall & Hanna, 2004; Smilek, Dixon, Cudahy, & Merikle, 2002; Spence, Wong, Rusan, & Rastegar, 2006; Wichmann, Sharpe, & Gegenfurtner, 2002). These studies have not specifically focused on language learning, yet they demonstrate that when learning and memorising information, colour is indeed a contributing factor to the success of information retention. The fact that these studies focus more on objects and pictures rather than letters and words actually coincides with the current research and the learning of a logographic language. Although colour-coding has been used to depict various tones of Chinese characters (e.g. Boyce, 2010; Dummitt, 2008), it remains to be seen if this method contributes in any way to learning outcomes in relation to character composition and character use. In the current research, it was assumed that the presentation of characters using one of five colours depending on the tone of a given character might assist in not only memorising the tone, but also in memorising the composition and meaning of a given character.

2.4.3.1. Studies in character colour-coding

As mentioned in the previous section, there are various studies examining the positive effects of learning, memorising, and understanding information through colour. As well as this, it is noted that when learning Chinese, different colours are sometimes used to represent the characters depending on their tones, especially in online dictionaries such as Pleco and MDBG. In this way, colour is seen as a tool to aid CFL learners in providing a physical marker for the tone of a certain character. The current research, however, investigates the effect of using colour to aid learning the characters. As of 2019, no studies relating to the use of character colour-coding as a teaching method have been encountered as outlined below.

In June 2016, a search was conducted on the *Web of Science* database. The search terms entered were 'Chinese as a foreign language AND colour'. This search drew up only six results whereby none of these were actually related to using colour when learning CFL, and so were discounted. When a search for 'Chinese language AND colour' was conducted, the researcher found one article whereby Chinese participants' ability to name colours of various objects, while ignoring the specific object, was examined (Qu & Damian, 2015). Therefore, this study, although investigating the use of colour among Chinese participants, did not specifically examine the benefits to using colour when learning Chinese characters. In analysing the results of the same search in a much larger database, *JSTOR,* it was seen that in June 2016, 197,949 results were drawn up. The results were listed in terms of relevance, and after assessing the first 250 articles it was apparent that the notion of using colour when teaching CFL was not addressed. Finally,

the same search was conducted in a more specialised database: *Linguistics and Language Behavior Abstracts.* This search drew up a total of eight results. Of these eight results, again none had relevance to the notion of using colour-coded characters in CFL learning, and instead tended to focus on the role of colour in linguistics. The researcher also attempted searches using the American-English spelling of 'color', and also repeated these searches until 2019, however the results did not differ greatly from previous attempts.

To sum up, there is strong evidence to suggest that using colour can aid learning, memorising, and understanding of a concept (e.g. Dzulkifli & Mustafar, 2013). While colour is sometimes used to depict the tones of characters in online Chinese dictionaries, it has not been sufficiently explored whether or not the use of colour also assists in the memorisation and understanding of the composition and use of characters. In order to identify whether colour-coding the characters has any effect on learning Chinese characters, the current research evaluated participants' learning outcomes in terms of their memorisation of character composition as well as their understanding of when and how to use a given character.

2.4.4. Unity curriculum

In addition to focused memorisation, delayed character introduction, and character colour-coding, a fourth group was taught Chinese based on the approach used in Irish third-level institutions nowadays. As Chinese is not yet an examined subject in Irish

secondary schools, the most suitable source to consult was the tertiary-level teaching

methods and module descriptors. The module descriptors (see Table 2.1) describe a

unity curriculum approach, whereby equal focus is placed on reading, writing, speaking,

and listening skills, rather than a specific focus on writing as in the case of focused

memorisation, delayed character introduction, and character colour-coding.

A guideline for an introductory Chinese language and culture short course is the only

resource for teaching Chinese in Irish secondary schools. This guideline, published by

the National Council for Curriculum and Assessment (NCCA), mentions that students

are encouraged to be self-directed in noting what helps them to achieve their learning

goals (NCCA, 2016), which suggests that the methods of teaching can differ among

various schools where the short course is available. For these reasons, the third-level

institutions are consulted for the final group.

The module descriptors of the third-level institutions are almost identical and claim that

upon completion, the students will have developed their reading, writing, speaking, and

listening skills, albeit with various exit levels (Dublin City University, 2018; Dublin

Institute of Technology, 2018; Dundalk Institute of Technology, 2017; UCD Irish

Institute for Chinese Studies, 2017; Maynooth University, 2016; Trinity Centre for

Asian Studies, 2016; and University College Cork, 2016). In addition to this, informal

interviews were conducted with five teachers of five of these modules. It was noted

from this that the teachers indeed devoted equal time in class to the development of

students' reading, writing, speaking, and listening skills.

Table 2.1. Module descriptors of Irish third-level institutions offering Chinese at beginner level

Third-level Institution	*Course Level*	*Learning Activities*	*Specific Mention of Learning Characters*
Number one	Beginner	Reading, writing, speaking, listening skills developed. Role plays	No
Number two	Beginner	Reading, writing, speaking, listening skills developed. Role plays, repetitions, dictations, re-creations of dialogues, group conversations	No
Number three	Beginner	Basic productive and receptive skills developed	No
Number four	Beginner	Reading, writing, speaking, listening skills developed	No
Number five	Beginner	Communicative skills (reading, writing, speaking, listening)	No
Number six	Beginner	Communicative skills (reading, writing, speaking, listening, and typing)	No
Number seven	Beginner	Communicative skills (reading, writing, speaking, listening)	No

Table 2.1 shows that there is no mention within these module descriptors of a focus specifically on character learning, but rather on communication as a whole. For this reason, the researcher taught the fourth group the skills of reading, writing, speaking, and listening equally as mentioned in Table 2.1, without a heavy focus on characters as

in the case of the other three teaching methods employed in the current research.

As in the case of DCI, this unity curriculum also refers to a specific approach to teaching CFL whereby equal focus is placed on the four aspects of reading, writing (including character composition), speaking, and listening. In the context of the current study, a working definition for the specific UC method was also created. Table 3.3 in Chapter 3 demonstrates that two of the defining characteristics of the UC group are that the participants spent more time in the classroom conducting various oral and written exercises, while they were instructed to learn the characters in their own time. Indeed, some of the written exercises were written using characters, and this therefore enabled the participants to practise writing the characters in sentences in the classroom. Yet, the emphasis was not placed on character composition as in the case of the FM or CCC methods, for example. Instead, emphasis was placed equally on developing reading, writing, speaking, and listening skills.

In conducting the research with the aforementioned teaching methods, the current study reveals new information about each of these CFL teaching methods, primarily in the examination of whether or not they have the potential to benefit the overall learning of CFL as well as character recall and recognition in four formative and two summative evaluations (see Chapter 3, section 3.3.3.5). Furthermore, research into the UC method will shed light on the effectiveness of the UC approach currently employed in third-level institutions in Ireland.

To sum up, the methods of focused memorisation, delayed character introduction, character colour-coding, and the unity curriculum are used to teach CFL to four different groups of beginner learners for one academic year. Each of the three character-focused methods comes with their own advantages. For example, as it has been mentioned, memorisation strategies are said to be some of the oldest forms of teaching CFL and other subjects in China and have been used prominently in the CFL classroom throughout the world (see section 2.4.1). Delayed character introduction is a more modern concept suggesting that delaying the teaching of characters until approximately three weeks into a beginner CFL programme carries benefits for beginner learners (see section 2.4.2). Finally, while character colour-coding lacks tested data, there is ample evidence indicating the positive effects that colour has when learning, memorising, and understanding information (see section 2.4.3). As well as this, colours are sometimes used to depict the tones of characters, especially in online dictionaries. For these reasons, the researcher wished to investigate the effects of using colour when learning character composition and understanding character use. Finally, the fourth group is taught under the UC method, as those Irish third-level institutions that currently teach beginner CFL mostly adopt the UC approach. This unity curriculum involves more integration when teaching CFL, with an equal focus on reading, writing, speaking, and listening. It is therefore worthwhile to examine the effects of this unity curriculum on beginner learners and compare these effects with those of the aforementioned methods that have a specific focus on the characters.

2.5. Contributing to the literature

The current study contributes to the field of teaching CFL, more specifically, in adding to the literature surrounding focused memorisation, delayed character introduction, character colour-coding, and a unity curriculum.

As the unexplored areas in relation to the teaching methods have already been mentioned in section 2.4, the following sections address how the current research contributes to the literature in relation to the current research design, the setting, and the number of participants.

2.5.1. Research design

The current research is a quasi-experimental study, meaning that a picture of a real-life classroom situation could be obtained (see Chapter 3, section 3.1). While previous studies in the field of teaching CFL tend to use a control group (see Chapter 1, section 1.2), the current research used prescribed evaluations and questionnaires as well as the researcher's observations and informal feedback received from participants throughout the academic year to gather data. More details on the exact research procedure can be viewed in Chapter 3.

The design of the evaluations is another important factor that enabled the researcher to obtain accurate results from a real-life classroom (see Chapter 3, section 3.3.3.5). It has

been mentioned that previous studies have tended to focus mainly on the aspect of recall and recognition of characters when testing teaching methods, whereas this study tested not only character recall and recognition but also the understanding and use of characters through various exercises including completing sentences, reordering sentences, and text production. Further details on the design of the research, including the participants, setting, and evaluations, are presented in Chapter 3.

2.5.2. The setting

The current research takes place in an Irish secondary school. In conducting searches with *Web of Science, JSTOR* and *Linguistics and Language Behavior Abstracts*, no results drew up the testing of CFL teaching methods in an Irish secondary school. While some programmes have been piloted in Irish secondary schools by the Confucius Institute of University College Dublin (Mandarin Ireland, 2013), the testing of various methods has not yet been researched. As a result, the focus of those pilot programmes appears to be on the material to be covered, and not the way in which the material was taught (ibid.). Taking a different approach, the current research analyses the effects of various methods of teaching CFL in Irish secondary schools in order to provide evidence-based recommendations for future curricula, including the proposed Leaving Certificate CFL curriculum.

2.5.3. The number of participants

The number of participants that took part in the current research is approximately 90. Previous studies use on average significantly fewer participants, and usually test two methods with one quite commonly a control group. Table 2.2 demonstrates the number of participants observed from a selection of studies researched and referenced in earlier sections.

Table 2.2. Number of participants taking part in various previously mentioned studies

Study	*Number of participants*
Packard (1990)	23
Shen and Xu (2015)	30
Xu and Padilla (2013)	108
Winke (2013)	96
McBride-Chang et al. (2011)	54
Guan et al. (2011)	30
Ke (1998)	145
Zhang and Lu (2014)	41
Hsiao and Broeder (2014)	30
Everson (1998)	20

The average of this selection of 10 studies totals to 57.7 participants, which leaves the current research's number of participants above the average. Of the listed studies with more than 90 participants (Ke, 1998; Winke, 2013; Xu & Padilla, 2013), none test the recall, recognition, and use of characters in a real-life classroom setting as in the current study. Indeed, these studies have different research aims and research methods and so the number of participants is likely to vary from one to another. However, in using a

higher number of participants for the current research, a clearer picture of the sample population was likely to be obtained.

To sum up, the current research fills a gap in the literature as no study has examined the CFL learning outcomes of the methods of focused memorisation, delayed character introduction, character colour-coding, and a unity curriculum over one academic year in an Irish secondary school. The evaluations differ from previous studies and not only test character recall and recognition, but also the use of the language. It is hoped that the current research can aid the understanding of the effectiveness of various methods for teaching CFL to beginner learners while adding to the relatively sparse literature of the aforementioned teaching methods.

The literature review has highlighted that because of the significant role of Chinese in the business world, as well as tourism, interest, and heritage learners influencing the rise of CFL learner numbers, teaching CFL is on the rise globally. Some countries are more advanced than others in terms of the availability of classes, yet the importance of learning CFL has indeed been recognised worldwide. What is lacking, however, is significant testing of various teaching methods. In addition to this, in previous research character recall and recognition skills are commonly addressed while there is a lack of focus on examining the effect of various teaching methods on the use of characters. It is believed that when studying CFL, learning the characters is undoubtedly one of the most difficult aspects, hence the common testing of effective methods for character recall and

recognition. The current research examines four methods of focused memorisation, delayed character introduction, character colour-coding, and a unity curriculum in not only recalling and recognising the characters, but also in using the characters in a variety of contexts. Through this research, more concrete evidence of the effectiveness of certain teaching methods on various aspects of the language is made available.

The following chapter highlights the planning stages and processes of the current research.

Chapter 3: Methodology

This chapter discusses the methodology and steps taken to complete the goal of the research in assessing CFL teaching methods among four groups of approximately 90 participants. As mentioned in Chapter 1 (section 1.2), the research examines and compares four CFL teaching methods in relation to learning character composition and acquiring skills in using the characters in written communication over long- and short-term periods.

Taking Mouton and Marais' (1996) definition of a research methodology, this chapter examines the entire process of the research, including items such as the justification for the methods and techniques applied and the type of data analysis to be employed. Limitations of the research can be viewed in Chapter 7 (see section 7.1).

This chapter begins by outlining the type of research conducted, followed by the steps taken in order to carry out the study.

3.1. Quasi-experimental design with convenience sampling

Koshy (2010) explains that research is "a form of disciplined enquiry leading to the generation of knowledge" (p.1). The approach one takes to research varies due to a number of factors including context, beliefs, strategies, and methods used (Koshy, 2010).

As the current research adopted a quasi-experimental research design, this section describes a quasi-experimental research design in general and how it has been employed in the current research using convenience sampling methods.

An experimental design, in general, can offer 'the most clear-cut route to testing hypotheses about causes and effects' (Fife-Schaw, 2012: 77). In an experimental design, a researcher has complete control over the independent variables, while participants are randomly allocated in attempting to discover the variable responsible for any observable change (ibid.).

A quasi-experimental design differs from a true (randomised) experimental design in that it is not conducted in a controlled laboratory, and therefore is conducted in a practical setting (Fife-Schaw, 2012). This means that a number of variables may be responsible for any observable changes, however a quasi-experimental design still allows for assessment of the effects of various interventions (Fife-Schaw, 2012; Tharenou, Donohue, & Cooper, 2007). The current research reflects this design, as the effects of various interventions, or teaching methods, were tested in a practical environment (i.e. a classroom).

Another feature of a quasi-experimental design is that the participants are not randomly allocated for either ethical or practical reasons (Fife-Schaw, 2012; Tharenou et al., 2007). In the current research, the participants were not randomly allocated to a particular group as they were already part of a particular class group as allocated by the

school. If the participants were allocated randomly as per a true experiment, then this would have had a profound effect on the timetabling of this year as a whole.

The research design also adopts convenience sampling methods. These are described by Battaglia (2008) as a type of non-probability sampling, whereby participants are recruited as a result of their convenience. Participants may be conveniently recruited in a number of ways such as: intercept interviews; unsystematic recruitment; and visiting a sample of establishments with the goal of recruitment (ibid.). In the current research, the researcher contacted eight schools via email and visited two of these in order to source the participants (see section 3.3.2). As the participants of the research were already enrolled in a year of school whereby non-traditional subjects may be studied, i.e. Chinese, the participants were therefore conveniently available to participant in the study.

In order to examine the effects of the four teaching methods prescribed in the current study, the researcher implemented a mainly quantitative approach, while the qualitative data enabled further possible explanations of the quantitative findings, as per a quasi-experimental design. These are explained in the following section.

3.2. Quantitative and qualitative approach

While a quasi-experimental research design involves quantitative data, the researcher also realised that the reception and thoughts of each group in relation to their teaching

method would indeed be invaluable to realising the effectiveness of each method. Johnson, Onwuegbuzie, and Turner (2007) state that using both quantitative and qualitative methods in one study can 'provide the most informative, complete, balanced, and useful research results' (p. 129). Therefore, using both quantitative and qualitative methods was most suitable in ascertaining the effectiveness of various methods for teaching CFL to the participants.

In the current study, the quantitative analysis of each group's evaluation answers highlights the effects of each teaching method in terms of short- and long-term recall and recognition of characters and skills in using characters in sentences, thus addressing the research questions mentioned in Chapter 1 (section 1.2). The qualitative analysis involved gathering the participant profiles of each group using a biographical questionnaire and gathering feedback of each group relating to both the learning of CFL and the appointed method of instruction in order to gauge participants' preferences or perceived effectiveness of a given method. In addition to this, further explanations were applied to outliers or unexpected results gathered in the research through qualitative measures.

To sum up, using both quantitative and qualitative methods in this study enabled the researcher to gather the most relevant and valuable information, thus contributing essential research to the field of teaching CFL.

3.3. The design of the current research

The following sections highlight the various steps taken in order to carry out this research. They include information on identifying the problem in the field of teaching CFL, sourcing the participants, ethical considerations, content taught to the participants, the evaluations presented to the participants, the implementation of the teaching methods, and the questionnaires.

Firstly, training modules were completed in Dublin City University including Research Design, Research Ethics, Research Integrity, Strategies for Academic Writing, Postgraduate Tutor/Demonstrator Course, and Quantitative Methods. In particular, it was useful to complete the Postgraduate Tutor/Demonstrator Course prior to teaching secondary school students, while completing Quantitative Methods enabled the researcher to interpret and sufficiently analyse the results of the data collection phase.

3.3.1. Identifying the problem in the field of teaching CFL

The researcher began learning CFL as a beginner upon commencement of her undergraduate degree. During this time, the characters proved problematic for the researcher and her peers as they struggled to adapt to a new language and a new writing system. It was during this time that the researcher became interested in exploring various methods of learning the characters to aid her overall progress in learning CFL.

In this way, the seed of the research was planted and earmarked to be explored in the future.

After completing a master's degree in Chinese and Spanish translation, the researcher began exploring the current methods of teaching CFL to beginner learners, thus beginning the literature review of the current research. As presented in Chapter 2, while the participants' recall and recognition skills of the characters in these previous studies are commonly tested, what appears to be lacking is the evaluation of the participants' ability to use the characters in various contexts. It is therefore necessary to incorporate testing the participants' skills of using characters in sentences into the evaluations of the current research, therefore adding to the literature through examining another output in determining the effectiveness of the different teaching methods.

The teaching methods were chosen after careful consideration and research. FM was chosen due to its established status in the field of teaching CFL (see Chapter 2, section 2.4.1), being used in school curricula in China as well as around the world in the CFL classroom. DCI showed positive signs with regard to developing oral skills when learning CFL, yet students and teachers alike held reservations about the use of DCI (see Chapter 2, section 2.4.2), and so the researcher wished to explore the effects of this method in terms of the written aspect when conducted over one academic year. CCC is perhaps the most innovative method in the research. It draws on previous research on the benefits of using colour when learning a foreign language, as well as the methods

adopted by online Chinese dictionaries that use different colours to represent the different tones of characters (see Chapter 2, section 2.4.3). It was presumed that the method of CCC, using one of five colours to depict each character's tone, could potentially enable participants to remember the structure and pronunciation of the characters. Finally, UC was included in order to compare the current trends of teaching CFL in third-level education in Ireland with the specific methods for teaching Chinese characters as listed previously (see Chapter 2, section 2.4.4).

In addition, major efforts have been made to promote CFL learning in Ireland through the development and implementation of a Chinese language and culture short course to secondary schools, while the introduction of a State-examined Chinese course in the final two years of secondary school has recently been advocated by the Department of Education and Skills. Through completion of the current research, the researcher makes available information on the effectiveness and suitability of various teaching methods. In addition, the participant groups were comprised of the cohort of students who may take the proposed Leaving Certificate CFL course in the future, as they were enrolled in an Irish secondary school (see section 3.3.2). The current research therefore provides insights into teaching CFL in the Irish second-level education system, which has the potential to inform future plans for the proposed CFL course.

3.3.2. Sourcing participants

In order to examine four teaching methods, a large number of participants was required to conduct the study over a significant period of time. Indeed, it would have been difficult to source a large number of voluntary participants who could commit to an academic year of learning CFL and conducting various evaluations. Therefore, the researcher decided that teaching students of a secondary school would be best to allow for the research to run over the course of an academic year in a controlled classroom environment. However, so as not to interfere with coursework for the State examinations, the researcher decided it would be best to target transition-year students for involvement in the research. Transition year is a year in Irish secondary schools between the two State-examined curricula: the Junior Certificate and Leaving Certificate programmes (akin to GCSEs and A-levels in the UK). During this year, students do not sit State examinations. Therefore, transition year allows students to study subjects such as computer programming, mindfulness, and politics in order to broaden their learning outside of traditional subjects. Additional languages are also often taught (Department of Education and Skills, 2019), thus the suitability of teaching CFL to students of transition year. Once this was decided, the next step was to seek ethical approval from Dublin City University's Research Ethics Committee (DCU REC) as well as permission to conduct the study in a chosen school, which is explained in more detail in section 3.3.2.1.

The researcher wrote (via email) to eight schools seeking interest in the research. These eight schools were chosen based on the number of transition-year students available to participate and the location of the schools. The email provided background information on the researcher and included details of the research (see Appendix A). The purpose of this email was to allow for interested schools to contact the researcher and set up a meeting whereby full details of the study could be disclosed.

Of these eight schools contacted, two schools replied stating their interest in the study. The researcher then set up two meetings with the schools' respective Principals and transition-year co-ordinators to explain in more detail the reason for conducting the research and exactly what the year would entail for their students. This was also an opportunity for the researcher to gauge the suitability of each school in terms of participant numbers for the year and the school's enthusiasm for the research. Upon completion of the meetings, it was decided after much consideration from the researcher and guidance from the researcher's supervisor that the most suitable school would be the one in which there was a promise of approximately 90 transition-year students, as well as great support from the school for the research. The school allocated the researcher two hours per week per group (28 weeks and four groups), meaning that each group of participants would be exposed to 56 hours of learning CFL in the classroom during the academic year.

Once the school was notified of their suitability for the research, formal written

permission needed to be obtained from the principal to provide to the DCU REC, stating

their willingness to partake in the research. Once this was supplied to the DCU REC,

full ethical approval was sought and granted, and the researcher therefore obtained

permission to carry out the research (see section 3.3.2.1). As well as this, the school

requested that the researcher become Garda vetted, and so this was also completed.

Garda vetting is essentially a criminal record check carried out by Ireland's National

Police Service (An Garda Síochána) and prohibits an individual from working or

volunteering with an organisation should they have a criminal record. Garda vetting is a

common procedure requested by organisations in which an individual will have contact

with children or vulnerable people, and therefore the process further ensured the safety

of the participants of the current research.

The participant pool therefore consisted of approximately 90 participants aged 14-16

and consisted of both males and females. Further details of the participant profile can be

viewed in Chapter 4 (see section 4.1).

3.3.2.1. Ethical approval

The researcher applied for ethical approval from the DCU REC prior to contacting the

eight schools, and once the school had been chosen and agreed to take part in the

research, the approval was granted. This was quite a lengthy process, and in total took

approximately three months to complete. Great care and detail had to be supplied as the

researcher was to be dealing with participants under the age of 18 for an entire academic year. Contact was also made with the Child Protection Officer both in DCU and in the school, as the protection of the participants was and still remains of utmost importance to the researcher.

A task that needed to be completed in the early stages of the study was to receive permission from all parents/guardians and the participants to allow for the results of the evaluations, answers from the questionnaires, and general classroom observations to be used anonymously in the research. Informed consent, as defined by Cohen, Manion, and Morisson (2011), refers to the participant's right to freedom. When this freedom is somewhat restricted by participating in research, consent is required to protect the participant should anything go wrong (ibid.). Due to the fact that the current research would not disrupt the participant's participation in other subjects, and the fact that the lessons would run as a regular class during school hours in a public school environment, the researcher stated in writing during the process of obtaining consent that there would be no risk involved in participating in the study that was greater than risks already encountered during everyday life. Obtaining this consent involved the researcher speaking at a meeting held at the beginning of the year for all parents/guardians of the participants in order to explain the research and why it was being conducted, and indeed why the researcher needed to use the results of the evaluations and questionnaires in the research. The researcher also explained this to all participants in the first week of classes. During this time the researcher reassured the parents/guardians and participants that the anonymity of the participants was of utmost importance in the study and

allowed the parents/guardians and participants to ask any questions regarding the research. Once this was completed, the researcher distributed the Plain Language Statement and the Informed Consent and Assent forms that were signed and witnessed and returned to the researcher over the following days. The Plain Language Statement stated the purpose of the study, what it would entail, and included contact details for the researcher and the DCU REC (see Appendix B).

The Informed Consent forms and Assent forms were practically identical to each other, with only minor differences in the language used according to the person addressed, for example: using 'your child' for the Informed Consent forms and 'you' for the Assent form (see Appendix B). In these forms, information surrounding the anonymity of the participants as well as the right to withdraw from the research was highlighted. It was stated that neither the school nor the participants would be mentioned in the write-up of the research, and that all physical copies of the evaluations and questionnaires would be kept in a locked drawer only accessible to the researcher. The researcher also notified participants and their parents/guardians that the evaluations and questionnaires would be destroyed after a period of five years, thus protecting the privacy of both the school and the participants. These forms required signatures of the parents/guardians and participants, indicating agreement to take part in the research.

3.3.3. Collecting the data

The process of collecting the data involved presenting the participants with a biographical questionnaire, teaching the participants CFL for one academic year whereby they completed four formative evaluations and two summative evaluations, and finally presenting the participants with a feedback questionnaire. In addition, the researcher's observations[3] and informal participant feedback were further sources of data. The following sections outline the procedures implemented during this academic year. These sections include a description of the biographical questionnaire, content taught in each group, how the teaching methods were implemented, the evaluation design and process, and the feedback questionnaire.

3.3.3.1. Biographical questionnaire

This questionnaire was distributed at the beginning of the research to gauge the profile of the participants involved in the study. This biographical information was to be used mainly in the analysis of the participants' specific learning outcomes. As a result, participants answered questions relating to their age, language background, learning styles, and motivation triggers among others (see Appendix C for full questionnaire). For the majority of the questions, participants simply had to indicate biographical information by circling an answer or listing items (such as foreign languages learned), yet the sections on learning styles and motivation triggers involved slightly more work.

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[3] These observations have not been systematically recorded here, but rather referred to at various points throughout the thesis. The researcher kept a notebook in all classes to write down particular observations and feedback and developed these points after the class so as not to disrupt teaching.

In ascertaining specific learning styles, the participants were required to conduct a Vark questionnaire online (Vark, 2019). This questionnaire comprises 16 questions asking users to imagine that they are in certain situations (e.g. learning a new item, following instructions, giving instructions) and asks them to provide information on how they are likely to deal with these situations by choosing an answer from a list provided. After this, depending on the answers given, they are presented with a breakdown of their results that depict the number of visual, aural, read/write, and kinaesthetic answers received, followed by their learning style according to Vark. This question was asked to ascertain, for example, whether or not visual learners in the groups were better able to cope with the characters in the evaluations, given the fact that Chinese is a logographic language (see Chapter 5, Table 5.8, for example). As all participants in the current study were required to be in possession of an iPad according to school policy, they were able to conduct the Vark questionnaire relatively quickly and transcribe their result on the questionnaire handout.

Secondly, in terms of motivation to do well in school, the researcher asked the participants to write down any factors that would influence them to study for an upcoming test in school. In this way, the participants would have been likely to draw on previous experiences. Indeed, they had just completed their first set of State examinations the previous June, and so could draw on their experience of studying for these exams. Asking participants to explicitly name if they were intrinsically or extrinsically motivated may have led to the reporting of an inaccurate and idealistic answer (e.g. Razavi, 2001; Sallis & Saelens, 2000; Schoeller, 1995). Indeed, Mills,

Helms Mills, Bratton, and Forshaw (2007) point out the existence of negative

connotations associated with extrinsic motivation, while generally more positive

associations are linked to intrinsic motivation. Therefore, the types of answers received

(e.g. wanting to get a good grade, enjoying the subject, the need to please

teachers/parents) were afterwards categorised by the researcher into intrinsic factors,

extrinsic factors, or both in determining participants' motivational factors. This question

was asked in order to help the researcher keep participants motivated in the long term if

and when necessary. It is worth noting that participants were already divided into four

groups by the school and were not grouped according to their learning style, motivation,

or academic ability. As a result, the groups represent a variety of learning styles, levels

of motivation, and ability that is seen in real-life classrooms.

3.3.3.2. Content taught

As the focus of this research is to examine the effects of teaching methods on beginner

learners, the researcher taught the groups CFL from the beginner level for one academic

year. In order to decipher what exactly should be included on the programme, the

researcher consulted three main bodies in the field of teaching CFL. Firstly, the

guidelines of the Chinese proficiency test, Hanyu Shuiping Kaoshi (HSK), were

consulted. This Chinese standard of testing that is used to rate foreign language learners

in their Chinese language proficiency was launched by Hanban (Chinese Testing

International, 2018). The HSK sets a guide of particular characters for learners to study

through various levels, and subsequently tests learners' efforts through a series of

written, listening, and reading exercises in an exam (ibid.). The HSK levels range from 1 to 6, with 6 being the highest level (ibid.). Those who successfully complete HSK Level 1, as was used in the current research, have the ability to communicate through Chinese at a basic level as well as use and understand simple phrases and sentences. HSK 1 requires learners to master 150 characters and some basic grammar patterns (ibid.).

In relation to worldwide standards of language proficiency, the levels of the HSK proficiency tests are said to be comparable to the proficiency levels of the Chinese Language Proficiency Scales for Speakers of Other Languages (CLPS) and the Common European Framework of Reference for Languages (CEFR) (Chinese Testing International, 2018). Therefore, the HSK 1 is comparable to CLPS Level 1 and CEFR A1.

The CLPS has been compiled by The Office of Chinese Language Council International (2007). The guidelines given in this report aim to not only aid the evaluation of proficiency levels, but also aim to aid the creation of textbooks and curricula for learning CFL (ibid.). Five bands exist in these proficiency scales, with the first band being the most basic, and each band provides a description of the tasks that CFL learners should be able to complete in terms of 1) communicative ability in spoken Chinese, 2) listening comprehension in Chinese, 3) oral ability in Chinese, 4) reading comprehension in Chinese, and 5) writing ability in Chinese.

The levels of proficiency of the CEFR (2001) are broken down into Basic User (A), Independent User (B), and Proficient User (C). The ALTE (Association of Language Testers in Europe) has also developed a series of 'Can-do' statements which are described by CEFR (2001) as user-oriented scales. In this way, they allow progress to be tracked thus allowing learners and teachers of a foreign to set lesson plans taking into consideration the certain goals to be achieved (Council of Europe, 2007: 244).

In total, there are approximately 400 Can-do statements which are categorised into three main areas of interest for most language learners: Social and Tourist; Work; and Study (Council of Europe, 2007: 245). For each main category, there are sub-headings (ibid.). For example, under the main heading of Social and Tourist, categories such as 'eating out' and 'shopping' are included (ibid.). Each sub-heading has up to three scales measuring listening/speaking, reading, and writing skills (ibid.). These scales include statements that cover a range of proficiency levels (ibid.).

However, the question of whether or not Chinese language competency could be measured using the same proficiency scales as European languages as introduced in the CEFR (2001) was the drive for the launch of the European Benchmarking Chinese Language project (EBCL) in 2010 (Zhang, 2010). As Chinese and European languages are undoubtedly quite different, the assumption was that the Chinese language would need different language competency standards to measure learners' ability (ibid.).

While the HSK guides the learner and teacher of CFL in terms of highlighting essential characters to master, the supporting documents of the Can-do statements provided by the EBCL list those topics/themes, language functions, characters, and lexical items proposed to be taught during the basic A1 and A2 levels of learning (EBCL Project Team, 2012). As the A1 level outcomes are comparable to the HSK 1 (Chinese Testing International, 2018), the focus of the following section is the A1 guidelines. It is important to note that the EBCL project report has stated that the proposed topics are a guideline and may be modified to suit the purpose of teaching (EBCL Project Team, 2012).

For the purpose of this study, all participants were taught the 150 essential characters as demonstrated by HSK 1. However, supplementary words were taught as they appeared in the *New Practical Chinese Reader* (see section 3.3.3.3). These included various names of people in the book and other countries or animals mentioned in the various dialogues, for example. In order to allow for impartial examination, all groups were taught the same words. As the study was conducted over one academic year, the researcher believed that this was sufficient time to learn such supplementary words, as HSK 1's guideline for learning 150 essential characters is over a period of one semester (Chinese Testing International, 2018).

The list of language functions to be taught for A1 level as recommended by the EBCL Project Team (2012) also overlaps significantly with those characters recommended by

HSK 1. As this again is not a definitive list of language functions to be taught, the

researcher taught the learners some supplementary language functions based on

supplementary topics from the A2 category. As with the supplementary words, these

supplementary language functions arose from the *New Practical Chinese Reader* (see

section 3.3.3.3) and were taught to each group. Chapters 4 and 5 will highlight the

number of characters taught between each evaluation to all groups. Full lists of

characters can be viewed in the relevant appendices as mentioned in Chapters 4 and 5,

while the Table 3.1 demonstrates the number of characters learned by participants at

specific times.

Table 3.1. Number of characters taught to participants at specific times

	First formative evaluation	*Second formative evaluation*	*First summative evaluation*	*Third formative evaluation*	*Fourth formative evaluation*	*Second summative evaluation*
FM	25 **Total: 25**	+ 38 **Total: 63**	+ 41 **Total: 104**	+ 40 **Total: 144**	+ 42 **Total: 184**	+ 22 **Total: 206**
DCI	0 (41 pinyin words) **Total: 0**	41 (from pinyin words) + 22 **Total: 63**	+ 41 **Total: 104**	+ 40 **Total: 144**	+ 42 **Total: 184**	+ 22 **Total: 206**
CCC	25 **Total: 25**	+38 **Total: 63**	+ 41 **Total: 104**	+ 40 **Total: 144**	+ 42 **Total: 184**	+ 22 **Total: 206**
UC	25 **Total: 25**	+38 **Total: 63**	+ 41 **Total: 104**	+ 40 **Total: 144**	+ 42 **Total: 184**	+ 22 **Total: 206**

3.3.3.3. New Practical Chinese Reader

Throughout the study, the researcher taught the participants using the *New Practical*

Chinese Reader Textbook One (Liu et al., 2007) (henceforth NPCR). Due to unforeseen

time constraints involving the participants missing more classes than expected, as well

as feedback from participants that the NPCR dialogues were becoming too lengthy in

the later stages of the research, the researcher created lessons for the final 10 weeks of

the academic year that contained shorter dialogues and only essential HSK 1 characters.

For the first three-quarters of the academic year however, the book served as an

important tool for introducing new characters and topics, as well as providing valuable

exercises for practising the language. Yi and Tinnefeld (2014), who conducted an

analysis of the textbook, highlight that the NPCR series consists of six volumes, the first

one being aimed at beginner learners while the later volumes cater to more advanced

CFL learners whereby English is the medium of instruction. The authors also note that

as of 2014, a total of almost 2,000 universities across the world are using the NPCR

series to teach CFL, highlighting its popularity. According to a study conducted by

Zhang, Gao, and Ma (2017), the NPCR contains 65 percent of the recommended

characters from the EBCL A1 level. As well as this, topics listed by the EBCL group are

also included. As a result of the lack of some recommended characters from HSK 1 in

the textbook, the researcher's adapted lessons included the remaining recommended

characters from HSK 1.

Another advantage of using the NPCR textbook is the fact that the book and the

corresponding workbook are both freely available online. As the participants were in possession of iPads as a school requirement, they had free access to the textbook and workbook without having to purchase hardcopies.

The researcher was allocated two hours per week to teach each group respectively in the secondary school. In the researcher's teaching plan, it was calculated that each group would spend two weeks on each lesson. This was with the exception of the DCI group, whereby timetabling was slightly more complicated, as is explained further in the following paragraphs.

The researcher was able to arrange the timetable so that the FM, CCC, and UC groups would cover one chapter of the NPCR every two weeks. In each NPCR lesson, two dialogues are presented containing new words and phrases to be learned by users of the book. The researcher felt it appropriate to teach cultural notes, pronunciation, new words, and the dialogue of the first text in the first class of the week, followed by a revision of this including exercises in the workbook or textbook in the second class. In this way, the participants would first learn the new items presented before being able to practise such in a series of exercises. These classroom exercises included: listening exercises; cloze tests; text production; translation; oral conversations; and describing pictures. In this way, it was fitting that the evaluations presented to the participants contained elements of these exercises (see section 3.3.3.5). This was, of course, a general timetable that the researcher kept to. It was found that the more new words a

chapter presented, the more likely the learning of these would carry over to the second

class of the week. If this limited the amount of work completed in class, the researcher

ensured that the participants completed any prescribed work for homework. Certain

obstacles throughout the year could also not be avoided, such as some classes being

missed due to days off or trips that the researcher could not control. In these instances,

the researcher provided homework to the participants so that the relevant work could

still be completed. In addition to this, the researcher allocated approximately one week

before the two respective summative evaluations for catching up or revising, depending

on the workload left to complete.

The DCI group was not as straightforward to timetable as the other groups. Firstly, the

method requires that the writing system is not introduced until approximately three

weeks of learning items such as vocabulary, pronunciation, sentence structure and so

forth has been completed via pinyin. Because of this, the researcher believed that it

would not be necessary to spend two full weeks on one lesson whereby no characters

would be learned. In addition to this, if the study was to ensure that each group had

covered the same material, spending two weeks on each lesson without learning

characters would not be feasible in terms of time allocation. As a result, the researcher

allocated one lesson per week in the initial three to four weeks, while after this, two to

three weeks were spent learning the characters from these lessons. This would total six

weeks and would mean that all groups would start lesson four at the same time. Further

details may be seen in section 3.3.3.4.

3.3.3.4. Implementation of teaching methods

The following sections highlight how the teaching methods of FM, DCI, CCC, and UC were implemented throughout the study.

3.3.3.4.1. Focused memorisation

FM, as seen in Chapter 2 (section 2.4.1), is an extremely popular medium of instruction in Chinese education and is viewed to be effective only when conducted in the correct manner with sufficient focus and attention applied (Dehn, 2008; Greenberg, 2000). Therefore, in order to successfully learn via this method, one must not mindlessly repeat the characters, but rather focus entirely on the meaning and form when doing so.

The implementation of this method in the classroom involved the researcher monitoring the time spent by participants repeatedly writing the characters. So as to ensure that participants were spending sufficient time repeating the characters, the researcher instructed the participants to write a character at least five times, and then to test themselves by seeing if they could write it without prompt. When they could write the character without prompt, this would show the researcher and participants that the character had been learned sufficiently. After a number of characters were learned in this way, the researcher would ask the participants to write out a combination of the characters learned, again testing that the learning had sufficiently taken place. Repetition was at the core of this teaching method and participants were instructed to use this method when studying for the various evaluations.

3.3.3.4.2. Delayed character introduction

While researching the literature relating to teaching Chinese to beginners, it was found that some previous studies had examined the effect of a delay in teaching characters in a group against another whereby characters were taught from the outset (Packard, 1990; Ye, 2013). With a reduced cognitive load, participants were able to learn the pinyin and use of the language first before focusing on a new writing system. As this method had only been previously tested using two groups – the DCI group and a control – the researcher wished to include this in the study to establish whether delaying the characters was more beneficial than any of the other methods presented in the study when learning CFL. Similarly, the researcher wished to further explore the effects of using this method on the written aspect of the language, as benefits to oral language use had been highlighted in Packard's (1990) study.

Implementing this method in the classroom involved the researcher first teaching participants the pinyin and use of new Chinese words before introducing the characters. For the first three to four weeks of the study, the participants learned only the pinyin and use of the new words in various oral and written contexts, while during the fifth and sixth weeks the corresponding characters were introduced. After this, the researcher lessened the delay to approximately one week, as the lessons were becoming longer and more advanced. For each chapter in NPCR, therefore, the DCI group focused on the pinyin and translation of the new words first before moving on to learning the characters as a final task.

3.3.3.4.3. Character colour-coding

CCC is the most innovative method of the research. The method was inspired by Pleco and MDBG – two online Chinese dictionaries that use colour to represent the tone of a character – as well as research highlighting the benefits of using colour in the classroom. Using colour when teaching and learning is shown to be an effective process, as outlined in Chapter 2 (section 2.4.3). Because of this, the researcher wished to explore the effectiveness of depicting a character in a different colour according to its tone to help participants not only memorise the character shape but also the meaning and use. During the learning process, even if the meaning or entire pronunciation could not be remembered, the colour could notify the participants of the tone. As no studies have tested this, the researcher was eager to include this method in order to measure the effectiveness of it against the other methods chosen. Participants used a pencil and green, black, blue, and red pens for denoting the neutral, first, second, third, and fourth tones respectively. The researcher chose these colours as they are the most common colours found in pens and would have therefore been easily accessible to participants.

This process was implemented simply by presenting the characters to the participants using the respective colours, while the participants copied these into their notes using the appropriate colours. Participants were informed at the beginning of the year that they would need the aforementioned coloured pens. When conducting written exercises and revision, participants were also required to use the appropriate colours.

3.3.3.4.4. Unity curriculum

The UC group's method is based on the module descriptors of those third-level institutions in the Republic of Ireland that teach CFL to beginners (see Chapter 2, section 2.4.4). CFL is currently only examined in seven third-level institutions, although a non-State-examined short course on the Junior Certificate programme in some secondary schools introduces students to Chinese language and culture. Therefore, after analysing the module descriptors of these third-level institutions in Ireland currently teaching CFL to beginners for examinations, as well as conducting interviews with some teachers of these modules, it was found that the method described in all third-level institutions focused equally on developing the reading, writing, speaking, and listening skills of CFL. Thus, the UC group learned CFL without a specific focus on characters.

This method was implemented by spending equal time on reading, writing, speaking, and listening exercises conducted during class and for homework. As mentioned in the module descriptors, a specific focus was not placed on character learning and memorisation as in the previous three methods. Table 3.2 highlights the tasks and implementation of the teaching methods.

Table 3.2. Tasks and implementation of each teaching method

	FM	*DCI*	*CCC*	*UC*
In-class tasks	Learning new words by repetition.	Focus on pinyin and meaning of new words before characters introduced.	Learning new words through colour.	Learning new words without specific instruction.
	Reading and translating dialogues.	Reading and translating dialogues.	Reading and translating dialogues.	Reading and translating dialogues.
	Conducting written, oral, and listening exercises.	Conducting written, oral, and listening exercises.	Conducting written, oral, and listening exercises.	Conducting written, oral, and listening exercises.
Homework tasks	Learning characters by repetition.	Learning characters.	Learning characters using colour.	Learning characters.
	Conducting written exercises.	Conducting written exercises (in pinyin and characters).	Conducting written exercises.	Conducting written exercises.
Dealing with characters	Repetition.	Delay.	Colour-coding.	Unity curriculum.
	Testing by writing without prompt.	Memorising pinyin and meaning before associating with characters.	Each character represented by a different colour according to tone.	Equal focus on reading, writing, speaking and listening.
Hours spent learning per week	Two one-hour classes with the researcher.	Two one-hour classes with the researcher.	Two one-hour classes with the researcher.	Two one-hour classes with the researcher.

As can be seen in Table 3.2, although different methods were used in each group, these were not at the expense of each group's development of reading, writing, speaking, and listening skills. The same exercises, topics, and characters were covered in each group. However, as highlighted previously, the class structures were laid out somewhat differently. The FM group conducted the majority of their character learning in class, whereas the latter groups conducted this task primarily at home. As a result, the FM group conducted written exercises for homework while the latter groups had more time to conduct these in class. What is important to note here, however, is that the content covered in each group was identical, while only the teaching methods implemented in each group varied. A sample teaching plan for the way in which each group was introduced to various Chinese characters can be viewed in Table 3.3.

Table 3.3. Sample teaching plan for each group when introducing characters

	FM	*DCI*	*CCC*	*UC*
Step one	**Read pinyin** of new words – focus on **pronunciation**	**Read pinyin** of new words – focus on **pronunciation**	**Read pinyin** of new words – focus on **pronunciation**	**Read pinyin** of new words – focus on **pronunciation**
Step two	**Oral translation** of new words (focus on **pinyin**)	**Oral translation** of new words (focus on **pinyin**)	**Oral translation** of new words (focus on **pinyin**)	**Oral translation** of new words (focus on **pinyin**)
Step three	Learn how to **write** the characters: characters copied from the whiteboard, guided stroke-by-stroke by the researcher, labelling the correct order of the strokes **Focused repetition** of the characters in the **classroom**	**Read and translate** the dialogue from the lesson (**in pinyin**)	Learn how to **write** the characters: characters copied from the whiteboard **using different colours according to tone**, guided stroke-by-stroke by the researcher, labelling the correct order of the strokes	Learn how to **write** the characters: characters copied from the whiteboard, guided stroke-by-stroke by the researcher, labelling the correct order of the strokes
Step four	**Read and translate** the dialogue from the lesson (**in characters**)	Learn how to **write** the characters: characters copied from the whiteboard, guided stroke-by-stroke by the researcher, labelling the correct order of the strokes **Read** dialogue (**in characters**)	**Read and translate** the dialogue from the lesson (**in characters**)	**Read and translate** the dialogue from the lesson (**in characters**)
Step five	Instructed to study via **focused repetitions** at home	Instructed to learn characters in their own time (**no specific instruction**)	Instructed to study using the **different colours** per character	Complete **oral[4] and written exercises[5]** mainly in the **classroom** Use **characters** for written exercises
Step six	Complete **oral and written exercises** mainly in participants' **own time** Use **characters** for written exercises	Complete **oral and written exercises** mainly in participants' **own time** Use **pinyin and characters** for written exercises	Complete **oral and written exercises** mainly in participants' **own time** Use **characters** for written exercises	Instructed to learn characters in their own time (**no specific instruction**)

[4] Including conversing with others, reading a text aloud, and pronunciation drills
[5] Including evaluation exercises, translation exercises, and answering questions using complete sentences

3.3.3.5. The evaluations

In order to assess the success of participants' learning, the researcher formulated

evaluations that would test the character recall and recognition skills of the participants,

as well as give them a chance to produce texts and use characters in a given context.

This meant that through presenting the evaluations to the participants, the researcher

could ascertain from the results gathered the method most suitable for short-term and

long-term recalling characters, recognising characters, and using characters in a given

context. As highlighted in section 3.2, these results account for the quantitative analysis

in the research.

Four formative evaluations were presented to the participants at regular intervals

throughout the nine months (one academic year) of the research. These were conducted

at approximately week four and week eight of teaching in the first term (before

Christmas) and the second term (after Christmas) respectively. These evaluations were

used to measure each group's progression and development of skills, as well as to

motivate the participants to keep on top of their work. A week before the Christmas and

summer holidays, a respective summative evaluation was presented to the participants.

These summative evaluations were used to measure the learning outcomes of the

participants after approximately four and nine months of learning CFL. It is worth

noting that the format of the formative and summative evaluations was almost identical

in all cases. To dramatically change the format of these evaluations may have affected

the participants' results due to an unfamiliar layout, thus the researcher firstly explained

this layout to participants before the first formative evaluation was presented to them, and subsequently reminded them of the layout for all consecutive evaluations. The results of these evaluations were recorded per group in an Excel spreadsheet only accessible to the researcher. After creating tables containing various data, Excel allows for graphs to be easily made, thus the use of the programme.

The summative and formative evaluations all contained six sections. However, the summative evaluations required the participants to answer more questions in each exercise. The following sections explain in more detail each evaluation exercise and the skills being tested in terms of sound, meaning, and shape of characters. It is also worth noting that as these exercises are commonly seen in other foreign language evaluations, participants would have more than likely encountered these types of questions in the past. In addition, prior research examining the teaching of Chinese characters tends to use character recall and recognition tests, as mentioned section 2.3.2.1 of Chapter 2.

The following sections highlight what each evaluation section was specifically testing. The diagrams in the following sections also provide examples of what is meant by 'sound', 'meaning', and 'shape'.

<u>(1) Listening dictation</u>

This section required the participants to transcribe a Chinese word called out by the researcher. Prior to the evaluation, the researcher gave oral instructions to the participants to answer using characters and mentioned that if the characters could not be remembered, they could write using pinyin. Therefore, the participants were asked to provide the shape of the characters according to the sound heard.
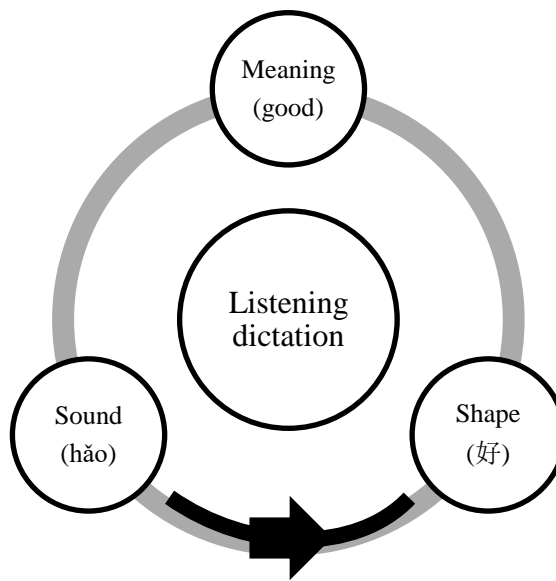
(2) Recognition of Chinese characters

This section required the participants to recognise various characters studied during the course. They were instructed both orally and on the evaluation paper to provide the pinyin and English translation of given characters. In this section, participants attempted to provide the sound and meaning of the characters.
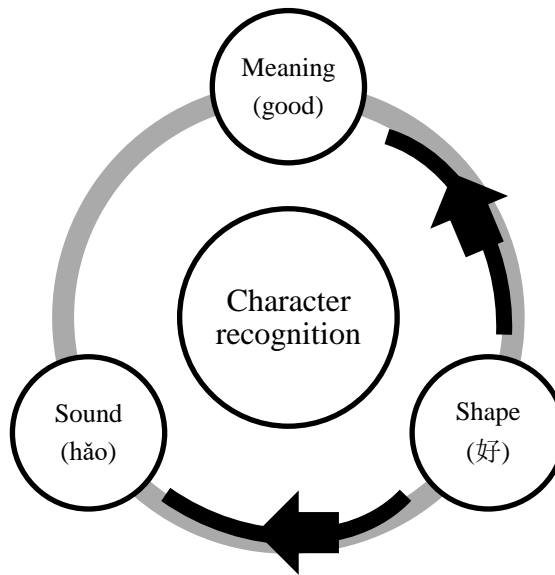
This section required participants to recall characters after being presented with English words. The researcher orally instructed the participants to answer using characters as was also instructed on the evaluation paper and mentioned that if the characters could not be remembered, they could write using pinyin. The connection between meaning and shape was being tested in this section.
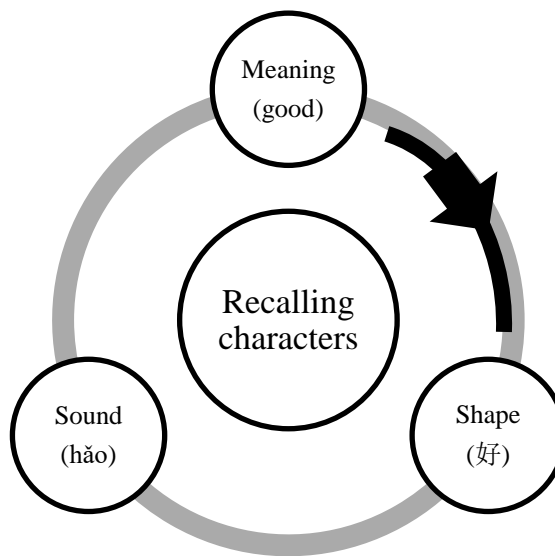
(4) Completing sentences with correct characters.

This section presented participants with an incomplete sentence using characters whereby they had to complete it using characters studied during the course. The researcher instructed the participants both orally and in an instruction on the evaluation paper to answer using characters and mentioned that if the characters could not be remembered, pinyin could be used. The connection between meaning and shape was once again being tested in this section, however this time the participants had to first

figure out the meaning of a sentence rather than characters in isolation as with the previous section. Once they had figured out the meaning of the sentence and decided on appropriate characters to fill in the blanks, they had to recall the shapes of these characters from memory.
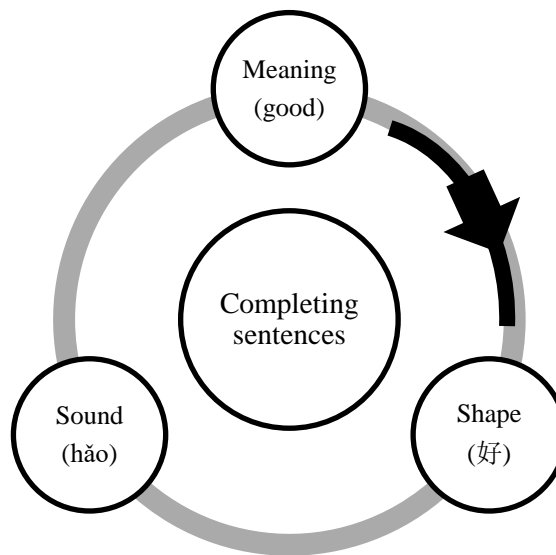
Participants were presented with complete sentences in an incorrect order and were asked both orally and in an instruction on the evaluation paper to reorder the sentences as per a conversation. Extra care was taken by the researcher in order to avoid the inclusion of any obvious markers, such as a question mark, which could have been used to identify the correct order. The participants therefore were required to identify the characters and make sense of the order the sentences ought to be in as per a conversation.
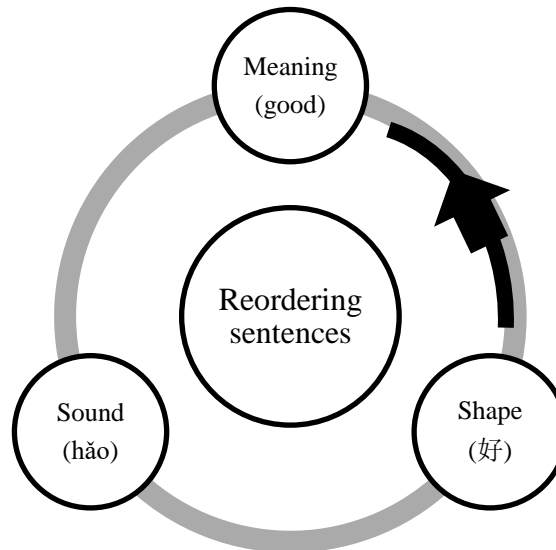
(6) Text production

Finally, this section required the participants to describe a picture using characters as instructed orally by the researcher and as written on the evaluation paper. The participants were also orally instructed that they could use pinyin, and could write using words in isolation or sentences, which enabled the researcher to evaluate both the recall

and use of characters or pinyin among the four groups of participants, as well as the occurrence of sentences or words in isolation. The main items being tested in this section included 1) participants' skills in supplying the correct shape or sound of characters (depending on whether they opted to answer using characters or pinyin) and 2) their skills in forming sentences using these words. As this exercise involved the participants writing free text unlike in all other previous exercises whereby the answers were fixed, another researcher also assessed this section to ensure inter-rater reliability. The two researchers worked from the same marking scheme whereby the maximum number of points awarded was 10. The criteria assessed included 1) the length of the text provided, 2) the lexical range, 3) to what extent sentences were used, 4) to what extent characters were used, and 5) the appropriateness of the language used in relation to the content of the picture provided.
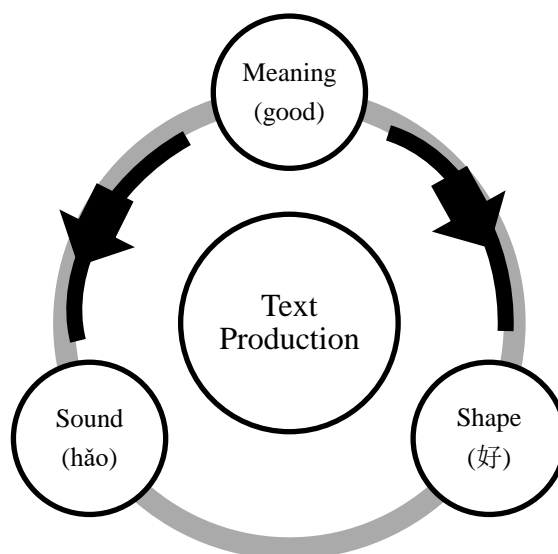
To sum up, the first section tested the participants' ability to rapidly associate the sound of a Chinese word to the character(s). In sections two and three, participants were tested on their skills in recognising and recalling given characters in isolation. Sections four and five gave the participants the opportunity to show that the use of a character in a sentence was understood, as well as showing that the correct order of sentences in a conversation could be supplied. The final section tested the recall and use of characters as the participants were asked to describe the picture without any prompts. Thus, the evaluations measured the participants' skills in recognising, recalling, and using characters in various scenarios.

As the research questions of the current study relate to character composition and character use (see Chapter 1, section 1.2), it is useful to point out that the sections testing character composition include the listening dictation, character recognition, recalling characters, and text production sections, while the completing sentences, reordering sentences, and text production sections tested character use.

In terms of the sections that were likely to have been more demanding, the listening dictation section was the only section on the paper with a time limit, as participants only heard the words to be transcribed a set number of times. The character recognition section asked participants to supply two items – pinyin and translation – in order to supply a fully correct answer, while the recalling characters section asked participants to recall a specific character from the English meaning without any link to the pinyin.

Finally, in the completing sentences section, participants had to not only understand a complete sentence; they also had to recall a word to fit in with the context and grammar of the sentence, and finally remember how to transcribe the characters.

In terms of the sections that were likely to have been less demanding, participants had to simply number the sentences in the correct order in the reordering sentences section, thus requiring less effort than other sections. The participants were also able to use any characters they wished to describe the relevant pictures of the text production section. This differs from the recalling characters section whereby they were required to write specific characters; thus, the text production section appears to be less demanding in terms of character recall.

Indeed, it may be the case that some groups found typically demanding sections to be easier than others, as will be evident in the data analyses of Chapter 4 and Chapter 5, yet it is useful to note that some sections are generally more demanding than others in relation to timing restrictions and the quantity of information needed. In order to examine how each group tended to answer each section on the evaluation papers, the researcher not only noted from these evaluations if an answer was correct, incorrect, or left blank, but also noted the use of pinyin and partially correct answers in either characters or pinyin. The results of these four formative evaluations and two summative evaluations are displayed in Chapter 4 and Chapter 5 respectively.

3.3.3.6. Feedback questionnaire

The feedback questionnaire was distributed to participants after the second summative evaluation, and therefore once the teaching and evaluations were complete. Questions on this feedback questionnaire related to what participants found enjoyable, difficult, easy, and helpful, for example (see Appendix Q for full questionnaire). The questions were mainly open-ended, giving the participants the opportunity to write without restrictions. Findings from this feedback questionnaire are displayed in Chapter 5 (section 5.5).

3.4. Summary of methodology

The main characteristics of the methodology are summarised in the bullet points below.

- The research design is quasi-experimental with convenience sampling (see sections 3.1 and 3.2)
- The research involved teaching approximately 90 transition year students CFL from the beginner level for one academic year (see section 3.3.2)
- The researcher taught each of four groups under one method of focused memorisation, delayed character introduction, character colour-coding or, a unity curriculum (see section 3.3.3.4)

- A biographical questionnaire was distributed to participants at the beginning of the research to gather the participant profile (see section 3.3.3.1, findings presented in Chapter 4)

- Four formative evaluations were distributed throughout the year to measure participants' progress (see section 3.3.3.5, findings presented in Chapter 4)

- Two summative evaluations were distributed in December and May to measure the learning outcomes of participants (see section 3.3.3.5, findings presented in Chapter 5)

- The researcher's observations also formed part of the data (reported in various cases in Chapters 4 and 5)

- A feedback questionnaire was distributed to participants at the end of the academic year to gather their opinions on learning CFL (see section 3.3.3.6, findings presented in Chapter 5)

- Based on findings from evaluations, questionnaires, and researcher observations, recommendations were then made in relation to a new CFL teaching methodology (see Chapter 6)

Chapter 4 presents the results of the biographical questionnaire as well as the four formative evaluations, while Chapter 5 presents the results of the summative evaluations and the feedback questionnaire.

Chapter 4: Data Analysis; Participant Profiles; and Formative Evaluations

The previous chapters demonstrate a paucity of research in the field of teaching CFL, including research concerning the teaching methods adopted in the current research and testing the skills of using characters alongside recall and recognition. This chapter presents the first of the data collected during the academic year, including the biographical questionnaire presented to the participants at the beginning of the study and the four formative evaluations conducted at regular intervals throughout the academic year to examine participants' progress. Chapter 5 presents the results from the two summative evaluations and the feedback questionnaire.

The following qualitative and quantitative data are displayed in chronological order, and more specific timeframes are highlighted under each section. It is worth noting firstly, however, that not all participants who began the study completed it. As stated in the Plain Language Statement that was circulated to all participants and their parents/guardians, participants had the freedom to withdraw from the study at any time should they wish to do so. Of course, due to the nature of longitudinal research, some participants were bound to withdraw for various reasons, such as a change in personal circumstances. Altogether, four participants withdrew from the study: three from the UC group after the second formative evaluation and one from the DCI group after the first summative evaluation. All of these participants were happy to let the researcher use the

data collected up until the aforementioned times, however they conducted no further evaluations or questionnaires and did not participate in the class after this time.

There were also five participants who required a Special Needs Assistant, and so according to school policy they were able to use their notes during the evaluations. It was imperative that this was conducted as the safety and wellbeing of the participants was (and is) of utmost importance to the researcher, and to deny these participants this right to use their notes may have caused undue stress. Three of these participants were in the UC group and two were in the CCC group. In fact, those three in the UC group were also the three who withdrew from the study after the second formative evaluation.

Finally, two participants changed groups by order of the school due to behavioural and personal issues. The first participant was originally part of the UC group and was moved to the FM group after the first formative evaluation. The second participant was originally part of the FM group and was moved to the UC group after the second formative evaluation.

These events were beyond the control of the researcher and in all cases the wellbeing of the participants took precedence as vowed by the researcher in the Plain Language Statement. In addition to this, the current research was conducted in a practical environment, meaning that the reality of learning a language in an Irish secondary

school was captured and recorded as much as possible. These events are also clearly

highlighted where necessary in the following sections and in Chapter 5 so as to avoid

any misinterpretation of data.

4.1. The biographical questionnaire

This biographical questionnaire was distributed to participants in the first week of the

study in order to gather information on participants' language abilities, learning styles,

and motivation in school, for example (for full list of questions see Appendix C). In

other words, the participant profile was compiled with this information. Additionally,

this chapter and Chapter 5 also use some of this collected information to ascertain

relationships between learning outcomes of the participants and their biographical

information. A copy of the questionnaire can be viewed in Appendix C, and the

following sections outline the answers received from these questionnaires according to

each group.

Firstly, it is worth noting some commonalities among the four groups of participants. In

each group, males made up more than half the population while the ages in each group

ranged from 14-16. Almost all participants spoke English as their first language and did

not have a language learning difficulty or a general learning difficulty. Most participants

were also studying at least one other foreign language that was alphabetic rather than

logographic. None of the participants had studied Chinese prior to commencing the

current study, and finally, the majority of participants were influenced by a mixture of

internal and external factors when studying for tests in school. The following sections present percentage breakdowns of each group under various categories. It must be noted that these percentages have been rounded up to the nearest whole number in all cases, unless clearly marked with '.5', and therefore are approximate percentages of the groups.

4.1.1. The FM group

Firstly, the total number of participants in the FM group equalled 23. While most spoke English only as their first language, 13 percent presented as being bilingual. The bilingual participants were fluent in English and either Polish or Russian. In addition to this, four percent spoke Catalan as their first language but were not bilingual.
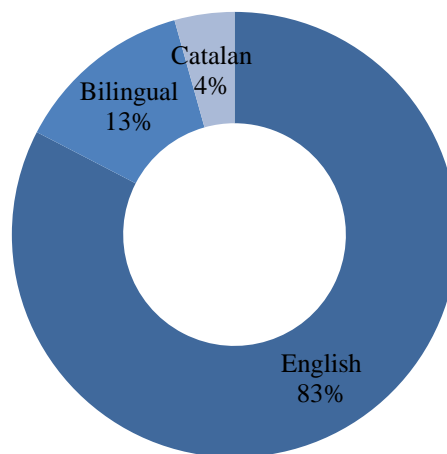
Figure 4.1. First languages of FM participants

Around 31 percent of the FM participants were classed as kinaesthetic learners using the

VARK Questionnaire (Vark, 2019; see Chapter 3, section 3.3.3.1), 26 percent were

multimodal learners, 17 percent preferred to learn by reading and writing, 17 percent

were visual learners, and nine percent were aural learners. Nine percent of participants

in this group demonstrated language learning difficulties.
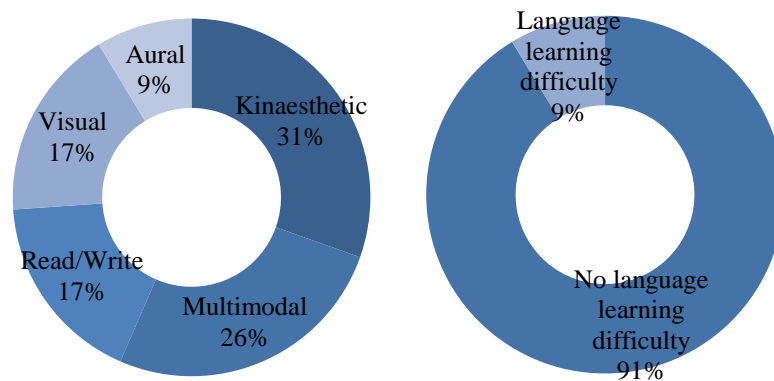
Figure 4.2. Learning styles and difficulties of FM participants

In this group, four percent of participants were studying both Spanish and English as foreign languages. In addition to Chinese, those participants learning one other foreign language (92 percent of the group) were learning one of Spanish (48 percent), French (33 percent), or German (19 percent).
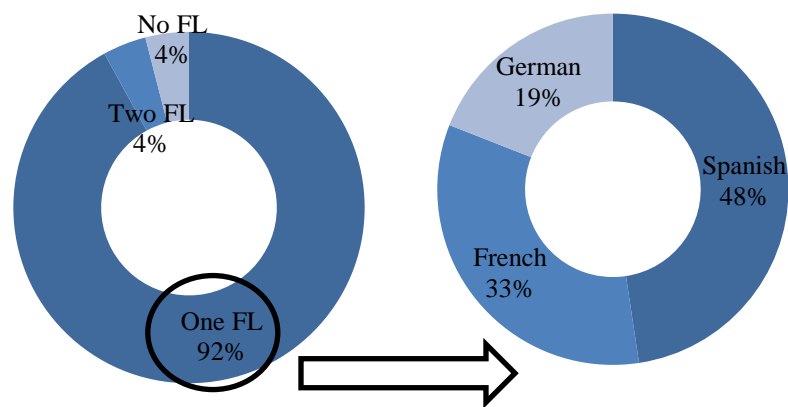
Figure 4.3. Foreign language learning of FM participants

Finally, in analysing the answers regarding participants' influencing factors when studying for tests in school as highlighted in Chapter 3 (section 3.3.3.1), 44 percent of participants reported that they were influenced by extrinsic factors, 30 percent were influenced by a mix of intrinsic and extrinsic factors, and 26 percent were influenced by intrinsic factors.
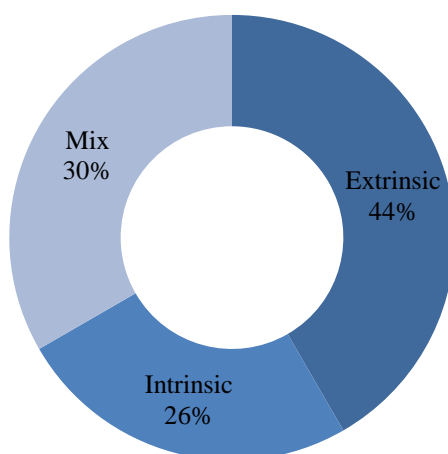
Figure 4.4. Motivation triggers in FM participants

As mentioned, one participant moved to this group from the UC group after the first formative evaluation. As a result, the total number of participants in the FM group now equalled 24. In this circumstance, percentage majorities remained the same as before with very slight numerical changes, with the exception of the VARK questionnaire results. Here, the majority changed from kinaesthetic learners only to a shared majority of both kinaesthetic and multimodal learners.

After the second formative evaluation, one participant was removed from the FM group and transferred to the UC group due to behavioural issues. After this, the total number of

participants in the FM group equalled 23. As with the previous change in the group, this presented little numerical change to the results first recorded. The percentage majorities remained the same with the exception of the VARK questionnaire results. This time, the majority of learners in the FM group presented as kinaesthetic learners as in the case of the first batch of results.

To sum up, the changes among participants made little to no difference in terms of the participant profile, with the exception of the fluctuating types of learners in an already close result.

4.1.2. The DCI group

The total number of participants in the DCI group upon commencement of the study equalled 23. In this group, nine percent of participants spoke Spanish as their first language but were not bilingual, and a further nine percent of participants who were bilingual spoke English and either Bosnian or Polish.
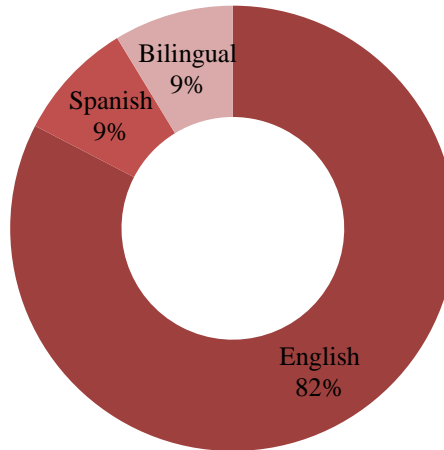
Figure 4.5. First languages of DCI participants

In relation to preferred learning styles using the VARK questionnaire, 30 percent were classed as kinaesthetic learners, 26 percent were multimodal learners, 22 percent were visual learners, and a further 22 percent were aural learners. Nine percent of participants in this group demonstrated language learning difficulties.
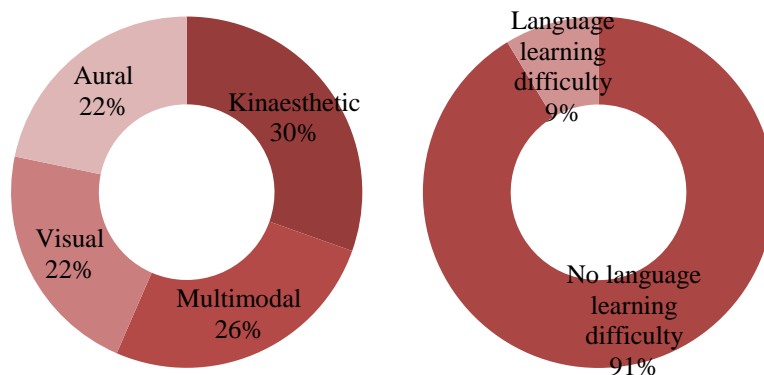
Figure 4.6. Learning styles and difficulties of DCI participants.

In this group, one student was not studying a foreign language (4.5 percent), and another was studying both Spanish and Twi (being studied in the student's own time) as two additional foreign languages. Approximately 62 percent of participants studying only one additional foreign language were learning Spanish, 14 percent were learning French, another 14 percent were learning German, and 10 percent were learning English.
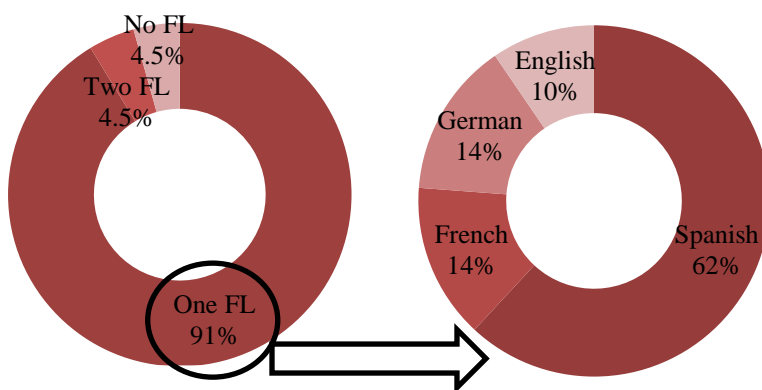
Figure 4.7. Foreign language learning of DCI participants

In terms of motivation to do well in school tests, around 56 percent of participants presented that they were influenced by a mix of intrinsic and extrinsic factors, 26 percent reported that they were influenced by extrinsic factors, nine percent reported that they were influenced by intrinsic factors, and a further nine percent of participants left this question blank.
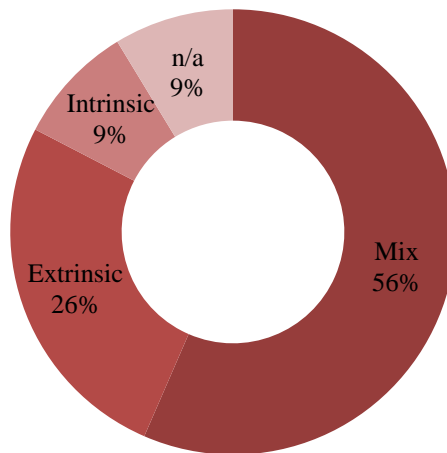
Figure 4.8. Motivation triggers in DCI participants

As previously mentioned, one participant withdrew from the study meaning that after the first summative evaluation, the number of participants in the DCI group now equalled 22. The withdrawal of one participant left the majority of percentages unchanged with the exception of the learning styles of the participants. The majority changed from kinaesthetic learners to both kinaesthetic and multimodal learners in an already close result. Thus, no significant differences can be observed after the withdrawal of one participant in the DCI group.

4.1.3. The CCC group

The total number of participants in the CCC group equalled 24. The 13 percent of bilingual participants in this group spoke English and one of Romanian, Latvian, or Russian.

Bilingual
13%

English
87%
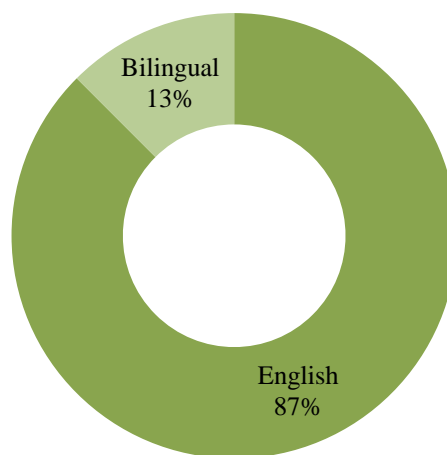
Figure 4.9. First languages of CCC participants

In looking at the VARK questionnaire results it can be seen that approximately 58 percent of participants were classed as multimodal learners, 17 percent were kinaesthetic learners, 13 percent learned best through reading and writing, eight percent were visual learners, and four percent were aural learners. Furthermore, 13 percent were reported to have language learning difficulties while 33 percent were reported to have general learning difficulties.
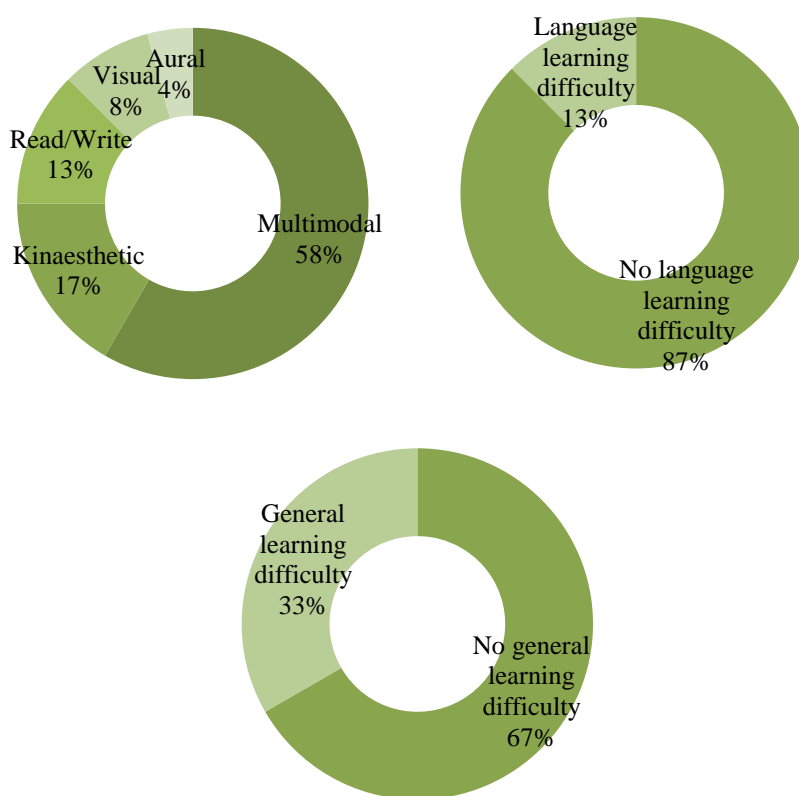
Figure 4.10. Learning styles and difficulties of CCC participants

In analysing the group's foreign language learning, it was noted that 63 percent of participants only studying one foreign language were learning Spanish, 23 percent were

learning German, and 14 percent were learning French. Eight percent of CCC

participants were not studying another foreign language.
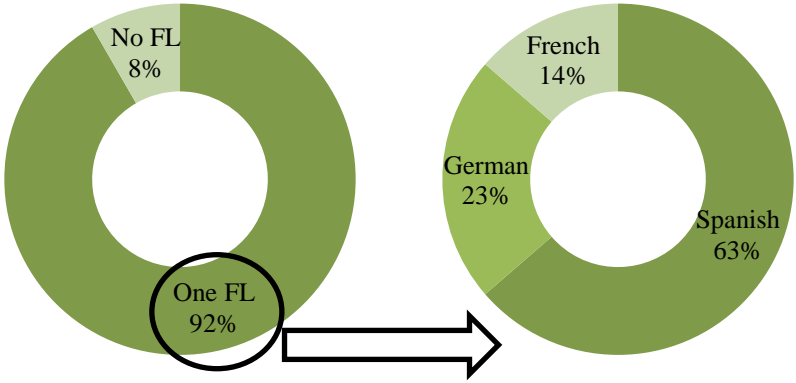
Figure 4.11. Foreign language learning of CCC participants

Looking at the motivation triggers of the CCC group, it is demonstrated that 46 percent

of participants were influenced by a mix of intrinsic and extrinsic factors, 25 percent

were influenced by intrinsic factors, and a further 25 percent were influenced by

extrinsic factors. Four percent of participants left this question blank.
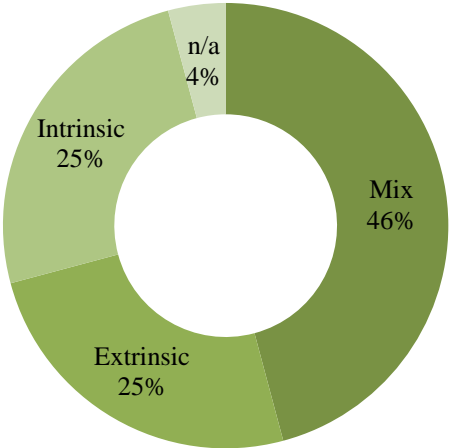
Figure 4.12. Motivation triggers in CCC participants

4.1.4. The UC group

Finally, the total number of participants upon commencement of the research in the UC group equalled 24. The 13 percent of bilingual participants in this group spoke English and one of Romanian, Russian, or Latvian, and eight percent spoke Spanish as their first language but were not bilingual.
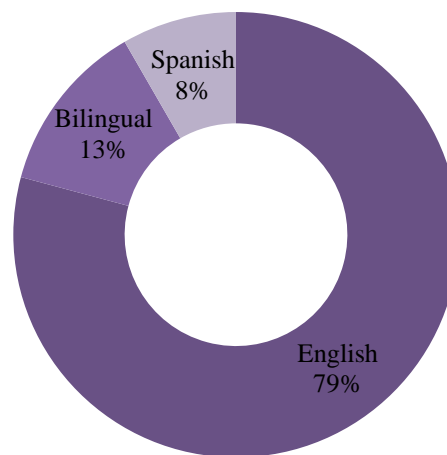
Figure 4.13. First languages of UC participants

In terms of the VARK questionnaire, 25 percent were classed as multimodal learners and a further 25 percent were aural learners, 21 percent were kinaesthetic learners, 17 percent were visual learners, and 12 percent learned best through reading and writing. Approximately four percent of participants had language learning difficulties, while 21 percent had general learning difficulties.
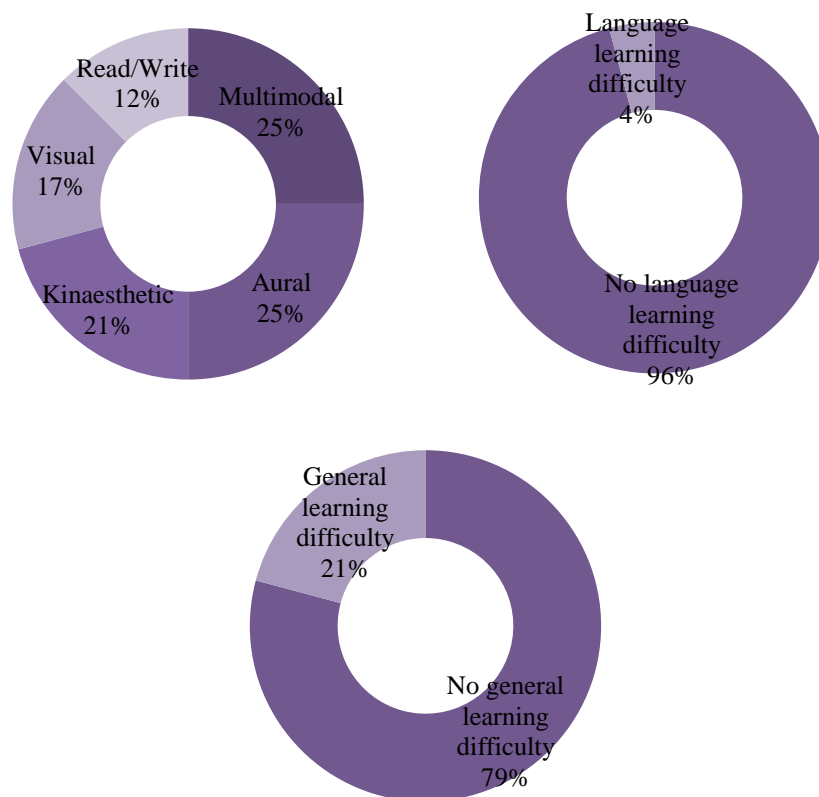
Figure 4.14. Learning styles and difficulties of UC participants

In the UC group, four percent were learning two foreign languages: English and French. Of those participants learning only one other foreign language, 37 percent were learning

Spanish, 32 percent were learning German, 26 percent were learning French, and five

percent were learning English.
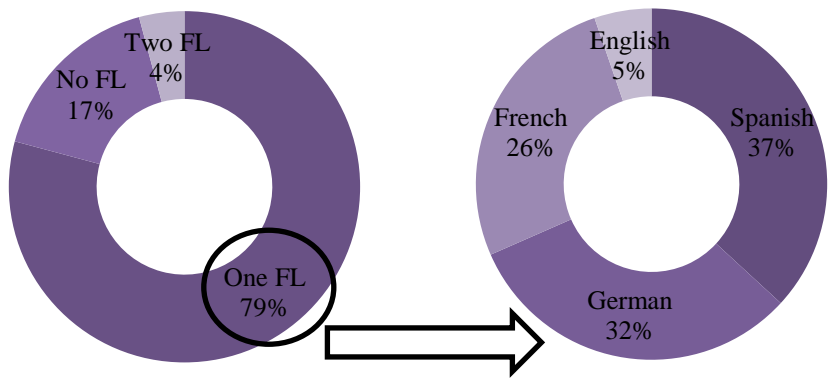
Figure 4.15. Foreign language learning of UC participants

In terms of motivation to do well in school, nine participants (37.5 percent) proved to be influenced by a mix of intrinsic and extrinsic factors, while a further nine were influenced by intrinsic factors. Approximately 21 percent of participants were influenced by extrinsic factors and four percent left this question blank.
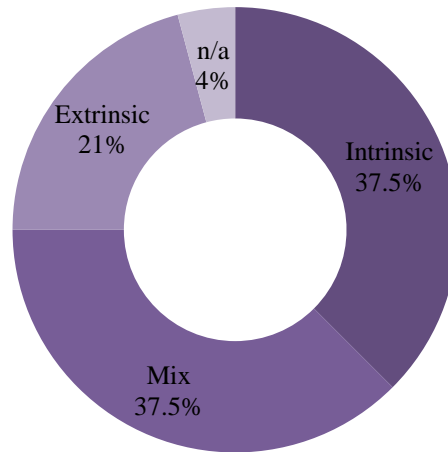
Figure 4.16. Motivation triggers in UC participants

As flagged previously, after the first formative evaluation one participant was removed from this group to the FM group. After this, the number of participants in the UC group now equalled 23. This had very little impact on the results first recorded. It can be seen that there were only two small changes in the ages of participants, whereby the majority changed from age 15 to both ages 15 and 16, and in the VARK questionnaire results whereby the percentage majority changed from both aural and multimodal learners to aural learners only. Furthermore, these slight fluctuations occurred with results already on quite a tight margin.

After the second formative evaluation, the number of participants equalled 21. During

this time, three participants withdrew from the study and another participant joined the

UC group from the FM group. These changes left little impact on the results originally

recorded. After the second formative evaluation, the percentage majority of ages

reverted back to 15 as per the original results recorded. In addition, the majority of types

of learners according to the VARK questionnaire were now split evenly amongst

multimodal, aural, and kinaesthetic learners, whereby the majority had been with aural

and multimodal learners after the first formative evaluation and with aural learners after

the second formative evaluation. Finally, the motivation triggers now had a joint

majority with both intrinsic factors and a mix of intrinsic and extrinsic factors, whereby

the majority had been with a mix of intrinsic and extrinsic factors after the first

formative evaluation, and with intrinsic factors after the second formative evaluation. As

a result, it can be seen that the changes listed have made little significant difference to

the group as a whole, and once again where majority percentages have changed it has

been in the cases of tight margins to begin with.

4.1.5. Summary of biographical questionnaire

The previous sections provide an insight into the participant profiles of the FM, DCI,

CCC, and UC groups. They show that the groups were comprised of both males and

females aged from 14-16. The vast majority of each group was comprised of native

speakers of English, participants with no language learning or general learning

difficulties, and participants who were studying at least one other foreign language in

school (French, German, or Spanish). In addition, a mix of various preferred learning styles and motivational triggers for studying are visible in each group. The following sections highlight the findings from the formative evaluations in chronological order.

4.2. The first formative evaluation

The first formative evaluation was conducted after approximately four weeks of teaching. The FM, CCC, and UC groups had been introduced to a total of 25 Chinese words and their characters, while the DCI group had been introduced to the pinyin of these 25 Chinese words plus the pinyin of an additional 16 Chinese words, meaning the total number of Chinese words learned in pinyin by this group was 41 (see Appendix D, see also Table 3.1 in Chapter 3). The reason for this is because, as mentioned in Chapter 3 (section 3.3.3.4.2), this group was learning characters via a delayed method, and so were not introduced to characters until after this first evaluation. A copy of the first formative evaluation can be viewed in Appendix E.

A total of 21 participants were present for this evaluation in the FM group and the DCI group respectively, and a total of 19 participants were present in both the CCC and UC groups. Participants were allocated approximately 25 minutes to complete this formative evaluation. It is worth noting that at the beginning of all formative and summative evaluations, the researcher clearly repeated and explained the instructions for each section, and also mentioned that students were permitted to use pinyin if they could not

remember how to write a character, or any part of a character, for any section. In these

oral instructions, the researcher also let the participants know how much time they

would have to complete the evaluation.

In all evaluations, various categories of answers were noted. Table 4.1 allows for a clear

explanation of each category of answer.

Table 4.1. Category of answer descriptions in evaluations

Category	Description
Category	*Description*
Correct character	Chinese word (comprised of any number of characters) is correct in **each** character supplied
Correct pinyin	Pinyin supplied is correct in **spelling and tone** provided
Partially correct characters	Chinese word (comprised of any number of characters) is written with **minor** mistakes in any character but is still recognisable, **or** Chinese word (comprised of more than one character) is written with one or more **incorrect** characters **with** one or more **correct** characters
Partially correct pinyin (tones incorrect)	Pinyin supplied is spelt correctly but any one **tone** provided is **incorrect**
Partially correct pinyin (spelling incorrect)	Pinyin supplied is written using correct tones but is **spelt incorrectly**
Incorrect	**All items** supplied (character or pinyin or translation) are **incorrect**
No answer	Question has been left blank; **unattempted**

As shown in Table 4.1, all possible answer categories were recorded by the researcher and are presented in the data analysis in order to provide a full picture of each group's learning progress. It is important to note that in the case of no participants answering in

a certain way, the relevant column is omitted from the graphs for all formative and summative evaluations. For example, Figure 4.19 shows that no participants answered using partially correct pinyin with incorrect spelling when recalling characters in the first formative evaluation, so this column has not been included in the graph provided. In addition, the percentages provided have been, in most cases (unless clearly indicated by '.5'), rounded up to the nearest whole number, and are therefore approximate percentages.

4.2.1. Listening dictation in the first formative evaluation

This section tested the listening skills and character/pinyin production skills of each group whereby participants were required to quickly associate the sound of the character(s) with the correct shape(s) (see Appendix E). The researcher called out five Chinese words three times each and then repeated these once more at the end of the listening section. Participants were instructed to transcribe the correct characters however, if the characters could not be recalled, participants were encouraged to write the pinyin of the word. As a result of this, the answers were provided in a variety of formats which can be seen in Figure 4.17. It is worth noting that the DCI group's results of not providing any correct characters for any section of the first formative evaluation cannot be compared to the other groups who had already been introduced to the characters.

Figure 4.17 demonstrates that the highest percentages of answers in the FM, CCC, and

UC groups lie in the incorrect answer column (38 percent, 51 percent, and 42 percent

respectively). The highest percentage in the DCI group can be seen in the partially

correct answers whereby the pinyin was provided with the incorrect tones (37 percent).

The DCI group shows no correct characters as the group had not yet been introduced to

these, however the percentage of correct characters provided in the FM, CCC, and UC

groups is still quite low (three percent, three percent, and one percent respectively). It

appears that even the FM, CCC, and UC groups, who had been learning characters, were

more comfortable in answering in pinyin. The highest percentage of incorrectness can

be seen in the CCC group (51 percent), whereas the highest percentage of blank answers

(16 percent) can be seen in the FM group.

Figure 4.17. Percentages of answer categories for listening dictation in first formative evaluation

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4.2.2. Recognition of Chinese characters in the first formative evaluation

This section of the paper required participants to recognise the characters of five Chinese words presented on the paper by supplying the pinyin and English meaning (translation) (see Appendix E). In the case of the DCI group, only the English meaning was required as the participants were only provided with the pinyin of characters.

The highest percentage of results presented in this section lies clearly in the incorrect answer column for all groups, as seen in Figure 4.18, with the UC group providing the most incorrect answers at 55 percent. The correct English answers supplied by the DCI group are notably higher than other groups (35 percent) as all that was required of this group, having not yet been introduced to the characters, was to supply the English meaning from the pinyin. In looking at the fully correct answers supplied, it is seen that the FM and CCC groups scored the best (six percent and 5.5 percent respectively), while the UC group lagged behind with one percent. The CCC group, although providing the lowest percentage of incorrect answers at 40 percent, actually provided the highest percentage of blank answers, meaning no attempt could be made for 40 percent of this group's answers.
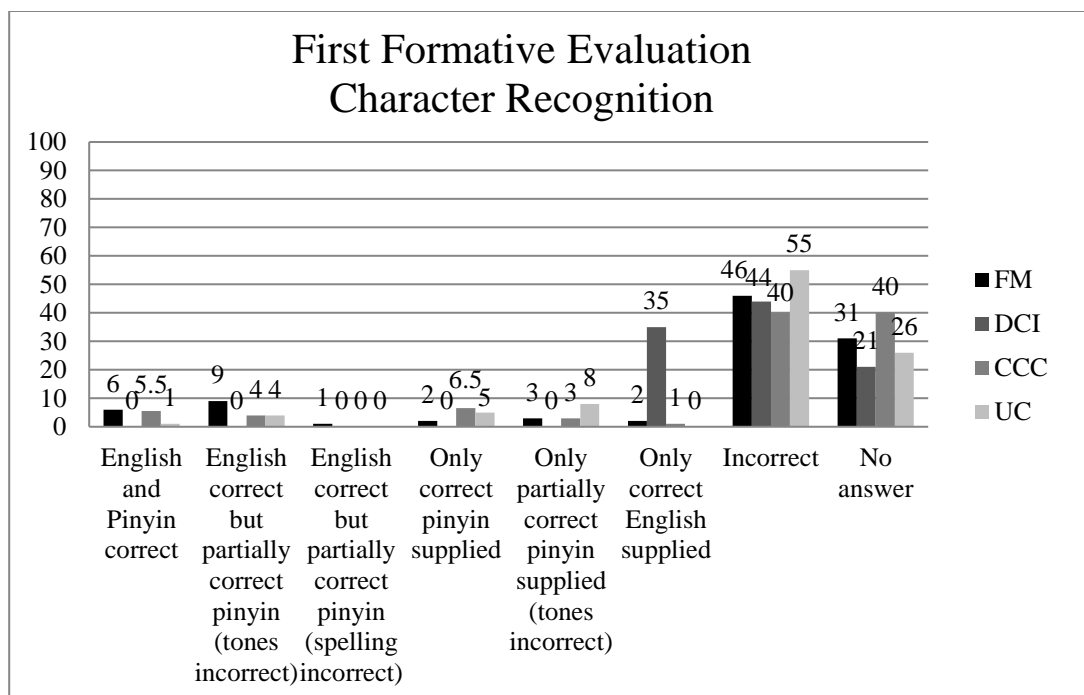
Figure 4.18. Percentages of answer categories for character recognition in first formative evaluation

4.2.3. Recalling Chinese characters in the first formative evaluation

This section of the paper presented the participants with five English words whereby they were required to supply the correct characters, or in the case of the DCI group, the correct pinyin (see Appendix E). The participants were encouraged still to write the pinyin if they could not recall a character as per the aforementioned oral instructions that were given prior to completing the evaluation.

The highest percentage of answers for each group again lies in the incorrect answers, as shown in Figure 4.19, with the DCI group providing the highest percentage at 42 percent. The DCI group also provided the highest percentage of blank answers at 40

percent, even though the participants had a reduced workload whereby character learning was delayed. The FM group provided the highest percentage of correct characters (10 percent), while the CCC group supplied 13 percent correct pinyin answers. Very surprisingly, the DCI group performed the worst out of all groups in the correct pinyin section, providing only four percent correct answers. The FM, CCC, and UC groups also made attempts to supply the correct pinyin; however, the partially correct pinyin with incorrect tones answers are at a higher percentage, demonstrating that tone acquisition was probably an issue for the participants. In fact, Figure 4.19 shows that no participants answered using partially correct pinyin with incorrect spelling when recalling characters in the first formative evaluation, so this column has not been included.

Figure 4.19. Percentages of answer categories for recalling characters in first formative evaluation

4.2.4. Completing sentences with correct characters in the first formative evaluation

This section of the evaluation tested the participants' skills of recognising characters (pinyin for the DCI group) in reading five incomplete Chinese sentences, understanding the meaning of these sentences, and filling in the blank with the correct characters (pinyin for the DCI group) (see Appendix E).

Figure 4.20 shows that the CCC group scored the highest in this section, providing 21 percent correct characters in the sentences, while the UC group scored second highest in supplying 14 percent correct characters. Not including the DCI group, the FM group scored the lowest in terms of correct characters with only 10 percent. The DCI group was able to supply 32 percent correct pinyin and a further 28 percent partially correct pinyin with incorrect tones. As the DCI group had a reduced workload in the first weeks of teaching, it is unsurprising that the participants were able to provide the highest percentage of correct pinyin answers here. In contrast to the previous recall result, it may be the case that dealing with pinyin in context was an easier task for the DCI group rather than dealing with words in isolation. The DCI group also only left 14 percent blank answers, while the FM, CCC, and UC groups left 55 percent, 50 percent, and 43 percent of the sentences blank respectively. The UC group also provided significantly higher incorrect answers (40 percent) compared to the other groups whose incorrectness varied from 25-29 percent.

First Formative Evaluation
Completing Sentences

	Correct characters	Correct pinyin	Partially correct characters	Partially correct pinyin (tones incorrect)	Partially correct pinyin (spelling incorrect)	Incorrect	No answer
FM	10	1	2	3	0	29	55
DCI	0	32	0	28	2	25	14
CCC	21	1	0	1	0	27	50
UC	14	1	0	2	0	40	43
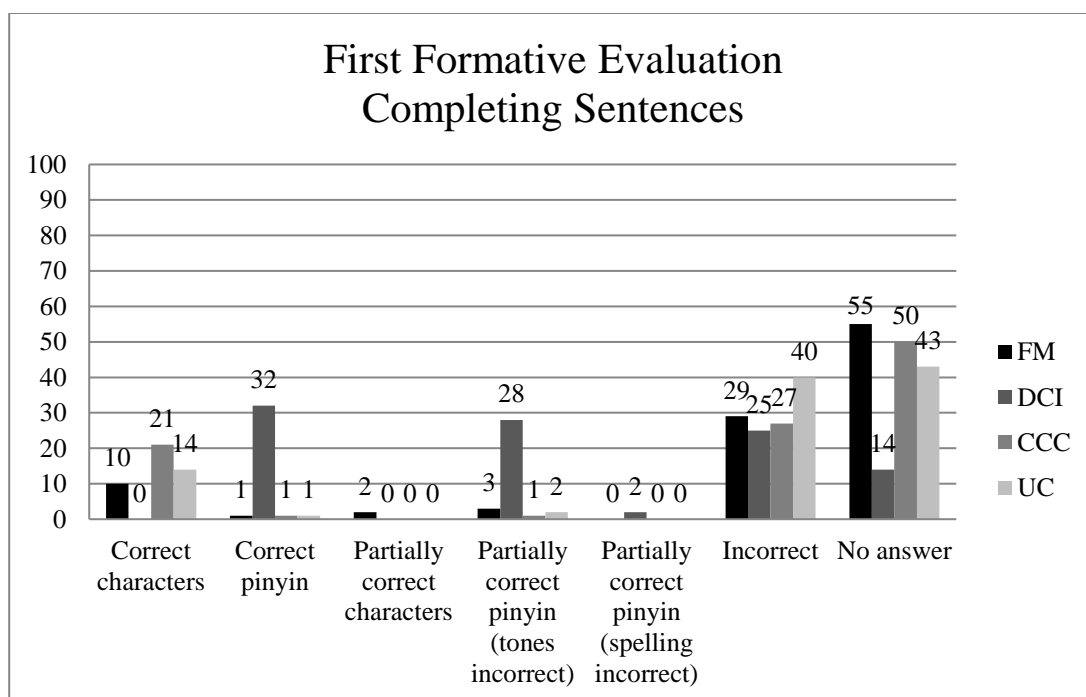
Figure 4.20. Percentages of answer categories for completing sentences with correct characters in first formative evaluation

4.2.5. Reordering sentences in the first formative evaluation

This section again required participants to be able to read Chinese sentences, yet this time they were required to order these sentences correctly as per a conversation (see Appendix E). The participants were presented with three sentence couplets and were asked to label the sentences according to the correct order. Oral instructions also made it clear here and for all other evaluations that the content of one sentence couplet was not related to that of another in the reordering sentences section.

As can be seen from Figure 4.21, each group coped quite well with this section. The FM, CCC, and UC groups' results are quite similar in correct answers ranging from 62-

65 percent, while the DCI group provided the lowest number of correct answers with 57 percent. However, the DCI group was also the only group to attempt to reorder all sentences despite providing the highest percentage of incorrect answers (43 percent), while the CCC group provided the lowest percentage of incorrect answers (18 percent) yet the highest percentage of blank answers (19 percent).
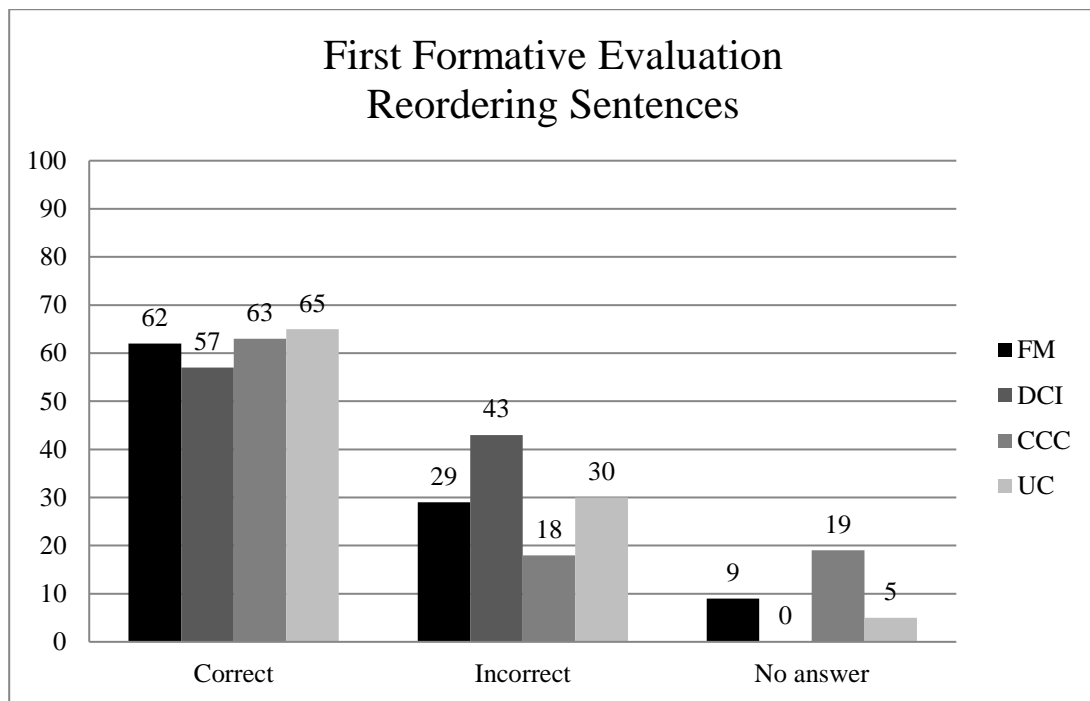
Figure 4.21. Percentages of answer categories for reordering sentences in first formative evaluation

4.2.6. Text production in the first formative evaluation

This final part of the evaluation tested the participants' skills in recalling characters or pinyin when describing a picture presented to them on the paper. The lessons in the lead-up to the first formative evaluation focused on greetings, general conversation, and

having coffee with various family members or named characters from the book. For this reason, the researcher presented the participants with an image of a man and woman having coffee (see Appendix E), allowing them to draw on all they had learned in describing the scene. In the aforementioned oral instructions to the participants, the researcher mentioned that they were free to create any kind of text, including dialogues, and could write using words or sentences. The following paragraphs describe the number of words and the percentages of the various categories of answers, as there was no limit to the amount that the participants could write. Participants were encouraged to use characters or pinyin and to write using Chinese words in isolation or sentences.

Altogether, the FM group supplied 104 Chinese words, the CCC group supplied 95 Chinese words, the UC group supplied 148 Chinese words, and the DCI group supplied 136 Chinese words. Therefore, the UC group provided the most Chinese words, while the CCC group provided the lowest number.

Table 4.2 presents firstly the number of words supplied by each group under the specific categories, followed by the percentage proportion per group (in brackets). The vertical grey column separates the 'all answers incorrect' and 'no attempt' columns from all other categories of answers as these are actually counting the number of participants who answered in these ways. This same format is followed for all other evaluations for the text production section.

Firstly, in terms of providing correct characters, the UC group scored the highest with

44 Chinese words in characters and therefore 30 percent of all of their answers (see

Table 4.2). The FM and CCC groups were quite similar to each other, providing 24 (23

percent) and 21 (22 percent) correct Chinese words in characters respectively. It is

unsurprising that the group that scored the highest correct pinyin answers was the DCI

group (86 correct words and 63 percent of answers), however the CCC group also

scored quite highly in this section providing 42 (44 percent) correct pinyin words.

Where the FM and UC groups attempted to answer using some pinyin, it can be seen

that incorrect tones affected their scores (50 words and 48 percent, and 79 words and 53

percent respectively) when compared with the CCC group that could more easily write

the correct pinyin, supplying only 31 (33 percent) words written using the incorrect

tones.

Table 4.2. The number and percentage of words in various answer categories for text production in first formative evaluation[6]

	Correct character	*Correct pinyin*	*Partially correct characters*	*Partially correct pinyin (tones incorrect)*	*Partially correct pinyin (spelling incorrect)*	*All answers incorrect*	*No attempt*
FM	24 (23%)	27 (26%)	2 (2%)	50 (48%)	1 (1%)	1 (5%)	2 (10%)
CCC	21 (22%)	42 (44%)	0 (0%)	31 (33%)	1 (1%)	0 (0%)	4 (20%)
UC	44 (30%)	21 (14%)	2 (1%)	79 (53%)	2 (2%)	0 (0%)	2 (11%)
DCI	0 (0%)	86 (63%)	0 (0%)	50 (37%)	0 (0%)	0 (0%)	4 (19%)

Table 4.2 shows that the FM group was the only group whereby a participant (five percent of the group) only provided all incorrect characters or words. The CCC and DCI groups each had four participants who did not attempt this question (20 percent and 19 percent of each group respectively), while the FM and UC groups each had two participants who did not attempt this question (10 percent and 11 percent of each group respectively). Figure 4.22 displays the results of Table 4.2.

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[6] It is important to note that sometimes, given the relatively low number of participants in the current study, the percentages may refer to very low numbers. For example, in the 'no attempt' column of Table 4.2, the 10 percent in the FM group refers to two participants, while the 20 percent in the CCC group refers to four participants.

First Formative Evaluation
Text Production I

Categories (x-axis): Correct characters, Correct pinyin, Partially correct characters, Partially correct pinyin (tones incorrect), Partially correct pinyin (spelling incorrect), All incorrect, No attempt

Legend: FM, DCI, CCC, UC

Values shown:
- Correct characters: 24, 0, 22, 30
- Correct pinyin: 26, 63, 44, 14
- Partially correct characters: 2, 0, 0, 1
- Partially correct pinyin (tones incorrect): 49, 37, 33, 53
- Partially correct pinyin (spelling incorrect): 1, 0, 1, 2
- All incorrect: 5, 0, 0, 0
- No attempt: 10, 19, 20, 11

Figure 4.22. Percentages of answer categories for text production in first formative evaluation

It is also noted from this final section the format that the participants answered in, that is, if they answered using words only, sentences only, or a mixture of isolated words and sentences. It is worth noting that a 'word' refers to a pinyin word or its corresponding Chinese character(s) as described in Chapter 2 (section 2.1.4).

From these results displayed in Figure 4.23, it can be seen that the FM group preferred to write words only (55 percent), the CCC and UC groups preferred to construct sentences (67 percent and 41 percent respectively), and the DCI group mainly provided a mix of words and sentences (59 percent). The CCC and UC groups' results here are quite impressive, demonstrating after only four weeks of learning their skills in

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constructing some simple sentences. From the extensive use of words only, the FM group's results also hint that this particular method may be useful for learning words in isolation.

First Formative Evaluation Text Production II
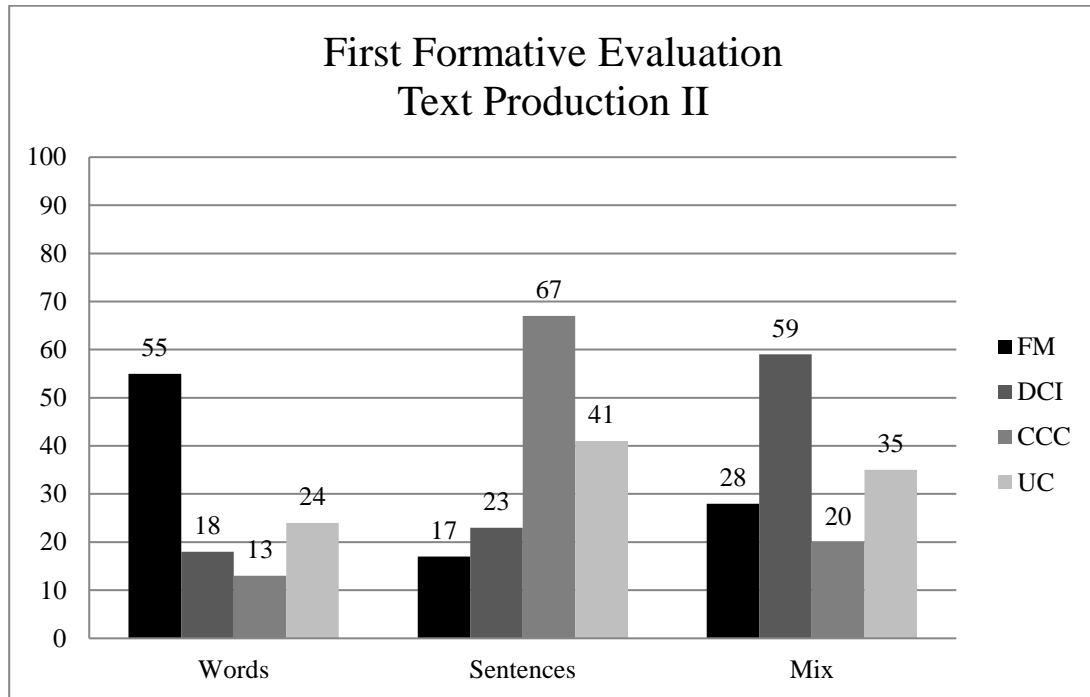
Figure 4.23. Percentages of words only, sentences only, and mix of both for text production in first formative evaluation

4.2.7. Summary of first formative evaluation

Findings from the first formative evaluation demonstrate that the FM and CCC methods appear to be useful for learning character composition (see Figures 4.17-4.19) and in some cases for learning when to use the characters in various exercises (see Figures 4.20, 4.21, and 4.23). The UC method shows promise mainly in using the characters in

various exercises (see Figures 4.20, 4.21, and 4.23). The DCI method, on the other hand, cannot be directly compared to the others as the participants had not yet been introduced to the characters. It appears to be useful for all exercises when using pinyin, yet the participants of the group also demonstrated issues in remembering the correct tones of the pinyin (see Figure 4.19).

4.3. The second formative evaluation

The second formative evaluation took place after a total of approximately eight weeks of teaching. The FM, CCC, and UC groups had been introduced to a further 38 Chinese words and their characters, meaning that the total number of Chinese words and their characters learned at the time of the second formative evaluation equalled 63. The DCI group had been learning the characters of the 41 Chinese words learned prior to the first formative evaluation, and also learned the remaining 22 Chinese words and their characters as per the other three groups. This meant that now all groups had learned the same Chinese words including the characters (see Appendix F, see also Table 3.1 in Chapter 3). A copy of the second formative evaluation can be viewed in Appendix G.

It was after the first formative evaluation and before this second formative evaluation took place that one participant from the UC group was moved to the FM group as previously discussed in this chapter. A total of 19 participants were present for this second formative evaluation in the FM group, 21 were present in the DCI group, 19

were present in the CCC group, and 20 were present in the UC group. Participants were

allocated approximately 25 minutes to complete this formative evaluation.

4.3.1. Listening dictation in the second formative evaluation

As per the first formative evaluation, participants listened to five words called out by the

researcher a total of four times each (see Appendix G). Despite all groups being

instructed to write down the characters of the corresponding sounds, the researcher also

encouraged participants to write the pinyin of the word if they could not remember how

to write the characters. The results of the listening dictation can be seen in Figure 4.24.

Figure 4.24 shows that none of the groups performed well in providing the correct

characters; the highest score was provided by the FM and CCC groups at only one

percent. From observing the percentages of correct and partially correct pinyin answers,

it is clear that the participants of the four groups preferred to answer using pinyin. The

DCI group had an increased workload insofar as participants now had to learn the

characters which also appears to have affected their ability to provide correct pinyin in

the listening dictation, as this group performed the worst with only eight percent

correctness. The CCC group scored the highest in terms of providing correct pinyin with

18 percent, and the FM and UC groups similarly provided 15 percent and 14 percent

correct pinyin respectively. The CCC group also showed more attempts to provide

characters with five percent of their answers written with partially correct characters

compared to one percent in the FM and UC groups and zero percent in the DCI group.

All four groups made some attempts to answer using pinyin, however the tones appear to have made this difficult with 17 percent to 26 percent of answers being provided with incorrect tones. In terms of incorrect answers, the DCI group performed the worst with 56 percent incorrect answers, whereas on the other end of the scale the CCC group provided 44 percent incorrect answers. Finally, in terms of blank answers, the CCC group supplied the highest number with 10 percent, while the UC group provided only four percent blank answers.
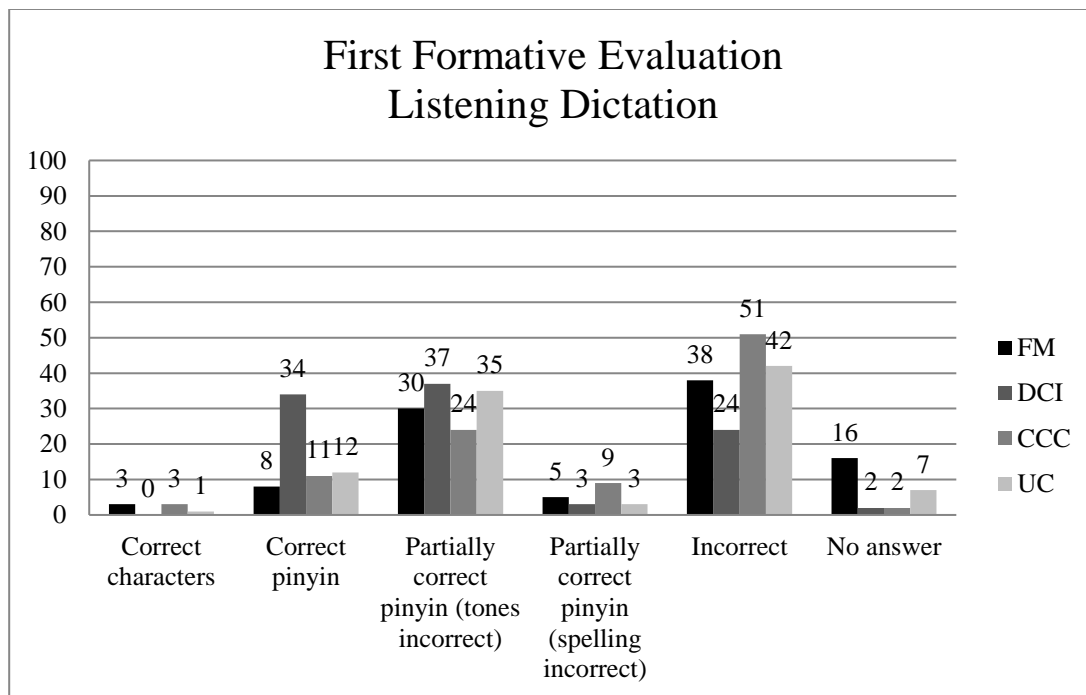

Figure 4.24. Percentages of answer categories for listening dictation in second formative evaluation

4.3.2. Recognition of Chinese characters in the second formative evaluation

The participants were presented with the characters of five previously learned Chinese words and were required to provide the pinyin and English meaning of these (see Appendix G).

Although the highest percentages lie in the incorrect or blank answers, it can be seen from Figure 4.25 that the CCC group performed the best in terms of providing nine percent fully correct answers. The FM and CCC groups scored the highest incorrect answers at 49 percent and 40 percent respectively, and the DCI and UC groups provided the highest percentage of blank answers with 65 percent and 59 percent respectively. It appears that recognising five characters in isolation was perhaps particularly difficult for the DCI and UC group participants as is evident from their high rate of blank answers shown in Figure 4.25.

Figure 4.25. Percentages of answer categories for character recognition in second formative evaluation

4.3.3. Recalling Chinese characters in the second formative evaluation

This section, as in the first formative evaluation, presented the participants with five English words whereby the corresponding Chinese characters had to be supplied (see Appendix G). Participants were again encouraged to write the pinyin of the word if the characters could not be remembered.

Figure 4.26 shows that the highest percentage of answers lies in the incorrect and blank answers provided, however the CCC group again scored the highest in terms of correct characters with 15 percent. The DCI group supplied only one percent correct characters

and 52 percent of their answers were left blank, matching the FM group's blank answer results. The UC group's highest percentage of answers show 44 percent of participants leaving answers blank, whereas the highest percentage of answers in the CCC group shows that participants answered incorrectly (40 percent). It can be seen from the answers that are partially correct in pinyin that the DCI and UC groups made more attempts to answer in pinyin, with 11 percent and 10 percent of their answers respectively being provided with incorrect tones, compared to two percent and three percent provided by the FM and CCC groups respectively. Interestingly, at the same time, the CCC group scored the highest in providing partially correct characters (eight percent), hinting that this group was perhaps relying less on pinyin than the other groups when learning Chinese.
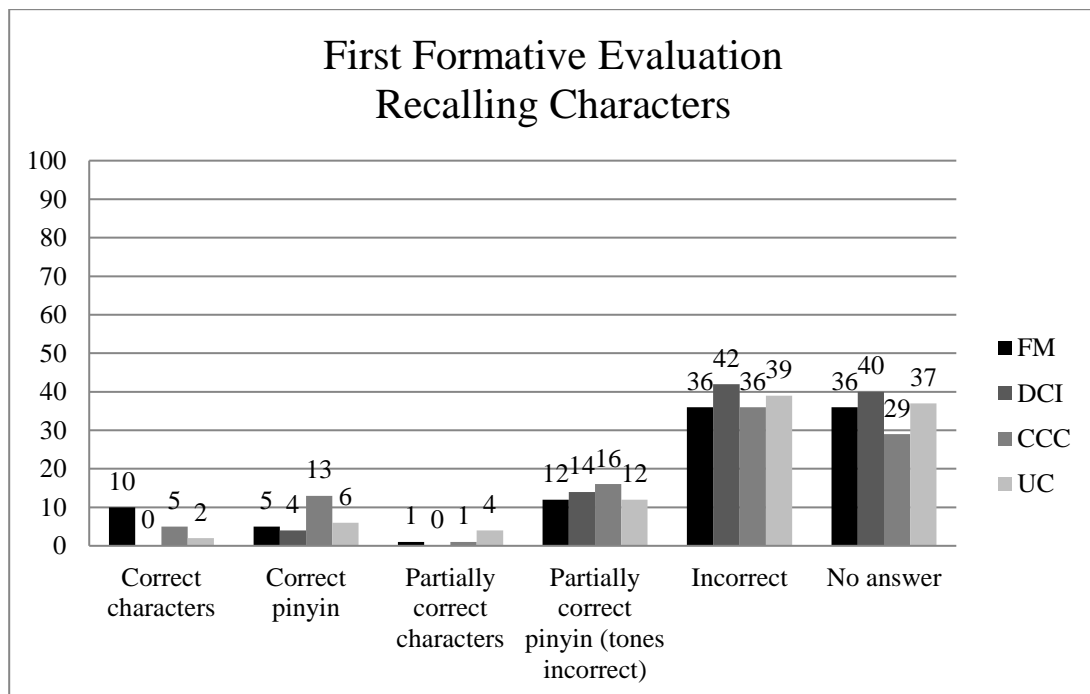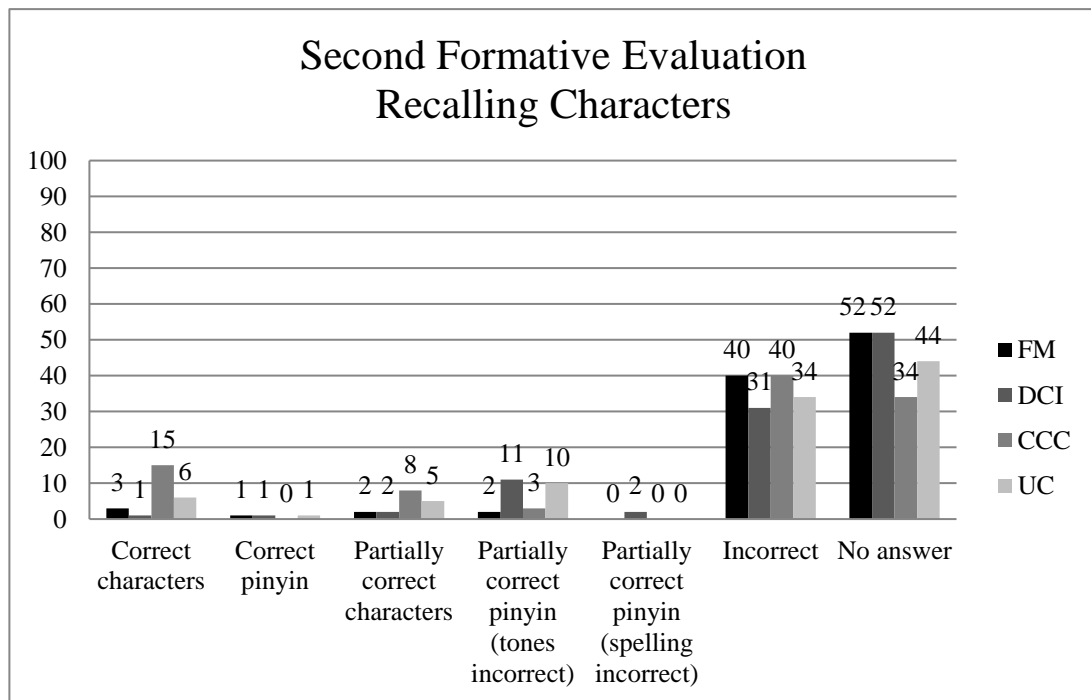

Figure 4.26. Percentages of answer categories for recalling characters in second formative evaluation

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4.3.4. Completing sentences with correct characters in the second formative evaluation

As in the first formative evaluation, this section contained five incomplete Chinese sentences and asked participants to supply correct characters in the blank spaces in order to create a grammatically correct and coherent sentence (see Appendix G).

It is clear from Figure 4.27 that the presentation of sentences using characters proved to be quite overwhelming for all groups. The FM, DCI, CCC, and UC groups' highest percentages were blank answers, with 55 percent, 66 percent, 54 percent, and 49 percent respectively. The UC group scored 13 percent correct characters and thus the highest out of all groups, while the DCI group provided the lowest percentage of correct characters with six percent. The second-highest percentage category for all groups was the incorrect answers. The DCI group scored the lowest incorrectness at 26 percent; however, the participants also scored the highest in terms of blank answers. The FM, CCC, and UC group results demonstrate 35 percent, 37 percent, and 36 percent incorrectness respectively.
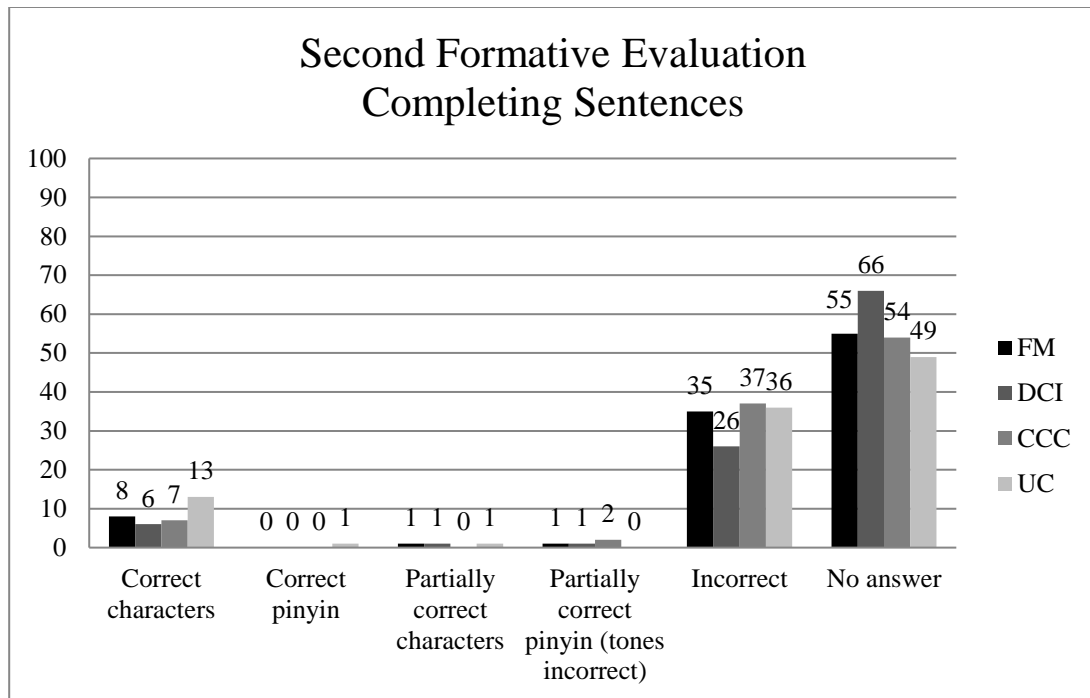
Figure 4.27. Percentages of answer categories for completing sentences with correct characters in second formative evaluation

4.3.5. Reordering sentences in the second formative evaluation

As in the first formative evaluation, participants were presented with three sentence couplets and were asked to put these in the correct order as per a conversation (see Appendix G).

As can be seen from Figure 4.28, the FM group seemed to cope quite well with this section, with 54 percent of participants' answers correct and only two percent blank answers provided. The DCI and CCC groups also scored highly with 46 percent of their respective answers being correct, however the DCI group made the least attempts out of

all groups to answer all questions with 24 percent of their answers left blank. The UC group, on the other hand, scored the highest incorrect answers at 48 percent, with only 32 percent of their answers being correct. The participants also scored the second-highest percentage of blank answers at 20 percent.
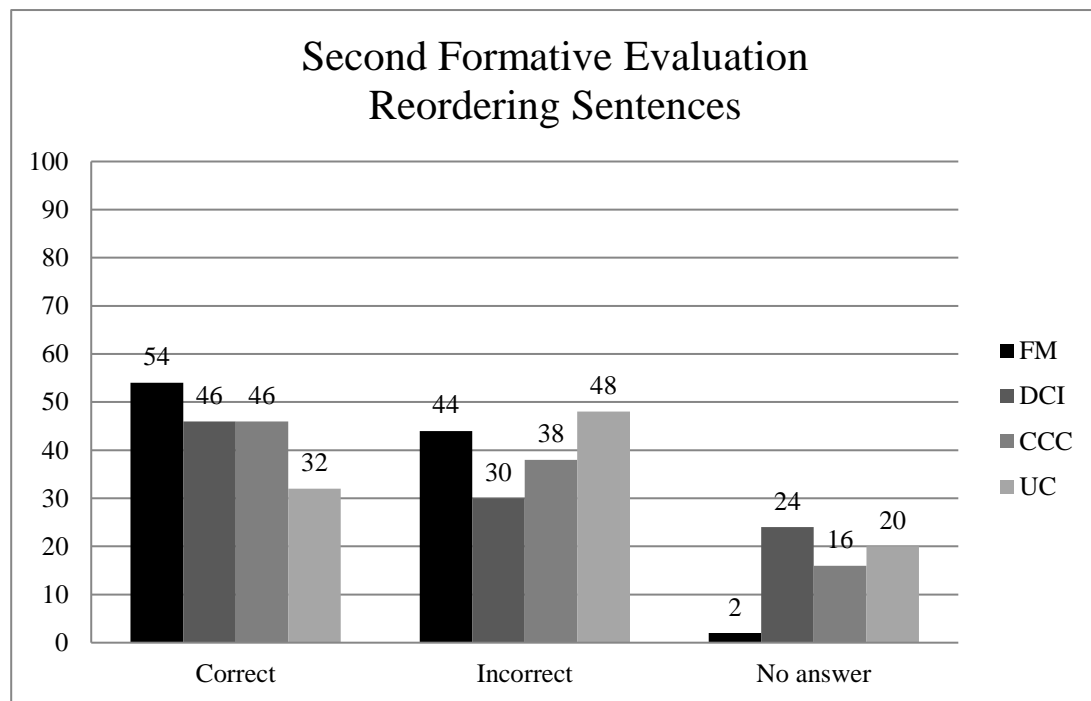
Figure 4.28. Percentages of answer categories for reordering sentences in second formative evaluation

4.3.6. Text production in the second formative evaluation

The participants were instructed as in the first formative evaluation to describe the picture presented on the paper. They were encouraged to use characters or pinyin and could write using words or sentences. For the second formative evaluation, the researcher presented participants with a picture of a boy and a girl studying from books

in a school setting (see Appendix G) as the focus of the lessons leading up to the second

formative evaluation was on school and learning various subjects.

In examining the total number of correct and partially correct Chinese words, it can be

seen that the FM group supplied 49 Chinese words, the DCI group supplied 55 Chinese

words, the CCC group supplied 104 Chinese words, and the UC group supplied 90

Chinese words. Table 4.3 presents the details recorded for this section.

Table 4.3. The number and percentage of words in various answer categories for text
production in second formative evaluation

	Correct character	Correct pinyin	Partially correct characters	Partially correct pinyin (tones incorrect)	Partially correct pinyin (spelling incorrect)	All answers incorrect	No attempt
FM	24 (49%)	3 (6%)	4 (8%)	18 (37%)	0 (0%)	1 (5%)	8 (42%)
DCI	23 (42%)	4 (7%)	12 (22%)	16 (29%)	0 (0%)	0 (0%)	8 (38%)
CCC	25 (24%)	26 (25%)	2 (2%)	51 (49%)	0 (0%)	0 (0%)	6 (32%)
UC	16 (18%)	15 (17%)	5 (5%)	52 (58%)	2 (2%)	0 (0%)	6 (30%)

As can be seen in Table 4.3, the highest percentage of correct Chinese words in

characters is in the FM group with 49 percent (24 Chinese words). However, the CCC

group supplied 25 Chinese words in characters although this only equals to 24 percent of their answers due to the total number of words supplied by the CCC group being higher than all other groups. Therefore, although the FM and DCI groups have higher percentages of correct Chinese words in characters, overall these groups were not able to supply as many words as the CCC and UC groups. The highest number of words supplied by the CCC and UC groups lies in the partially correct pinyin answers whereby the tones were incorrect (51 words, 49 percent and 52 words, 58 percent respectively). These two groups also have the highest number of correct pinyin answers out of all four groups (26 words, 25 percent and 15 words, 17 percent respectively). This may suggest that both the CCC and UC groups relied on pinyin to describe a picture. However, as the method of CCC provides a physical marker for tones on the characters, it may be that this method was actually focusing the group's attention on the pinyin. As the highest percentages for the FM and DCI groups lie in the correct Chinese characters, this may suggest that these groups were able to rely less on pinyin in describing a picture. Only one participant (five percent of the FM group) provided all incorrect answers in this section, however a total of eight participants in the FM and DCI groups (42 percent and 38 percent of the groups respectively) and a total of six participants in the CCC and UC groups (32 percent and 30 percent of the groups respectively) did not attempt to answer this section. Figure 4.29 shows the results of Table 4.3.
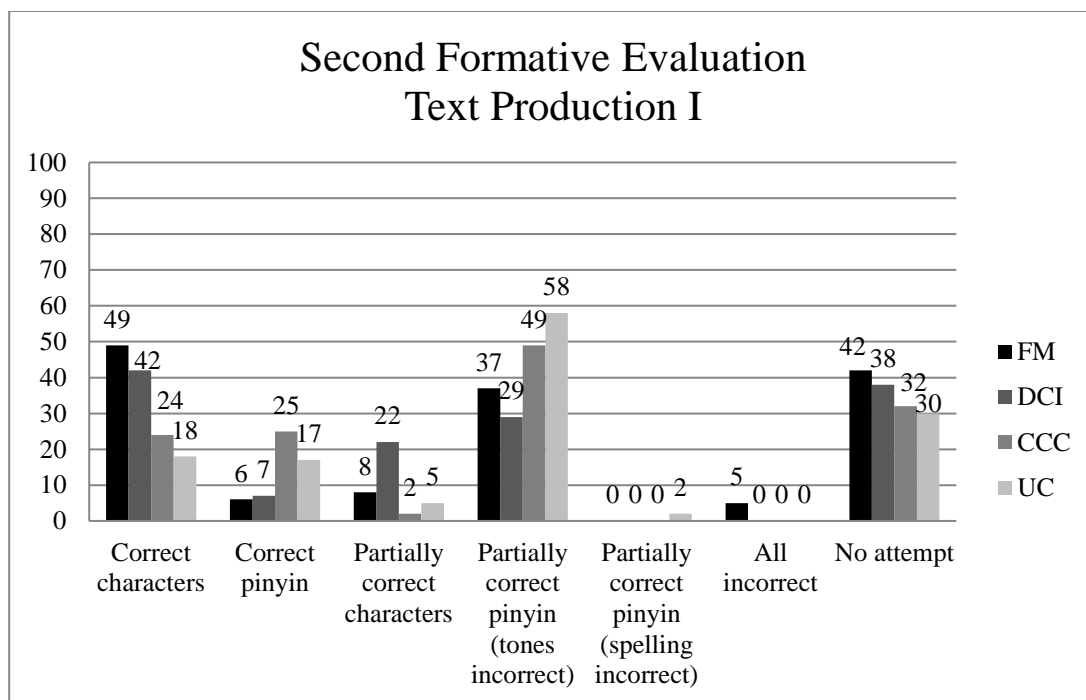
Figure 4.29. Percentages of answer categories for text production in second formative evaluation

As in the first formative evaluation, it was noted whether the participants answered using words only, sentences only, or a mix of both words and sentences (see Figure 4.30). Again, 'words' refers to Chinese words and the corresponding characters or pinyin.

The FM and DCI groups answered using words only, which coincides with the suggestion made that these groups were perhaps focusing more on learning the individual Chinese characters or pinyin, considering their lower word counts and high percentages of correct characters. Many of the participants from the CCC and UC groups provided sentences (38.5 percent and 43 percent respectively) and a mix of both

words and sentences (38.5 percent and seven percent respectively), however the UC

group focused significantly more on words with 50 percent of the group answering

using only words. Given the UC group's high percentage of correct or partially correct

pinyin and the lowest number of correct characters, it is further implied that the group

focused more on the pinyin of individual Chinese words rather than on the characters.
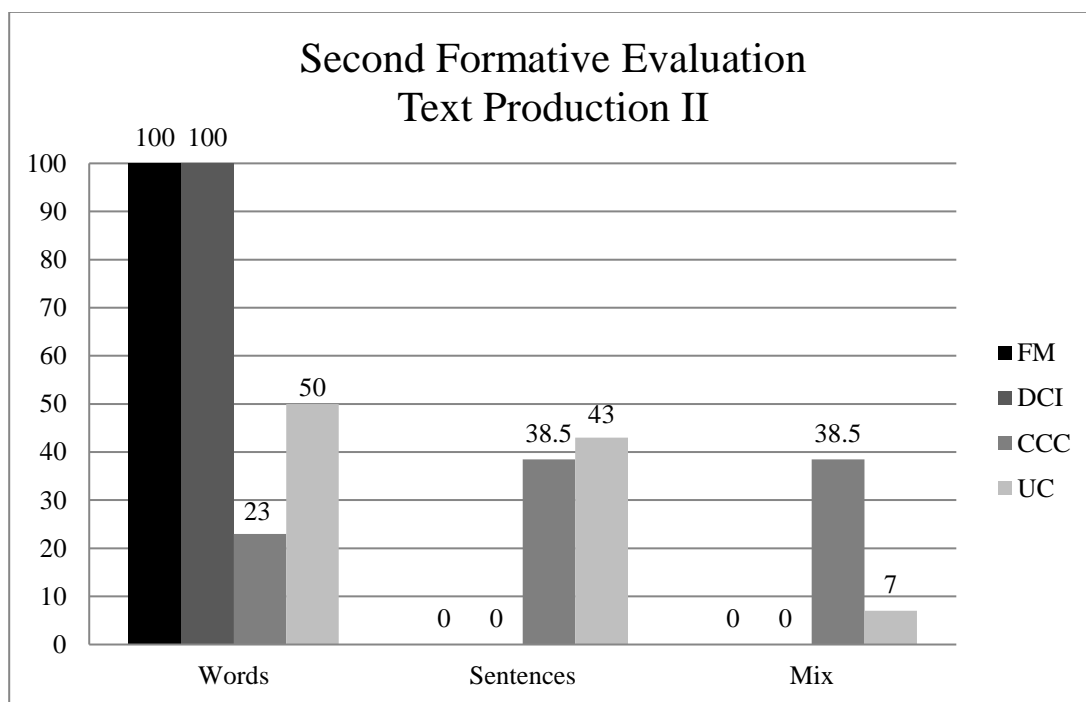
Figure 4.30. Percentages of words only, sentences only, and mix of both for text production in second formative evaluation

4.3.7. Summary of second formative evaluation

Findings from the second formative evaluation reveal a reliance on pinyin with all

groups (see Figures 4.24, 4.26, and 4.29). However, the CCC method appears to be

promising for recognising and recalling characters (see Figures 4.24 and 4.25), and the group was able to supply more fully correct pinyin than any other in this evaluation. The FM group shows promise in the recalling of characters in isolation for the text production section (see Figures 4.29 and 4.30), and in the use of characters in the reordering sentences section (see Figure 4.28). The UC group demonstrates possible effectiveness in the use of characters (see Figures 4.27 and 4.30), while the DCI group also shows this to a lesser extent (see Figure 4.28). DCI does not demonstrate any possible benefits when learning character composition.

As mentioned in Chapter 3 (section 3.3.3.5), these formative evaluations measured each group's development of skills in learning CFL. In addition to this, the evaluations were to motivate the participants to keep on top of their work, as participants knew they would be tested on new items learned. After the first and second formative evaluations, it is seen that the FM group was better able to cope with being tested on given characters in isolation, for example when recalling and recognising characters, particularly after the first evaluation (see Figures 4.18 and 4.19). The CCC group showed more positive results in being able to identify the correct tones of given characters as well as scoring relatively high in recognising, recalling, and using characters in a variety of exercises (see also Osborne, Zhang, & Zhang, 2018[7]). The DCI method did not show any significant positive effects on character learning in the initial stages of learning CFL,

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[7] Initial results on the effectiveness of each teaching method upon introducing characters to beginner learners have been published in this paper.

whereas the UC group highlighted in some cases the ability to use various characters in sentences better than other groups (Osborne et al., 2018).

The participants' progression with learning CFL and the researcher's observations in the classroom caused the researcher to reflect on previous teaching and to create improved plans for future teaching. Indeed, both the evaluation scores and classroom observations informed the teaching habits of the second stage of the research, that is, after the Christmas break and before the third formative evaluation. It was clear that participants needed more practice with using the characters in a variety of exercises, and so the researcher dedicated some more time in each lesson to allow for this. So as to keep motivation levels high, as oral feedback and observations showed this was in fact diminishing, the researcher introduced rewards to the class who collectively performed the best, and eventually individual rewards were also distributed. This was to create healthy competition between the classes and would potentially encourage each group to study to the best of their ability. More details on this can be found section 4.4.7.

4.4. The third formative evaluation

The third formative evaluation took place approximately five weeks after a two-week Christmas break, and therefore took place after a total of approximately 19 weeks of teaching. When sitting the third formative evaluation, after the first summative evaluation (discussed in Chapter 5), participants had learned an additional 40 Chinese

words and their characters (see Appendix H), meaning the total number of Chinese words and their characters learned when sitting this evaluation equalled 144 (see Table 3.1 in Chapter 3). After the Christmas holidays and before this evaluation, one participant from the DCI group withdrew from the research. The number of participants in the FM, DCI, and CCC groups sitting this evaluation equalled 20 respectively, while 18 participants from the UC group were present for the evaluation. A copy of the third formative evaluation can be viewed in Appendix I.

As the participants were expanding their knowledge of characters, the reordering sentences section was made slightly longer with the addition of a third sentence in order to challenge participants to recognise and translate more characters than in previous formative evaluations. It is still important to note, however, that the third and fourth formative evaluations still primarily tested what had been learned by participants between evaluations, differing from the summative evaluations that tested items that had been learned from the beginning of the study. Participants were allocated approximately 30 minutes to complete this evaluation.

As mentioned in the previous section, the researcher began to award prizes from this evaluation until the end of the course as motivation for participants to perform their best in the evaluations. These prizes for good efforts and best results in the evaluations included being allowed to watch a Chinese film in class, or a treat such as sweets.

4.4.1. Listening dictation in the third formative evaluation

This section asked participants to transcribe five Chinese words called out by the researcher into the corresponding characters (see Appendix I). The results of this are outlined in Figure 4.31.

As can be seen from Figure 4.31, all groups performed quite poorly in this section. The highest percentage of answers in each group lies in the incorrect answers with 71 percent, 76 percent, 77 percent, and 66 percent in the FM, DCI, CCC, and UC groups respectively. The UC group had the lowest percentage of incorrect answers, yet the group scored the highest percentage of blank answers. The CCC group transcribed six percent correct characters, and the DCI group transcribed one percent correct characters. The FM and UC groups did not provide any correct characters in their answers; however, they both provided the highest percentage of correct pinyin answers at three percent. The FM, DCI, and UC groups provided between 15 percent and 21 percent partially correct pinyin answers with incorrect tones, whereas the CCC group supplied five percent. What is worth noting here is the greater percentage of answers attempted in pinyin compared to those in characters, suggesting that participants were perhaps overwhelmed with learning Chinese characters and preferred to use pinyin when under a time pressure.
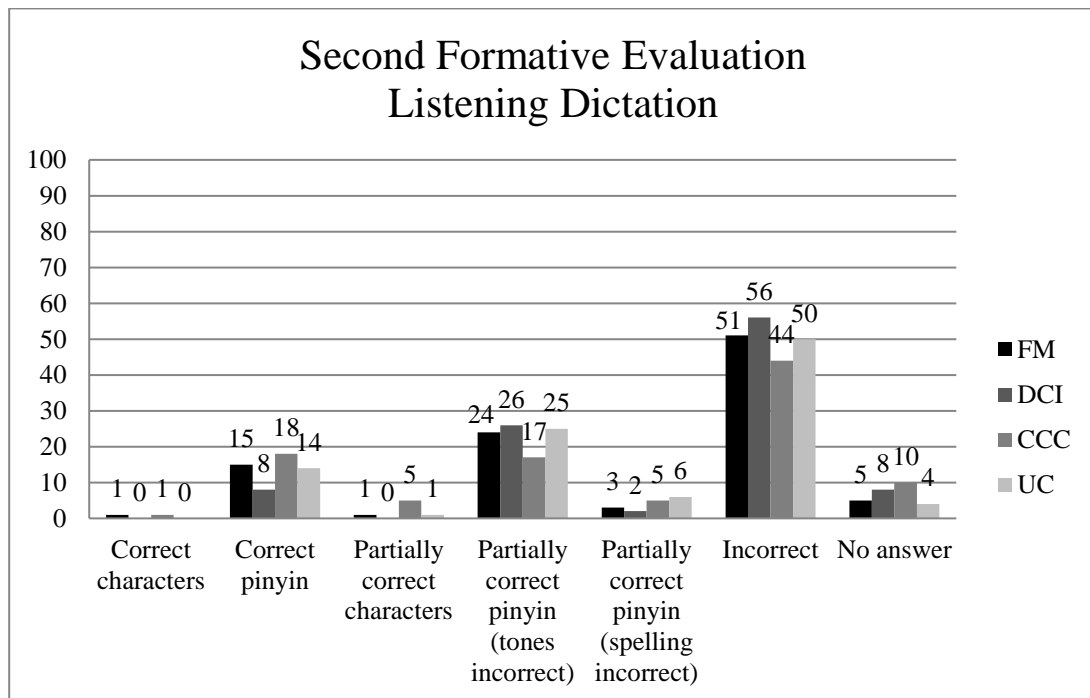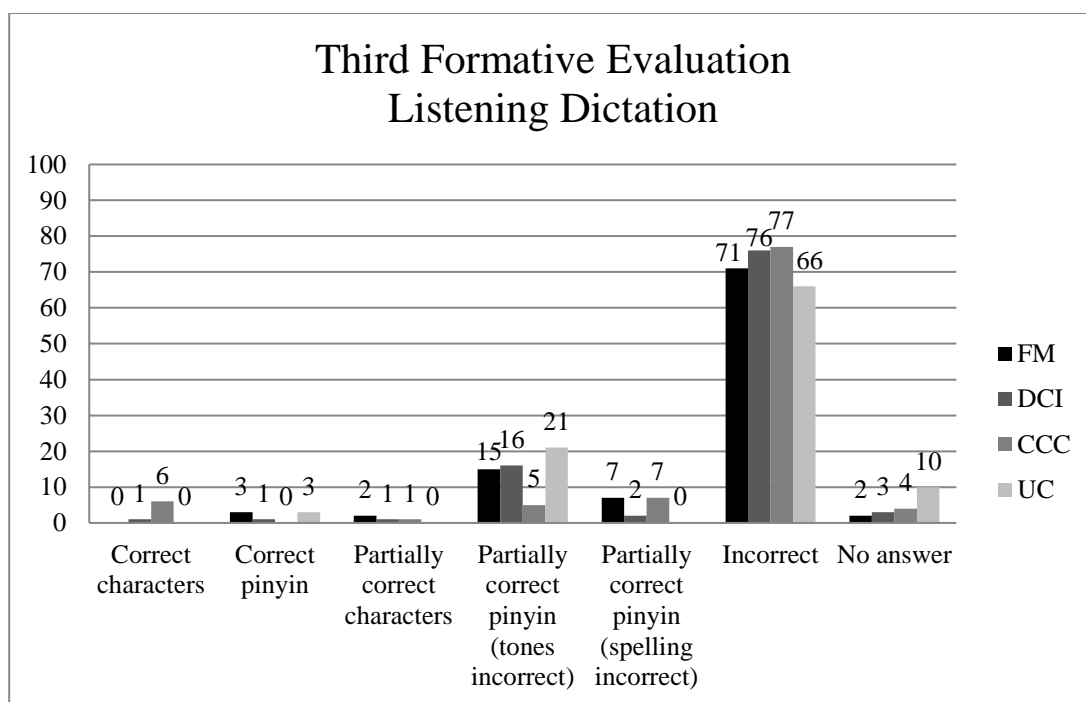
Figure 4.31. Percentages of answer categories for listening dictation in third formative evaluation

4.4.2. Recognition of Chinese characters in the third formative evaluation

As in the previous formative evaluations, the participants were asked to provide the correct meaning and pinyin of the characters presented (see Appendix I). Participants were presented with five Chinese words in characters in this section, the results of which can be viewed in Figure 4.32.

The highest percentages of answers primarily lie in the incorrect answers. The FM group scored the highest here with 70 percent incorrect answers, and the DCI group had the lowest percentage of incorrect answers (44 percent) however their blank answers equal the same 44 percent. Similarly, the UC group had a relatively lower percentage of

incorrect answers (47 percent) yet their blank answers were the highest out of all four

groups at 46 percent. The CCC group provided five percent correct English and pinyin

answers and the UC group provided one percent, yet the FM and DCI groups did not

supply any correct answers. The researcher notes that some answers provided only the

English meaning, however these equal to less than eight percent in each group. Some

partially correct pinyin answers were also supplied however these equal to less than five

percent in each group (see Figure 4.32).

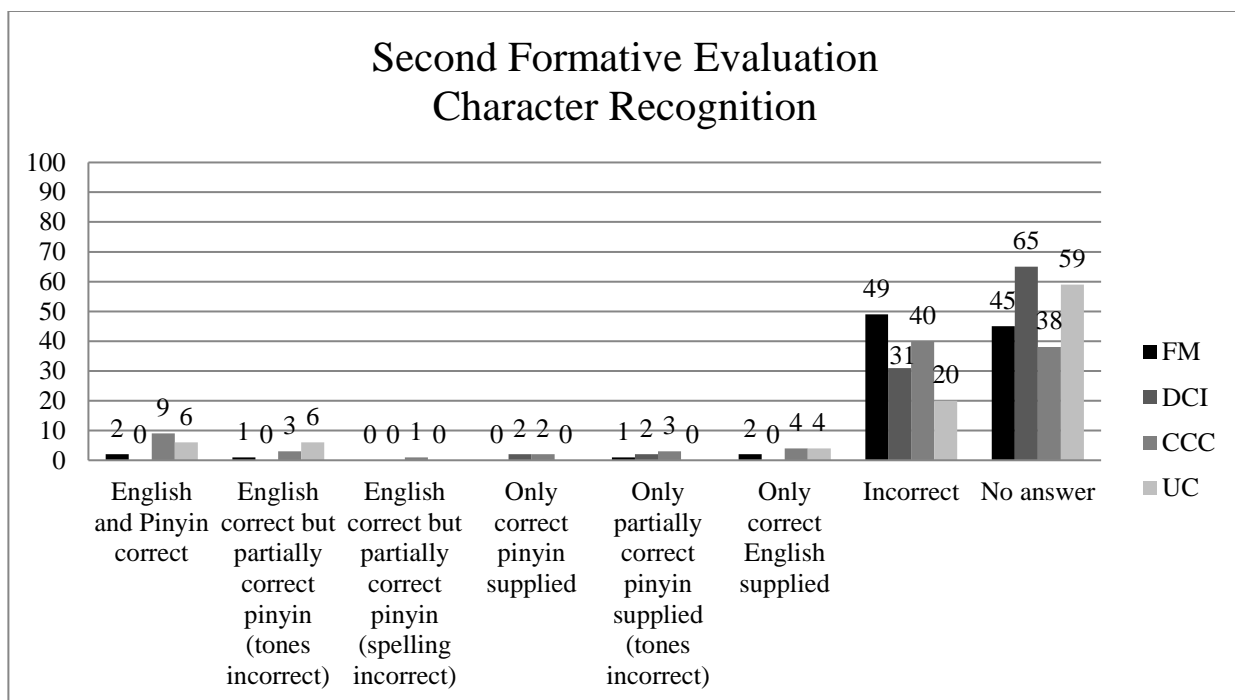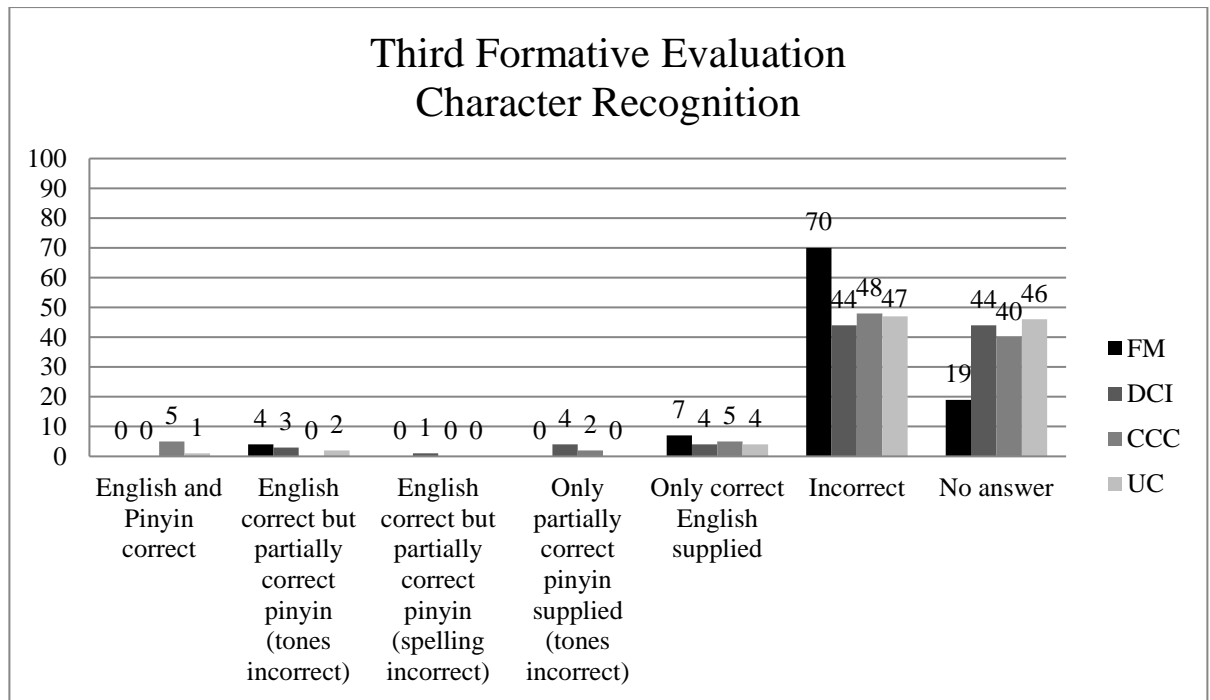*Figure 4.32. Percentages of answer categories character recognition in third formative evaluation*

4.4.3. Recalling Chinese characters in the third formative evaluation

This section of the evaluation presented the participants with five English words to be translated into Chinese characters (see Appendix I).

What is noticeable from Figure 4.33 is how well the participants performed in this section in providing the correct characters for the English words given compared to previous evaluations. The CCC group obtained the best results with 31 percent correct characters, while the DCI group provided 24 percent correct characters, and the FM group provided 21 percent correct characters. The UC group appears to have performed the worst with 16 percent correctness, however this is still a relatively high score compared to the other recall sections of previous evaluations. The FM group scored the highest percentage of incorrect answers (41 percent), but the lowest percentage of blank answers (23 percent). Both the UC group and the CCC group scored the lowest incorrect answers at 29 percent each, however the UC group also had the highest percentage of blank answers (39 percent).

It is worth noting here that each group scored better when recalling characters compared with recognising characters in this evaluation. This finding is indeed surprising as oral feedback throughout the study informed the researcher that the recognition section was an easier task compared to recalling characters from memory. As mentioned in Chapter 3 (section 3.3.3.5), the recall section actually required less information from participants in that they only needed to supply the characters, whereas the recognition section asked

participants to supply both the pinyin and meaning of the characters. This may account

for the better results in the recall section compared to the answers provided for the

recognition section here. In addition to this, there may be some other factors that

influenced each group's performance in this particular evaluation. After the Christmas

break, the researcher spent one week conducting revision exercises with all classes, so

this additional time on previous items may have allowed for better results. The reward

system may also have influenced the results. It is therefore worthwhile to note that in

this evaluation, when the participants spent more time on particular items (through the

extra revision exercises) and had a goal to be motivated towards, they performed better.

Indeed, the future Chinese language course for the State-examined Leaving Certificate

curriculum will ensure that students have a goal to motivate them, and it may be taken

from this finding that it is also probably necessary to dedicate more contact hours in the

classroom than the two hours per week as in the current study. Further information on

this can be viewed in Chapter 6 (section 6.5.1).
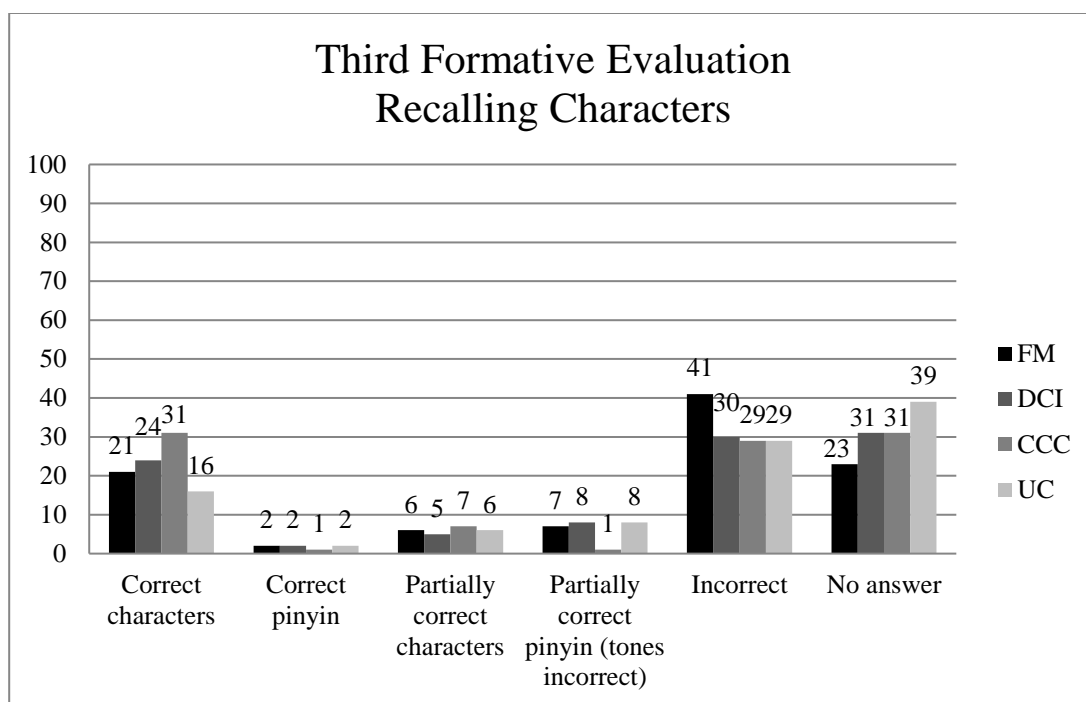
Figure 4.33. Percentages of answer categories for recalling characters in third formative evaluation

4.4.4. Completing sentences with correct characters in the third formative evaluation

This section, as per the previous formative evaluations, presented the participants with

five incomplete Chinese sentences whereby they were required to fill in the blanks with

the correct characters (see Appendix I).

What is first noticeable in Figure 4.34, like in the previous section, is the higher result in

the correct character answers of all groups compared to previous evaluations. As in the

recalling characters section of this evaluation, there was clearly less reliance on pinyin

as the correct pinyin and partially correct pinyin answers are lower (only one percent

with the FM group and one percent with the DCI group respectively) than the correct or

partially correct character answers. The FM group scored the highest percentage of

correct characters (20 percent), and the CCC and UC groups also handled this section

comparatively well with 17 percent correct characters. The DCI group, although a

comparatively good result compared to previous evaluations, scored the lowest with 10

percent correct characters. The FM and CCC groups have significantly higher

percentages of incorrect answers (58 percent and 49 percent respectively) compared to

the DCI group (36 percent) and the UC group (39 percent). Although, it can be seen that

despite answering mostly incorrect answers, the FM and CCC groups at least attempted

more questions than the DCI and UC groups, which may suggest a growing confidence

in attempting to deal with characters in the FM and CCC groups.
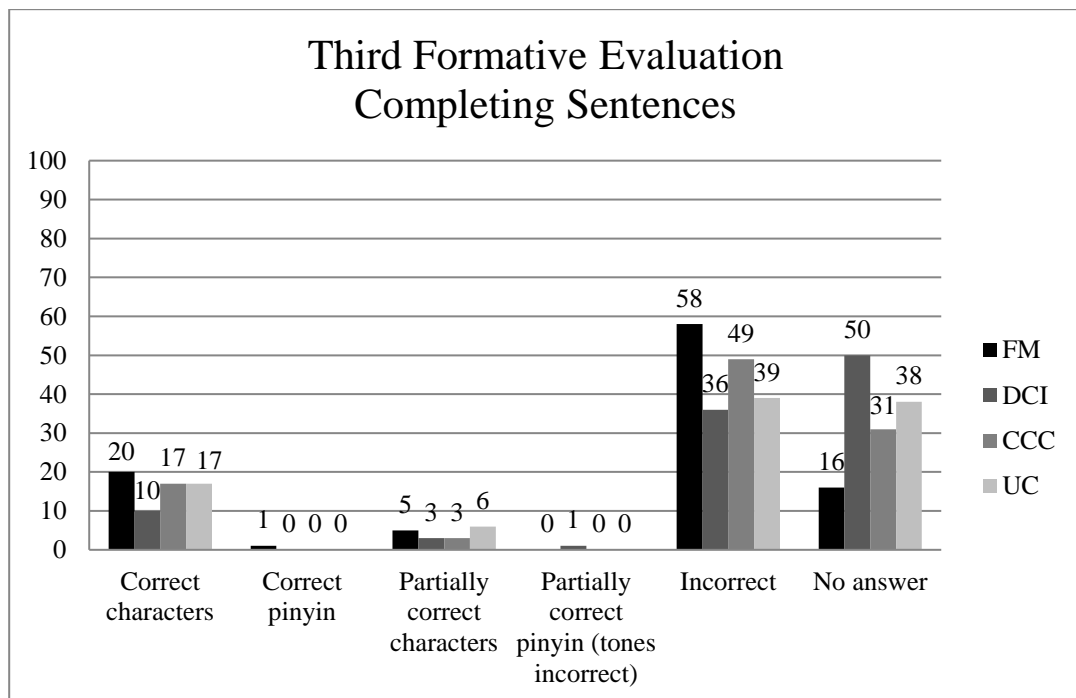
Figure 4.34. Percentages of answer categories for completing sentences with correct characters in third formative evaluation

4.4.5. Reordering sentences in the third formative evaluation

This section now presented participants with three sets of three sentences in an incorrect order, whereby participants had to reorder these according to a conversation (see Appendix I).

The FM group again scored the highest in this section with 38 percent correct answers, and the group attempted all questions (see Figure 4.35). The DCI and UC groups also scored 35 percent correct answers each, however the DCI group did not attempt 13 percent of the questions, whereas the UC group attempted all questions. The CCC group scored the lowest with 28 percent correct answers and furthermore 11 percent of the questions were not attempted by the group. Again, it is possible that the FM group's confidence in dealing with characters was growing, and the UC group, more accustomed to dealing with all aspects of the language equally rather than mainly focusing on the written aspect, may have been confident in putting their skills of reading and writing to use in a practical exercise.
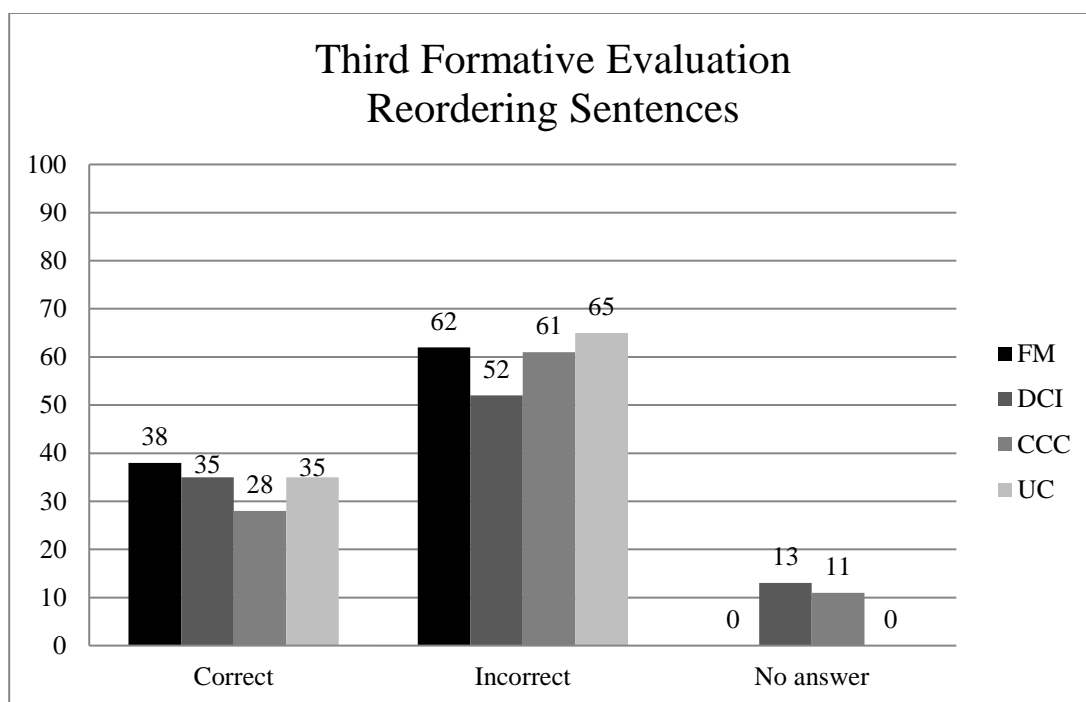
Figure 4.35. Percentage of results for reordering sentences in third formative evaluation

4.4.6. Text production in the third formative evaluation

For this section, as with all previous text production sections, the participants were presented with a picture and were asked to describe it using words or sentences with characters or pinyin. For this evaluation, the participants were presented with a picture of an extended family (see Appendix I). The topics covered prior to the third formative evaluation included family members, occupations, numbers, and names, and so the participants had the opportunity to use this new vocabulary in describing the picture. The total number of Chinese words in correct or partially correct characters and pinyin written by the FM group equalled 208, the DCI group wrote 144 Chinese words, the CCC group supplied 114 Chinese words, and the UC group supplied 157 Chinese

words. As can be seen from these calculations, the FM group was able to provide the

highest number of Chinese words whereas the CCC group provided the lowest number.

The breakdown of this section can be viewed in Table 4.4.

Table 4.4. The number and percentage of words in various answer categories for text production in third formative evaluation

	Correct characters	Correct pinyin	Partially correct characters	Partially correct pinyin (tones incorrect)	Partially correct pinyin (spelling incorrect)	All incorrect	No attempt
FM	98 (47%)	12 (6%)	43 (21%)	55 (26%)	0 (0%)	0 (0%)	4 (20%)
DCI	40 (28%)	12 (8%)	7 (5%)	85 (59%)	0 (0%)	0 (0%)	6 (29%)
CCC	49 (45%)	9 (8%)	11 (10%)	38 (35%)	2 (2%)	0 (0%)	3 (15%)
UC	31 (19%)	15 (10%)	4 (3%)	106 (67%)	1 (1%)	3 (17%)	0 (0%)

The highest number written by the FM group was 98 Chinese words using correct

characters (47 percent), the DCI group provided 59 percent (85 words) partially correct

pinyin words with incorrect tones, the CCC group's highest answers were written with

correct characters (49 words, 45 percent), and the UC group's highest number of

answers lies in the partially correct pinyin words with incorrect tones at 106 words (67

percent). The UC group's highest answers in the partially correct pinyin words with

incorrect tones proves to be the highest number of answers given by any particular

group, which may suggest that their reliance on pinyin yet difficulty with tone

acquisition was more prominent than in other groups. The FM group scored the highest

number of Chinese words using the correct characters, which may suggest that the

method of FM was aiding the participants in memorising various characters. The same

may also be said for the CCC group with participants' high percentage of Chinese words

using correct characters despite their low number of words provided overall. The UC

group was the only group whereby all participants attempted the section despite three

participants (17 percent of the group) providing only incorrect answers. The DCI group

had the highest rate of no attempts with six participants (29 percent of the group). The

FM and CCC groups also had four participants (20 percent of the group) and three

participants (15 percent of the group) respectively who did not attempt this section.

Figure 4.36 displays the results of Table 4.4.

Third Formative Evaluation
Text Production I
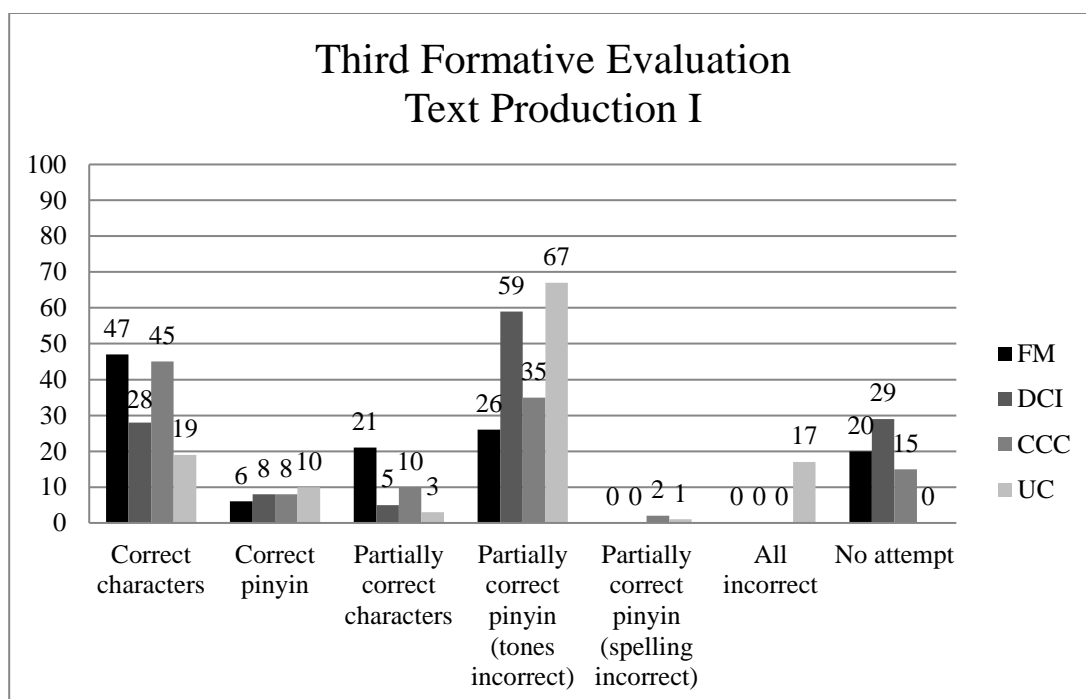
Figure 4.36. Percentages of answer categories for text production in third formative evaluation

The researcher noted the tendency of each group to write their correct or partially correct answers using words only, sentences only, or a mix of words and sentences.

What is first noticeable from Figure 4.37 is the fact that all groups answered using mostly words only. This may suggest that as more Chinese words were studied, participants may have tended to focus on individual words, which appears to have hindered their ability to form sentences. The UC group, focusing on the reading, writing, speaking, and listening skills of Chinese equally, scored the highest number of sentences only (13 percent) and mix of words and sentences (27 percent). The FM group provided both sentences only and a mix of words and sentences at six percent respectively, while

13 percent of the DCI group and six percent of the CCC group answered using a mix of words and sentences. The CCC group appears to have focused the most on individual Chinese words (94 percent), whereas the UC group was able to supply more variety in their answers in terms of using words only, sentences only and a mix of words and sentences.
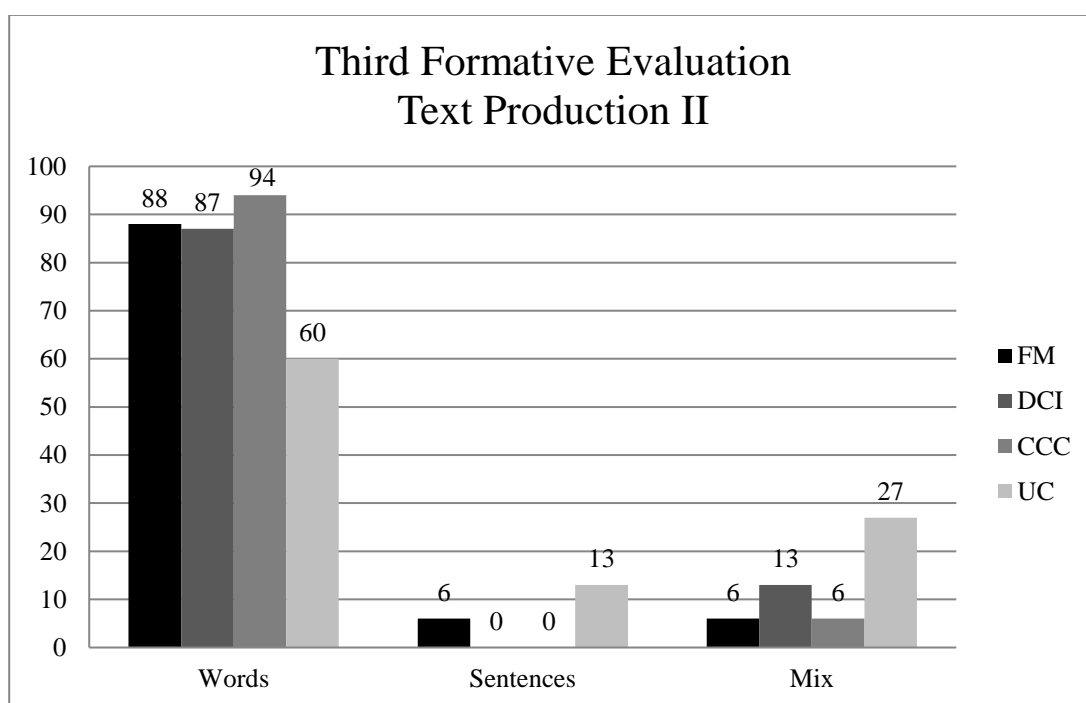
Figure 4.37. Percentages of words only, sentences only, and mix of both for text production in third formative evaluation

4.4.7. Summary of third formative evaluation

The findings of the third formative evaluation demonstrate the possible effectiveness of using CCC in learning character composition (see Figures 4.31-4.33) as the group

provided the highest percentages of correct characters in the listening dictation, recognising characters, and recalling characters. Some possible benefits to using CCC in learning the use of characters are also demonstrated (see Figure 4.34). The FM method appears to be beneficial when using characters (see Figures 4.34 and 4.35), while this group also showed some benefits to learning character composition in the text production section (see Figure 4.36). The DCI group demonstrated a reliance on pinyin in the listening dictation, when recognising characters, and in the text production section (see Figures 4.31, 4.32, and 4.36), as did the UC group. However, unlike the DCI method, the UC method displayed some possible benefits to learning character use in the completing sentences section and the text production (see Figures 4.34 and 4.37).

Through inspection of the third formative evaluation results, it seems possible that the participants responded quite well to the introduction of a rewards system. Interestingly, as seen in the biographical questionnaires, they demonstrated a mix of intrinsic and extrinsic factors when motivation levels were examined (see section 4.1). Therefore, it can be seen that extrinsic factors, such as a rewards system, are perhaps nonetheless well-received by participants despite their statements in the biographical questionnaire. This will be useful to note for future curriculum development in that when the participants have a goal to work towards, for example points in the Leaving Certificate exams, they could perform comparatively better. A visual representation of participants' progress over time can be seen in section 4.7.

4.5. The fourth formative evaluation

The participants had a week-long mid-term break and one week of work experience after the third formative evaluation. The fourth formative evaluation was conducted five weeks after the participants returned to school and therefore after a total of 24 weeks of teaching. In these five weeks, and for the rest of the year, the researcher taught the participants using shorter lessons and dialogues than those used in the NPCR book. This decision was made based on observations and direct feedback from all groups that the dialogues were too lengthy. In addition, as both a teacher and researcher, the researcher had a duty to ensure that the learning material was suitable for the participants at all stages of the research.

It must also not be forgotten that the participants were only learning Chinese for two hours per week, which is less time than what is usually allocated to learning other foreign languages in secondary schools. For example, in a report issued by the Eurydice (2017), it was found that the lowest recommended contact hours for learning a foreign language in a European secondary school in the year 2015/2016 equalled 72. In the current study, the researcher was only allocated 56 hours for the school year to teach each group respectively. Similarly, in the Leaving Certificate curriculum, at least 180 hours are warranted for the teaching of a foreign language over two years (Curriculum Online, 2018). Naturally, as the participants were progressing further with the NPCR book, the dialogues became longer. So, while the initial shorter dialogues were not an issue previously, the longer dialogues were indeed causing a strain on the participants in

the later chapters of NPCR. The researcher therefore believed that less time could be spent on shorter dialogues, allowing for the participants to have more time conducting exercises to help them learn the language in a more active than passive manner. The researcher consulted the HSK 1 guidelines and incorporated those characters not already covered into these shorter dialogues and paragraphs based on topics covered by the NPCR. The material was made available to students via an online educational platform used in all other subjects as required by the school. A sample of this lesson material can be viewed in Appendix J.

During these five weeks the participants learned an additional 42 Chinese words and their characters meaning that the total number of Chinese words and their characters learned at the time of the fourth formative evaluation equalled 184 (see Appendix K, see also Table 3.1 in Chapter 3). The total number of participants present for the fourth formative evaluation in both the FM group and DCI group equalled 20, 17 were present in the CCC group, and 19 were present in the UC group. Participants were given approximately 30 minutes to complete this evaluation which can be viewed in Appendix L.

4.5.1. Listening dictation in the fourth formative evaluation

As with previous formative evaluations, the researcher called out five Chinese words and asked the participants to write the correct characters (see Appendix L), however pinyin could be supplied if the participants had forgotten how to write the characters.

The highest percentages of answers supplied by all groups were incorrect answers. The FM, DCI, and UC groups provided 63 percent, 62 percent, and 61 percent respectively, and the CCC group supplied the lowest out of the four groups with 55 percent (see Figure 4.38). Despite the FM group providing the highest percentage of incorrect answers, the participants also scored the highest in terms of blank answers at eight percent. On the other hand, the CCC group scored only two percent blank answers while also scoring the lowest percentage of incorrect answers. The FM and DCI groups were not able to provide any correct characters, however the CCC and UC groups provided nine percent and seven percent correct characters respectively. The trend in all answers with each group shows a preference for answering in pinyin, however more partially correct pinyin with incorrect tones was recorded out of all correct and partially correct pinyin answers. Although this may suggest a reliance on pinyin when learning Chinese for a significant period of time, and indeed the difficulty in spelling and tonal pronunciation of pinyin, what is interesting to note is that the CCC group performed best in this listening dictation. As mentioned in Chapter 3 (section 3.3.3.5), the listening dictation tested participants' skills in connecting the sounds to the shapes of given characters. While the method of CCC provides a physical marker for the tones of

characters using colours, it is interesting to observe that this method may have been

useful for connecting the sounds and shapes of characters, and for correctly identifying

the sounds better than the other three groups as shown from Figure 4.38.
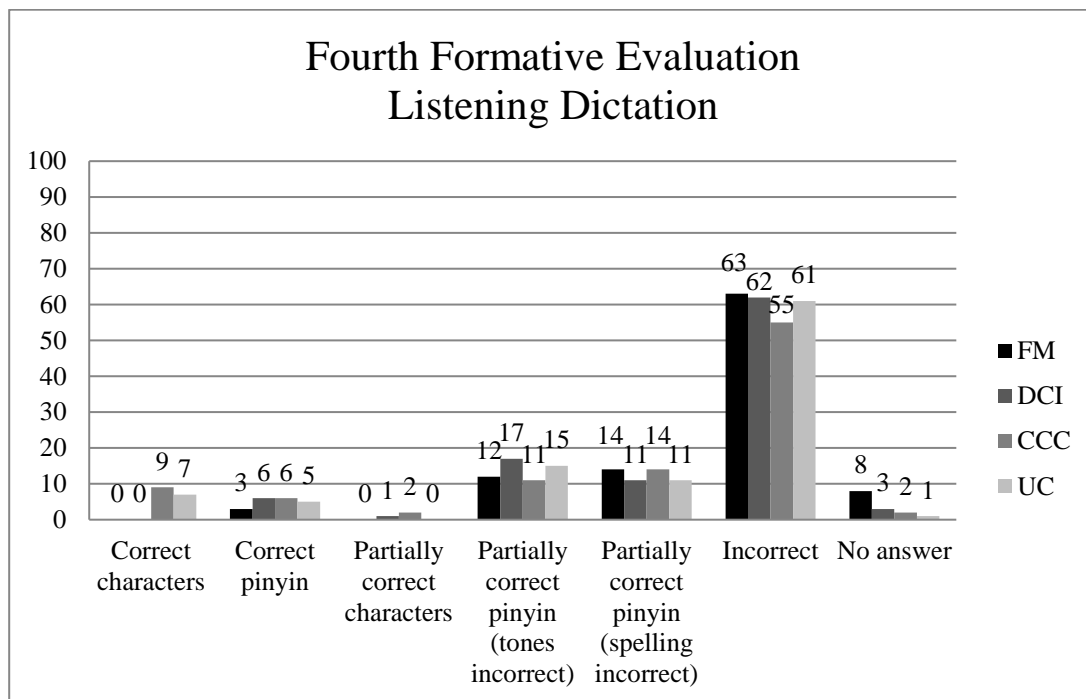
Figure 4.38. Percentages of answer categories for listening dictation in fourth formative evaluation

As Chinese is a logographic language, it was worth investigating whether or not the

learning style of participants affected their answer type in the listening dictation

sections, that is, their preference of writing using pinyin or characters. The participants

demonstrated a variety of learning styles, including visual, aural, multimodal,

kinaesthetic, and read/write. The listening dictation section required the participants to

rapidly transcribe their answer, meaning that this particular exercise could give a great

indication as to how participants preferred to answer, or attempt to supply an answer, under a time pressure. In this instance, all participants' answers (correct, partially correct, and incorrect) were categorised into one of three groups: character dominant; pinyin dominant; and half character half pinyin, depending on how the participants attempted to answer each question. A chi-square test was performed using SPSS Version 24 to examine the relation between the participants' learning styles, as collected in the biographical questionnaire, and their answer categories (character dominant, pinyin dominant, and half character half pinyin) of the listening dictation sections from all formative evaluations. The results of this can be viewed in Table 4.5, whereby the first chi-square output relates to the first formative evaluation, the second output relates to the second formative evaluation and so on.

Due to the relatively small sample size, Table 4.5 shows that the assumption was violated in all cases (10-15 cells with expected count less than five). The assumption is a condition that ensures the test being conducted will be carried out successfully, however when this is violated, the p-value will be inaccurate and may therefore lead to an error in reporting (Field, 2013). In a chi-square test, the expected frequencies in each cell must be greater than five, signifying that the sample is large enough for an accurate approximation to occur (ibid.). If the expected counts are less than five, it means that the sample is too small, and therefore the approximation of the chi-square distribution will be inaccurate (ibid.). Therefore, Fisher's exact test was consulted for the current chi-square (see Table 4.5), as this allows for accurate p-values to be obtained when the sample is too small for a normal chi-square distribution (ibid.). The results of this show

in Table 4.5 that the relation between the participants' learning styles, as collected in the biographical questionnaire, and their answer categories (character dominant, pinyin dominant, and half character half pinyin) of the listening dictation sections from all formative evaluations is not significant, when the significance threshold was set at .05 (*p*=.256 in the first formative evaluation, *p*=.088 in the second formative evaluation, *p*=.570 in the third formative evaluation, *p*=.855 in the fourth formative evaluation, *Fisher's exact test*). Therefore, as the p-values are greater than the threshold of .05 in all cases, it may be said that in the current study, a participant's learning style is unlikely to have influenced their type of answer in the listening dictation section. The feedback questionnaires presented in Chapter 5 will allow further understanding as to why participants tended to use pinyin more than characters.

Table 4.5. Chi-square output for learning styles of each participant and response categories in listening dictation sections

First Formative Evaluation

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	12.053[a]	12	.441	.419		
Likelihood Ratio	12.349	12	.418	.563		
Fisher's Exact Test	11.745			.256		
Linear-by-Linear Association	.006[b]	1	.937	.944	.510	.057
N of Valid Cases	80					

a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .20.
b. The standardized statistic is -.079.

Second Formative Evaluation

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	19.179[a]	12	.084	.067		
Likelihood Ratio	15.637	12	.208	.121		
Fisher's Exact Test	14.488			.088		
Linear-by-Linear Association	6.029[b]	1	.014	.013	.011	.004
N of Valid Cases	79					

a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .09.
b. The standardized statistic is 2.455.

Third Formative Evaluation

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	12.504[a]	12	.406	.430		
Likelihood Ratio	10.146	12	.603	.591		
Fisher's Exact Test	11.204			.570		
Linear-by-Linear Association	.295[b]	1	.587	.663	.330	.072
N of Valid Cases	78					

a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .12.
b. The standardized statistic is .543.

Fourth Formative Evaluation

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	5.268[a]	8	.729	.787		
Likelihood Ratio	6.602	8	.580	.779		
Fisher's Exact Test	4.913			.855		
Linear-by-Linear Association	1.556[b]	1	.212	.249	.132	.036
N of Valid Cases	76					

a. 10 cells (66.7%) have expected count less than 5. The minimum expected count is .18.
b. The standardized statistic is 1.248.

4.5.2. Recognition of Chinese characters in the fourth formative evaluation

This section presented the participants with five Chinese words in characters to be written in pinyin and translated into English (see Appendix L).

The highest percentages of answers lie in the incorrect and blank answers supplied as shown in Figure 4.39. The FM group provided the most incorrect answers (58 percent) while the UC group provided the fewest (36 percent). The DCI group provided the highest percentage of blank answers (50 percent), and the lowest percentage was supplied again by the UC group (19 percent). What is interesting to note here is the fact that the UC group was also able to supply 36 percent English-only answers, hinting that their skills of being able to connect the shape of characters to the meaning were perhaps higher than other groups, as the second-highest score for English-only answers equalled 11 percent in the FM group. The CCC group provided the highest percentage of correct pinyin and English with eight percent, yet the DCI group provided only one percent and neither the FM nor the UC groups could provide any fully correct answers. Some partially correct pinyin answers with correct English meanings were provided by all groups, which may suggest that their skills in recognising the meaning of the characters were stronger than their skills in recalling pinyin.
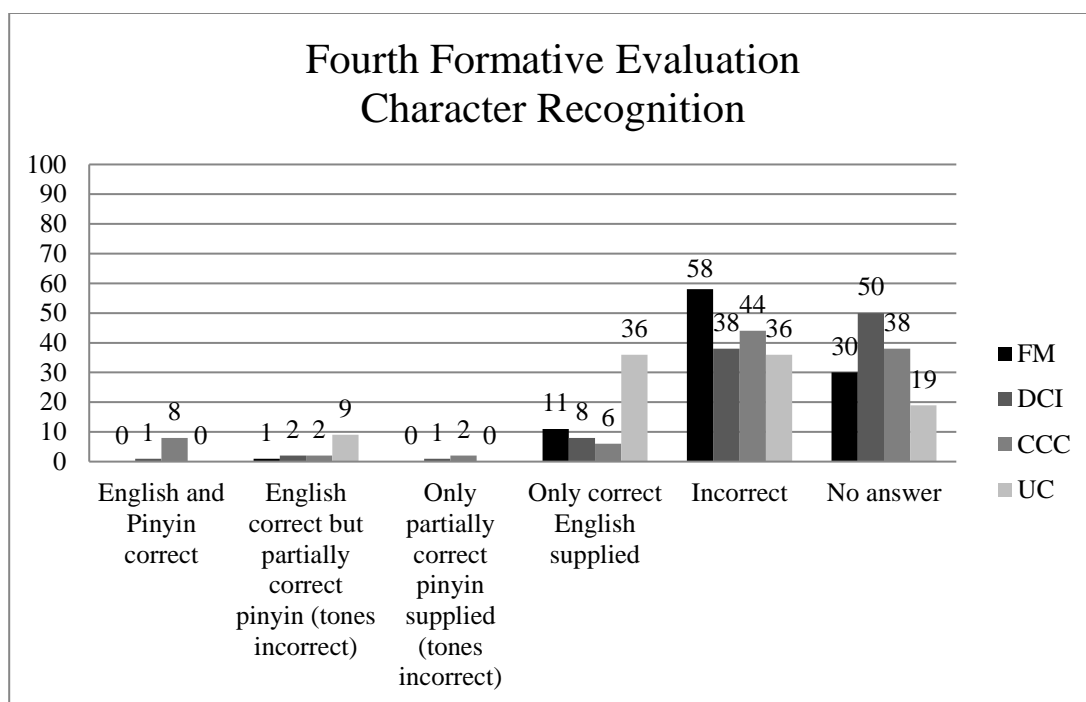
Figure 4.39. Percentages of answer categories for character recognition in fourth formative evaluation

4.5.3. Recalling Chinese characters in the fourth formative evaluation

This section of the evaluation presented the participants with five English words and required the participants to supply the correct characters, however if the characters could not be recalled, the researcher encouraged the participants to supply the pinyin (see Appendix L). It is worth noting that indeed there appears to be a reliance on pinyin in cases reported on throughout this chapter. This will be discussed further in relation to the feedback questionnaires in Chapter 5, however for now it is useful to note that the participants' skills in connecting the pinyin to the corresponding Chinese characters were possibly quite weak. In other words, they appeared to be more comfortable in answering using a script that was familiar to them.

The FM, CCC, and UC groups scored the highest percentage of incorrect answers with 57 percent, 40 percent, and 43 percent respectively. The DCI group had the highest percentage of blank answers with 63 percent as displayed in Figure 4.40. This percentage proves to be the highest recorded in this section and may suggest that the participants of the DCI group had great difficulties in recalling Chinese characters from memory, as the majority of the group struggled to attempt this section. This fact certainly warrants questioning of the long-term effect of DCI, and more details of this can be seen in section 4.7 and in Chapters 5 and 6. The CCC group wrote 19 percent correct characters while the FM, DCI, and UC groups only provided one percent correct characters respectively. The CCC group also made more attempts to answer using characters with the highest percentage of partially correct characters supplied in this group (eight percent). It may be the case that using colour when learning Chinese characters allowed for participants in the CCC group to remember the shape of the characters better than their peers in other groups. Finally, it can be seen that the UC group provided the highest percentage of correct pinyin (eight percent), and the highest percentage of partially correct pinyin with incorrect tones (14 percent). It can therefore be observed that the CCC group was able to recall the characters more effectively than the other three groups, while the UC group resorted to answering using mostly pinyin.
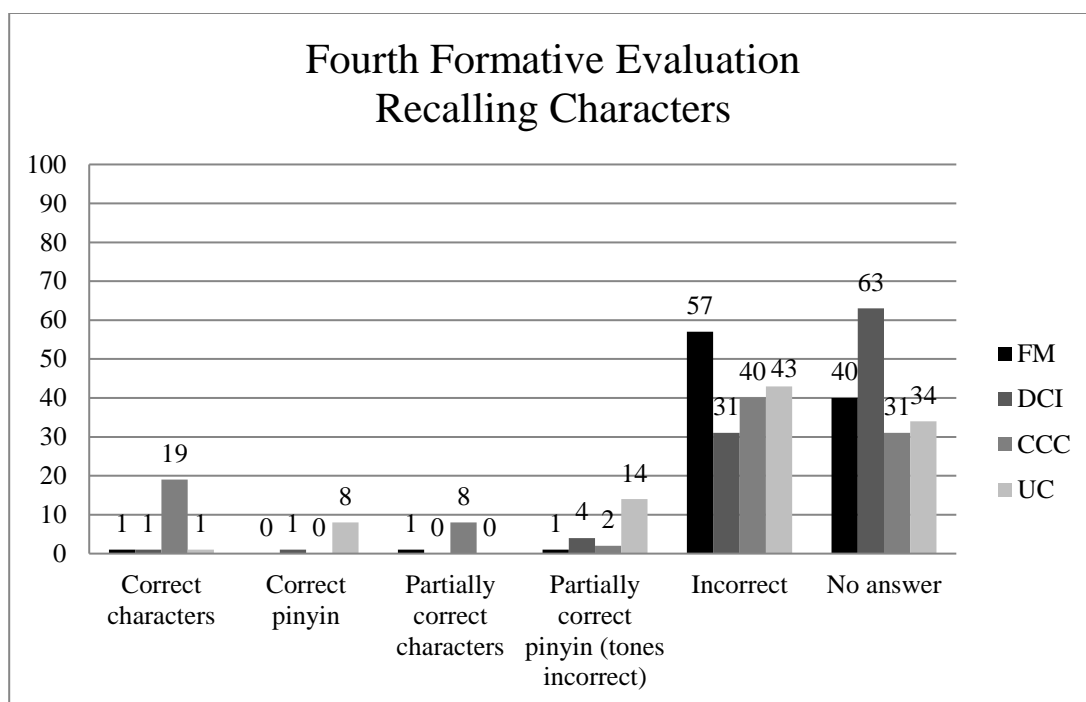
Figure 4.40. Percentages of answer categories for recalling characters in fourth formative evaluation

As the recalling characters section tested participants' skills in translating English words into Chinese, it was worth investigating the relation between each group's teaching method and their answer categories for this section, and therefore their inclination to use either characters or pinyin. As in section 4.5.1, all participants' answers (correct, partially correct, and incorrect) were categorised into one of three groups: character dominant; pinyin dominant; and half character half pinyin. Through this categorisation, it would become known how the groups tended to answer or attempt to answer when asked to translate English words into Chinese, thus allowing for the relation between the teaching method and the participants' answer categories to be investigated.

A chi-square test was performed using SPSS Version 24 to examine the relation

between a group's teaching method and their answer categories for the recalling

characters section. The results of this can be viewed in Table 4.6, whereby the first chi-

square output relates to the first formative evaluation, the second output relates to the

second formative evaluation and so on. Firstly, as in the case of section 4.5.1, the

assumption has been violated in all cases (8-12 cells with expected count less than five),

so Fisher's exact test was consulted (see section 4.5.1). In the first three formative

evaluations, the significance is less than .05 (p=.002 in the first formative evaluation,

p=.019 in the second formative evaluation, p=.034 in the third formative evaluation,

p=.233 in the fourth formative evaluation, *Fisher's exact test)*, meaning that a relation

was likely to exist between the teaching method and answer category in the recalling

characters sections of the first three formative evaluations. In the fourth formative

evaluation, it is seen that the significance is greater than .05, meaning that a relation was

not likely to exist between teaching method and answer category in the recalling

characters section of the fourth formative evaluation.

It is unclear why the relation between teaching method and answer category in the

recalling characters section ceases to exist in the fourth formative evaluation.

Presumably, another variable has affected this outcome in the fourth formative

evaluation, as all other formative evaluations demonstrate that a relation likely exists

between the two variables. While the nature of a quasi-experimental study means that a

host of variables may be responsible for this particular outcome, one possibility is that

for the fourth formative evaluation, participants may have opted to attempt to learn the

characters using a different method, and therefore their answer-types may not be linked

to their assigned teaching method in the fourth formative evaluation. While it was

impossible to control the actions of participants outside the classroom, the researcher

asked participants in the feedback questionnaire to state how they would learn characters

and study for the evaluations. Participants mentioned some methods that are not directly

linked to their assigned method, for example, reading was mentioned in all groups (see

Table R.12 in Appendix R). In addition, the second most popular answer in relation to

suggestions for improvements of the course asked for new teaching methods to be used

across all groups (see Table R.18 in Appendix R). It may be the case, therefore, that a

deviation in methods had an effect on the participants' answer categories in the recalling

characters section in the fourth formative evaluation.

For now, it is useful to note that in most cases, a relation possibly exists between a

specific teaching method of the current study and the answer categories for the recalling

characters section.

Table 4.6. Chi-square output for teaching method of each participant and response categories in recalling characters sections

First Formative Evaluation

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	19.957[a]	9	.018	.013		
Likelihood Ratio	26.453	9	.002	.003		
Fisher's Exact Test	21.526			.002		
Linear-by-Linear Association	.023[b]	1	.880	.887	.469	.056
N of Valid Cases	80					

a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .71.

b. The standardized statistic is -.152.

Second Formative Evaluation

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	17.737[a]	9	.038	.031		
Likelihood Ratio	19.701	9	.020	.028		
Fisher's Exact Test	17.257			.019		
Linear-by-Linear Association	.349[b]	1	.555	.590	.295	.033
N of Valid Cases	79					

a. 8 cells (50.0%) have expected count less than 5. The minimum expected count is .72.

b. The standardized statistic is .591.

Third Formative Evaluation

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	17.344[a]	9	.044	.037		
Likelihood Ratio	19.004	9	.025	.042		
Fisher's Exact Test	15.715			.034		
Linear-by-Linear Association	3.108[b]	1	.078	.081	.044	.009
N of Valid Cases	78					

a. 10 cells (62.5%) have expected count less than 5. The minimum expected count is .92.

b. The standardized statistic is 1.763.

Fourth Formative Evaluation

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	10.925[a]	9	.281	.285		
Likelihood Ratio	12.068	9	.210	.298		
Fisher's Exact Test	10.833			.233		
Linear-by-Linear Association	.028[b]	1	.866	.888	.453	.037
N of Valid Cases	76					

a. 8 cells (50.0%) have expected count less than 5. The minimum expected count is .89.

b. The standardized statistic is -.168.

4.5.4. Completing sentences with correct characters in the fourth formative evaluation

This section presented participants with five incomplete Chinese sentences whereby they had to complete the sentences by filling in the blanks with the correct characters, however if the correct character could not be recalled, the researcher encouraged participants to write the word using pinyin (see Appendix L).

The FM group provided the highest percentage of incorrect answers with 56 percent. The CCC and UC groups also scored high percentages of incorrect answers with 48 percent and 51 percent respectively. The DCI group only scored 29 percent incorrect answers however the participants supplied 64 percent blank answers. Surprisingly, no correct pinyin was supplied in this section and only one percent and two percent of the FM and UC groups' answers were written in pinyin with incorrect tones respectively. As a result, participants provided more answers using characters, with the FM group scoring 14 percent and the UC group scoring 12 percent correct characters. The DCI group provided seven percent correct characters however the CCC group only supplied two percent correct characters. This was surprising to the researcher as previous formative evaluations showed a relatively high percentage of correct characters for this group (e.g. 21 percent, seven percent, and 17 percent in the first, second, and third formative evaluations respectively). However, the CCC group had a high number of absences on this day. A total of seven participants were absent from this group even after the researcher rescheduled the test for those who had missed the original date, meaning that they had the lowest turnout of all groups. Given the relatively small

sample size of each group, it is possible that these absences may have impacted the results for the CCC group.

From the results in Figure 4.41 it is seen again that the DCI group was perhaps overwhelmed when recalling characters from memory or when attempting to understand a Chinese sentence, as is evident from the low percentage of correct characters and from the highest percentage of blank answers. The FM group's results, with the highest percentages of correct characters and incorrect answers, may suggest a willingness to attempt the questions. It may also be the case that a repeated focus on characters could have allowed for characters to become more easily recognisable in sentences.
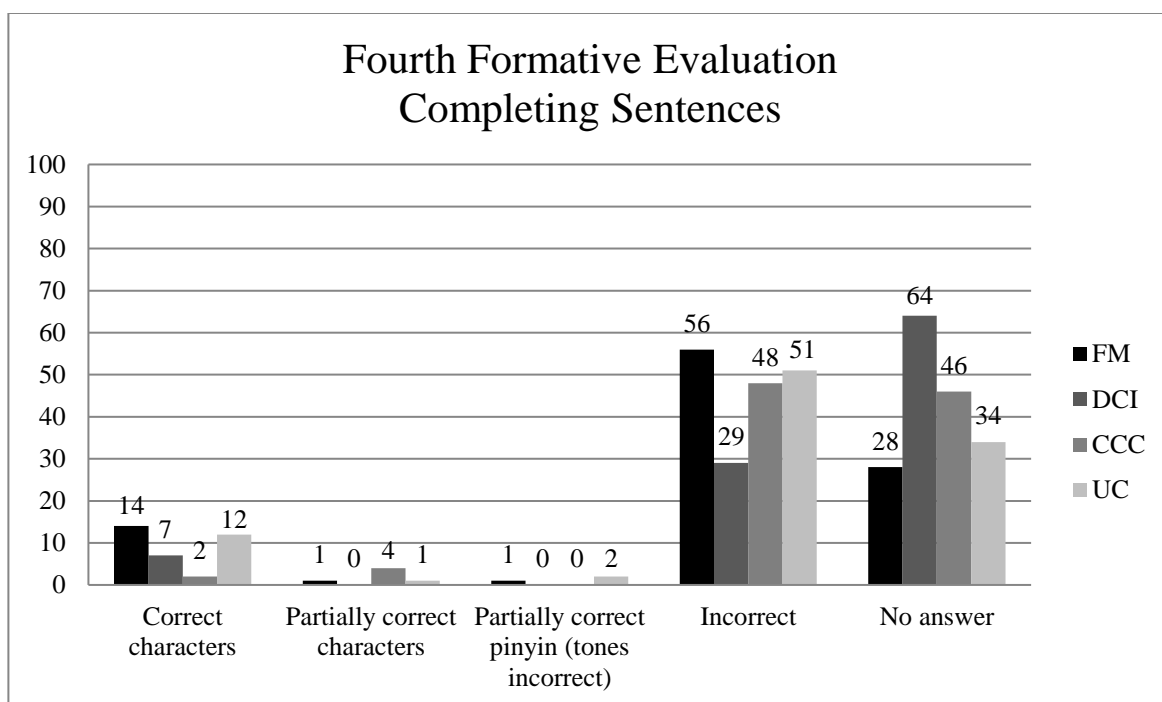
Figure 4.41. Percentages of answer categories for completing sentences with correct characters in fourth formative evaluation

4.5.5. Reordering sentences in the fourth formative evaluation

As in the third formative evaluation, participants were presented with three sets of three sentences and were required to order these correctly as per a conversation (see Appendix L).

The majority of answers in this section were incorrect, with the highest percentage of incorrect answers being observed in the UC group (81 percent) as shown in Figure 4.42, while the CCC group have the highest percentage of blank answers at 12 percent. The FM group scored 38 percent correctness and also attempted all questions, demonstrating

skills in recognising characters in context as also seen with a comparatively higher percentage of correct characters in the completing sentences section of this evaluation (14 percent). The second-highest scorers of correct answers were the DCI and CCC groups with 25 percent of correct answers respectively. The UC group, having attempted all sections yet providing the highest percentage of incorrect answers, scored the lowest in terms of correct answers with only 19 percent. This result is surprising as the participants of the UC group should have been more accustomed to reading and dealing with Chinese sentences after focusing equally on the reading, writing, speaking, and listening aspects of the language, compared to other groups that focused on the characters. Perhaps the method of FM allowed the FM group to become more familiar with the characters and understand Chinese sentences more clearly than other groups. To elaborate, at the earlier stages of learning, the grammar of Chinese is quite simple and similar to English in terms of the construction: subject + verb + object, and generally there are fewer words per sentence. Therefore, the FM group may have also been able to conduct word segmentation better than the UC group in this case, and as a result, perhaps recognise the Chinese characters better than other groups. This familiarity with the characters may account for their relatively high percentages in the reordering sentences section.
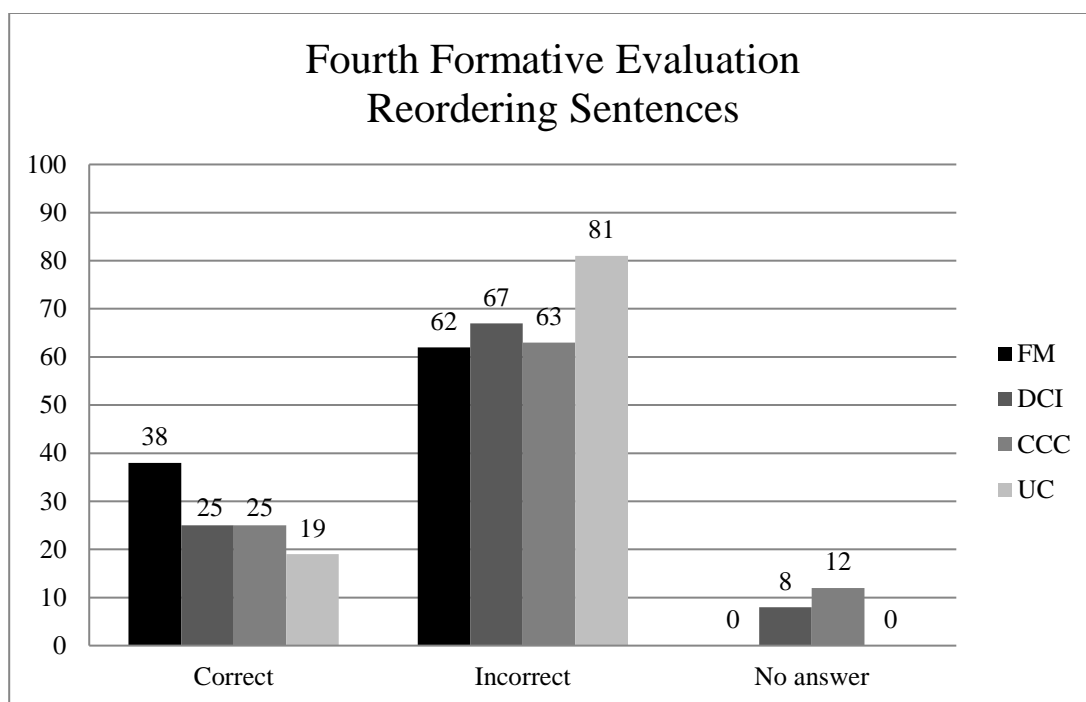
Figure 4.42. Percentages of answer categories for reordering sentences in fourth formative evaluation

4.5.6. Text production in the fourth formative evaluation

As with previous evaluations, participants were asked to describe a picture using individual Chinese words or sentences with characters or pinyin. As the participants had been learning content relating to shopping, including verbs, items found in shops and shopping centres, and words related to eating in a restaurant, the researcher presented participants with a picture of a busy shopping street with various people carrying shopping bags and chatting. In looking at the correct and partially correct Chinese words supplied in characters and pinyin for each group in Table 4.7, it is demonstrated that in total the FM group supplied 213 Chinese words, the DCI group supplied 117 Chinese

words, the CCC group supplied 104 Chinese words, and the UC group provided 176

Chinese words.

Table 4.7. The number and percentage of words in various answer categories for text
production in fourth formative evaluation

	Correct characters	*Correct pinyin*	*Partially correct characters*	*Partially correct pinyin (tones incorrect)*		*No attempt*
FM	104 (49%)	22 (10%)	21 (10%)	66 (31%)		3 (15%)
DCI	50 (43%)	12 (10%)	15 (13%)	40 (34%)		5 (25%)
CCC	66 (63%)	7 (7%)	11 (11%)	20 (19%)		2 (12%)
UC	60 (34%)	17 (10%)	12 (7%)	87 (49%)		4 (21%)

The FM group provided 104 (49 percent) Chinese words in correct characters, meaning

that almost half of their Chinese words provided were written using the correct

characters. Similarly, although providing almost half of the total words provided by the

FM group, the CCC group used correct characters for almost two-thirds of their answers

(66 words and 63 percent). The UC group also scored highly in terms of correct

characters (60 words and 34 percent), as did the DCI group (50 words and 43 percent). It

is seen in Figure 4.43 that the FM, DCI, and CCC groups' highest percentages lie in the

correct character answers, however for the UC group, the highest percentage of answers

was partially correct pinyin with incorrect tones (87 words and 49 percent). This may

suggest that when given the freedom to create texts, the FM, DCI, and CCC groups were

now more comfortable in writing correct characters. However, in the case of the UC

group, it can be seen that there was still a reliance on using pinyin (although the

percentage of the group able to construct sentences in this section was much higher than

all other groups as seen in Figure 4.44). Five participants (25 percent of the DCI group)

did not attempt this section, making it the highest number out of all groups. On the other

end of the spectrum, only two participants (12 percent of the CCC group) did not

attempt this section. No participants in any group provided all incorrect answers despite

some leaving this section blank. Figure 4.43 shows these results as highlighted in Table

4.7.
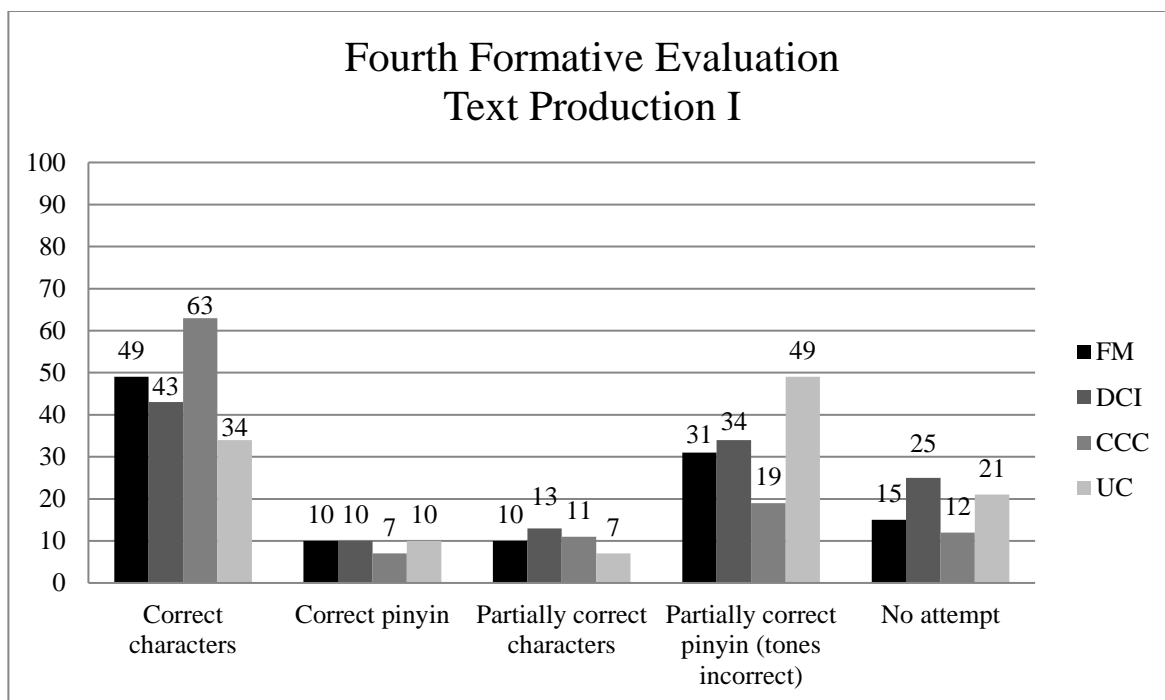
Figure 4.43. Percentages of answer categories for text production in fourth formative evaluation

All groups preferred to answer using words only, as shown in Figure 4.44, however the DCI group was the only group to provide all answers using words only. The FM and CCC groups scored almost the same with 94 and 93 percent words only, and six percent and seven percent sentences only provided by participants when describing the picture. The UC group provided the most variety in answers with a higher percentage in using words only (53 percent), followed by using sentences only (27 percent), and finally using a mix of words and sentences (20 percent). Perhaps the FM, DCI, and CCC groups' focus on individual Chinese words and characters as per their teaching methods led to their inability to provide many sentences or any sentences at all. Naturally, having spent equal time on all aspects of reading, writing, speaking, and listening, the UC group

spent less time focusing on individual characters and words, which might explain their familiarity with and skills in providing both words and sentences in this section.
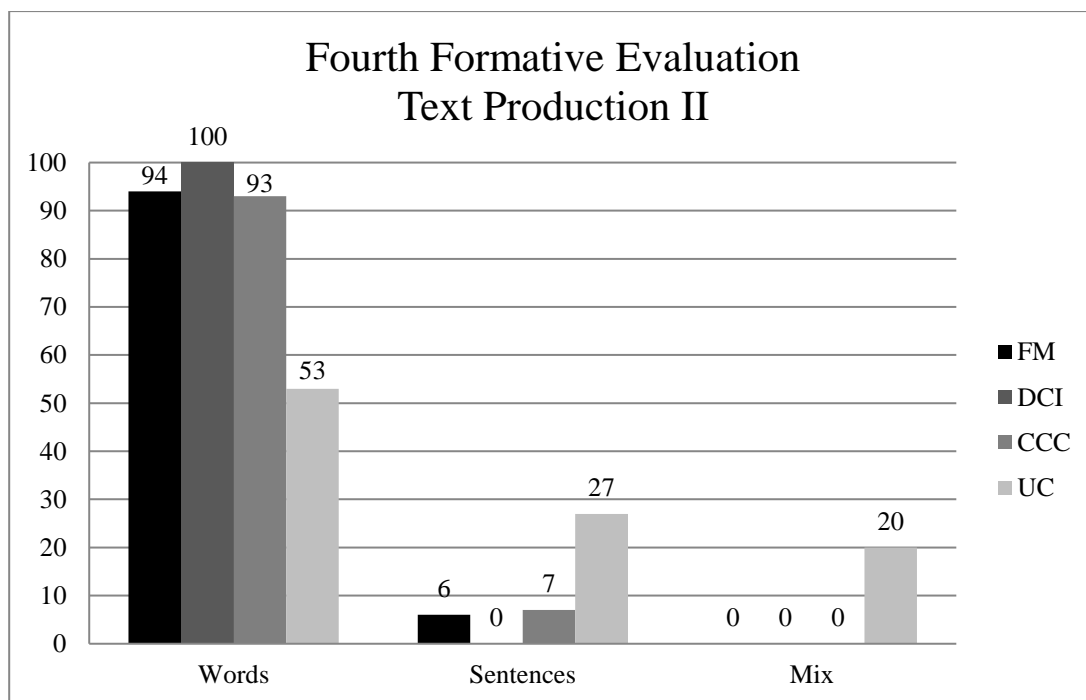
Figure 4.44. Percentages of words only, sentences only, and mix of both for text production in fourth formative evaluation

A chi-square test was computed using SPSS Version 24 to assess the relationship between the teaching method of a group and the way in which participants answered the text production section of the fourth formative evaluation, be it using words only, sentences only, or a mix of words and sentences. Taking the significance threshold at .05, Table 4.8 shows that a significant association was not likely to exist between the two variables. However, as the assumption has been violated in this case (20 cells with expected count less than five), it was necessary to examine Fisher's exact test (Field,

2013), whereby *p*=.030 (see section 4.5.1). As a result, there was a possible significant relationship between the type of answer written by the groups of participants in the fourth formative evaluation text production section and each group's teaching method.

We can assume, therefore, that the participants' teaching method was possibly influencing their type of answer here. As a result, this would mean that the FM, DCI, and CCC groups probably favoured using words in isolation in their answers on account of their focus on Chinese characters in isolation, while the UC group probably favoured using a mix of words and sentences on account of experiencing more integration when learning CFL through a lack of specific focus on individual characters.

Table 4.8. Chi-square output for teaching method of each participant and types of text production answers in fourth formative evaluation

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	29.811[a]	15	.013	.[b]		
Likelihood Ratio	30.091	15	.012	.023		
Fisher's Exact Test	22.213			.030		
Linear-by-Linear Association	3.105[c]	1	.078	.081	.041	.004
N of Valid Cases	94					

a. 20 cells (83.3%) have expected count less than 5. The minimum expected count is .73.

b. Cannot be computed because there is insufficient memory.

c. The standardized statistic is 1.762.

4.5.7. Summary of fourth formative evaluation

Findings from the fourth formative evaluation show that the CCC method was most useful for learning character composition (see Figures 4.38-4.40 and 4.43) and some character use in the text production section (see Figure 4.44). The UC group also demonstrates some benefits to learning character composition (see Figure 4.38) and character use (see Figure 4.44). The FM method shows possible benefits to learning character use (see Figures 4.41 and 4.42) and some character composition (see Figure 4.43). The DCI method, on the other hand, does not appear to be suitable for learning either character composition or character use.

4.6. Changes after adaptation of lessons

As mentioned at the beginning of section 4.5, the researcher adapted the final lessons due to observations and oral feedback from the participants before the fourth formative evaluation. It is therefore worth taking note of any changes in results between the third and fourth formative evaluations when this adaptation took place.

Looking to the incorrect answers of the third and fourth formative evaluations as displayed in Table 4.9, it is observed that in general, the percentage of incorrect answers is lower. Also, the unchanged percentages ('same') are still more positive than higher

percentages of incorrect answers.

Table 4.9. Percentage differences of incorrect answers in all sections from third to fourth formative evaluations

	Listening dictation	*Character recognition*	*Recalling characters*	*Completing sentences*	*Reordering sentences*	*All incorrect in text production*
FM	Lower	Lower	Higher	Lower	Same	Same
DCI	Lower	Lower	Higher	Lower	Higher	Same
CCC	Lower	Lower	Higher	Lower	Higher	Same
UC	Lower	Lower	Higher	Higher	Higher	Lower

With 12 instances of a lower number of incorrect answers being provided and eight instances of a higher number of incorrect answers being provided, it may be said that this adaptation in lessons has possibly allowed for fewer incorrect answers to be recorded between the third and fourth formative evaluations. This adapting of lessons stemmed directly from participant feedback and observations that the dialogues were becoming quite lengthy, and it is suggested that perhaps more time engaging with the language in an active manner was beneficial given the very limited hours of class contact per week for this study.

Indeed, due to the nature of a quasi-experimental study, it may be the case that any number of other variables outside the control of the researcher had the possibility to influence these answers. Still, as this adaptation of lessons is the only variable to have

been altered by the researcher, it is possible that the decrease in incorrect answers has indeed been influenced by an adaptation of the lessons.

4.7. Short- and long-term effectiveness of teaching methods in formative evaluations

After responses from the biographical questionnaires of each group were presented, this chapter presented the results of each group for the four formative evaluations. It is therefore worthwhile to take a look at each group's progression over the course of the academic year in order to gauge the short-term (first formative evaluation to second formative evaluation: FE1 - FE2) and long-term (first formative evaluation to fourth formative evaluation: FE1 - FE4) effectiveness of a given teaching method in each group. It is worth noting that with the following sections, the initial effectiveness is based on the short-term evaluation results in FE1 and FE2, while the long-term effectiveness is measured on the basis of whether or not there is an overall increase or decrease observed in the scores over the four formative evaluations. It is also worth pointing out that as demonstrated from the findings in this chapter and in Chapter 5, the rate of incorrect and blank answers is quite consistently high overall. The feedback questionnaire presented in Chapter 5 explores further why this might have happened, though it is assumed that on the surface level it supports previous literature stating that Chinese is indeed a difficult language to learn.

4.7.1. Short- and long-term effectiveness of teaching methods in listening dictation of formative evaluations

Firstly, in the listening dictation, there is a slight rise in the percentage of correct characters provided by the FM, CCC, and UC groups in the long term, while the DCI group's correct pinyin answers decline after the group had been introduced to characters (from FE1 to FE2) as shown in Figure 4.45. For all groups, the incorrect answers reach a peak at the third formative evaluation. As highlighted in section 4.4, participants had the opportunity to gain a reward for good efforts and results in the third and fourth formative evaluations, which may suggest that the incorrect answers are increased based on increased efforts of participants (although with seemingly inaccurate use of language). This finding may also coincide with feedback received by the researcher from participants that they were becoming overwhelmed in their learning after the third formative evaluation. Blank answers remain at less than 20 percent for all groups in each evaluation.

The patterns in Figure 4.45 show that in terms of providing the correct characters when presented with the sound, the FM and CCC methods were comparatively more effective in the short term. Despite all groups experiencing a decline in correctness, the FM and CCC groups actually scored higher in the first evaluation compared to other groups. The CCC and UC methods were comparatively more suitable in the long term when examining the rate of correct characters in the current study, whereas the DCI method seemed to allow participants to more accurately transcribe pinyin in the initial stages of the current study in FE1.
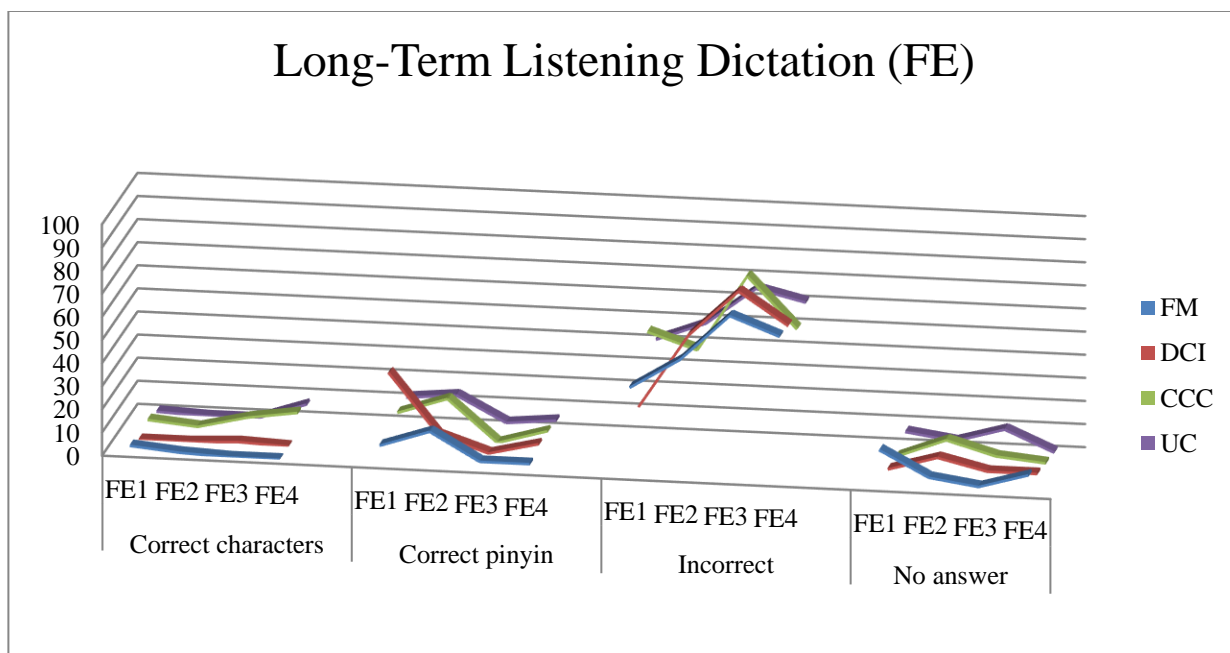
Figure 4.45. Percentages of answer categories for listening dictation in four formative evaluations

4.7.2. Short- and long-term effectiveness of teaching methods in character recognition of formative evaluations

In terms of the fully correct answers provided for the character recognition section, Figure 4.46 shows that the DCI group demonstrates the greatest decrease in percentage after being introduced to characters between FE1 and FE2, while all other groups remain below 10 percent in the long term. There is an overall decrease in the incorrect answers provided by the DCI and UC groups, while the DCI group demonstrates an increase in blank answers in the long term.

It may be said, therefore, that in the formative evaluations, the method of DCI was possibly more effective in the short term when transcribing the meaning of pinyin, as

seen in Figure 4.46. The CCC method appears to be more beneficial in the long term as it was the only one to provide an increase in the percentage of correct answers when transcribing the correct sound and meaning of characters. The UC method shows an overall decrease in both incorrect and blank answers over the four evaluations, and therefore shows potential long-term signs of effectiveness with regard to attempting questions in the current study.
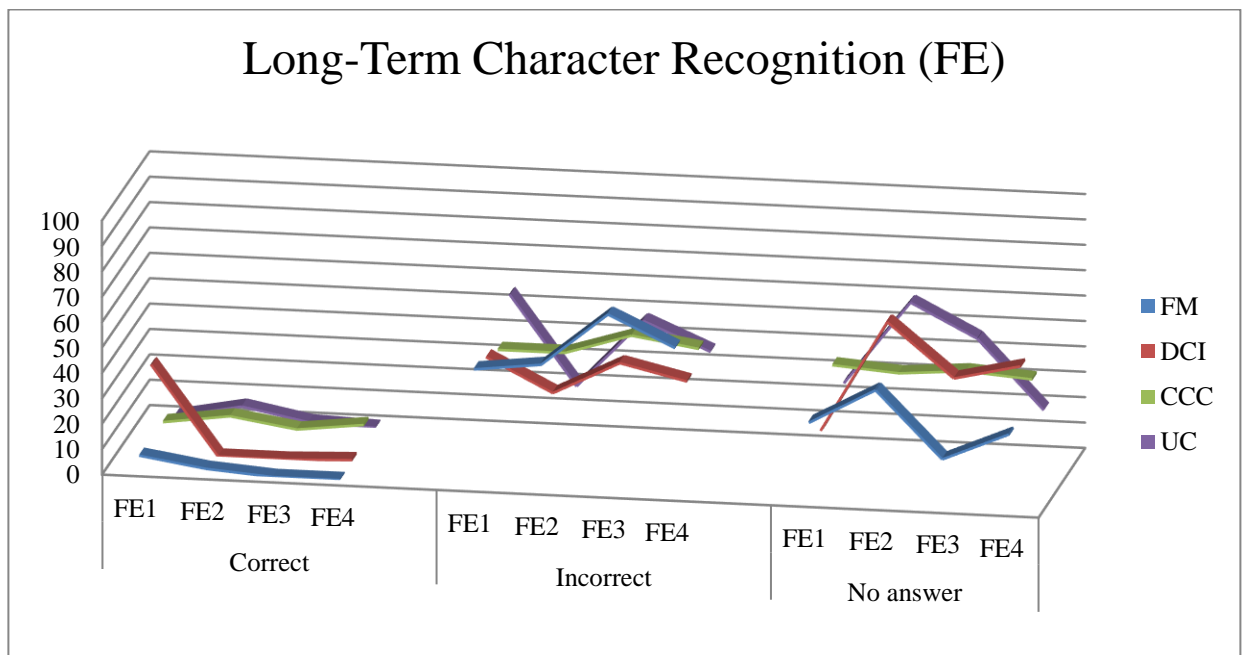
Figure 4.46. Percentages of answer categories for character recognition in four formative evaluations

4.7.3. Short- and long-term effectiveness of teaching methods in recalling characters of formative evaluations

Figure 4.47 shows that there is a clear spike in the percentage of correct characters provided in the recalling characters section in the third formative evaluation for all groups. This is possibly related to participants having spent a week revising after the Christmas break as well as the introduction of a rewards system as outlined in section 4.4. The CCC group was the only group to maintain an overall increase in correct characters in the long term, while the FM and DCI groups appear to have struggled with this section in the long term when looking at the trends of incorrect and blank answers. The UC group also did not cope well in the long term in this section with an increase in incorrect characters, and the group also appears to rely on pinyin to a greater extent than all other groups, as the rate of correct pinyin answers increases in the long term. The reverse of this is actually shown with the CCC method, whereby participants relied less on pinyin in the long term.

As a result, the current study appears to demonstrate that when participants were presented with an English word and were asked to provide the correct shape in characters, the FM method was perhaps most suitable in the very short term in FE1 (see also Osborne, 2016[8]), while the CCC method seems to be more effective in the long term.

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[8] Initial first formative evaluation results of each group have been published in this paper.
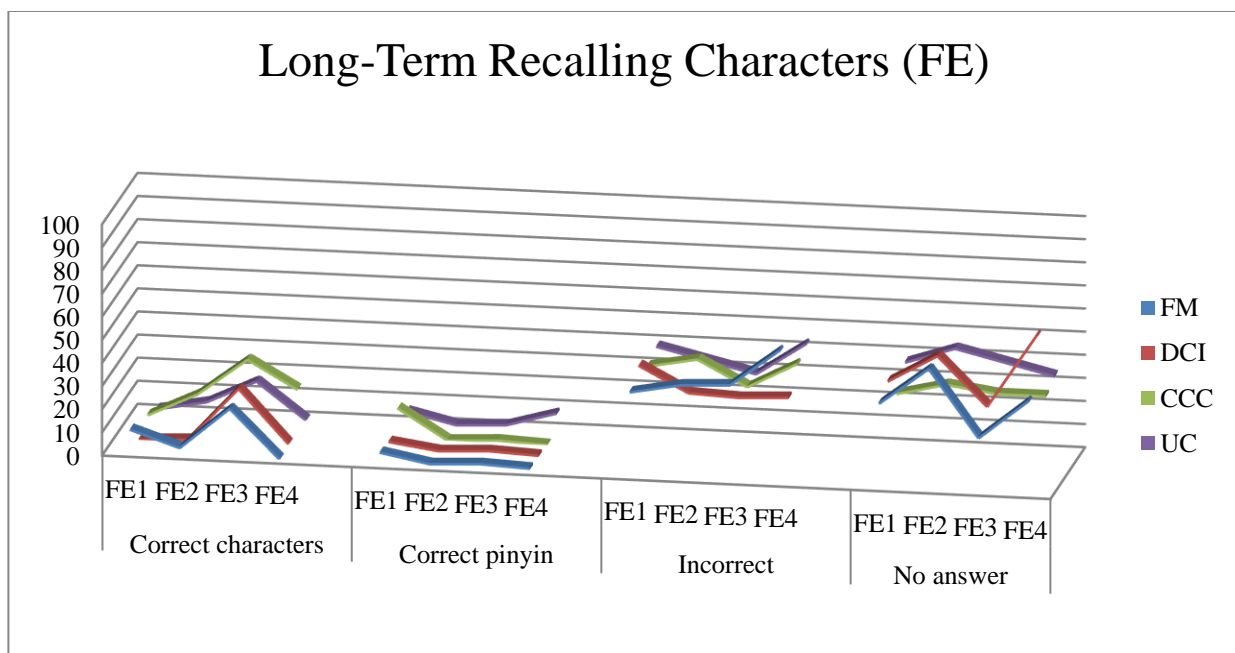
Figure 4.47. Percentages of answer categories for recalling characters in four formative evaluations

4.7.4. Short- and long-term effectiveness of teaching methods in completing sentences of formative evaluations

In Figure 4.48, the FM and DCI groups show an increase in correct characters for the completing sentences section in the long term. Although the DCI group has shown the lowest percentage in incorrect answers overall, these participants also provided the highest percentage of blank answers in every evaluation apart from the first, whereby they had not yet been introduced to characters. The CCC and UC groups initially scored the highest percentages of correct characters, however they did not maintain this as is seen in the increase in incorrect answers for both groups in the long term.

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Figure 4.48 shows that the FM and DCI methods were more promising in the long term

when the connection between meaning and shape was being tested in context, while the

CCC and UC methods were perhaps more beneficial for the short term. It also cannot be

ignored that firstly introducing the DCI group to pinyin allowed for a much higher

percentage of correct pinyin answers in the first formative evaluations.
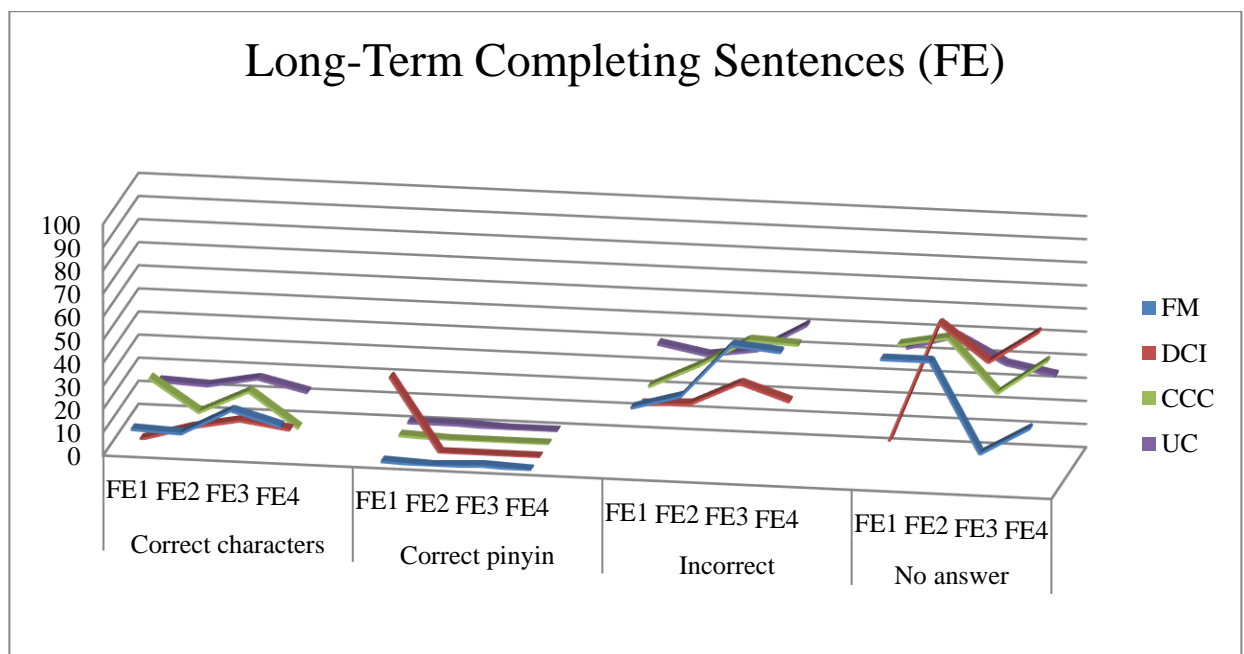
Figure 4.48. Percentages of answer categories for completing sentences in four formative evaluations

4.7.5. Short- and long-term effectiveness of teaching methods in reordering sentences of formative evaluations

What is first striking for the reordering sentences section displayed in Figure 4.49 is the

clear fall in correct answers with a distinct rise in incorrect answers for each group in the

long term. The results suggest that all groups found this exercise progressively more

difficult, which may have been due to the fact that more sentences were added to each conversation from the third formative evaluation. It is also worthwhile to examine the blank answers provided. Participants merely had to number the order of sentences, and so attempting this section would not have been too taxing. With the FM, CCC, and UC groups, the general trend is that the percentage of blank answers decreases, while the DCI group's percentage actually rises in the long term.

Therefore, in the very short term, it can be seen that the FM, CCC and UC methods were comparatively more effective in producing correct answers whereas in the long term, all groups struggled with this section. In particular, the DCI method produced the highest rate (and the only long-term increase) of blank answers, thus was mostly ineffective in the current study for reordering sentences.
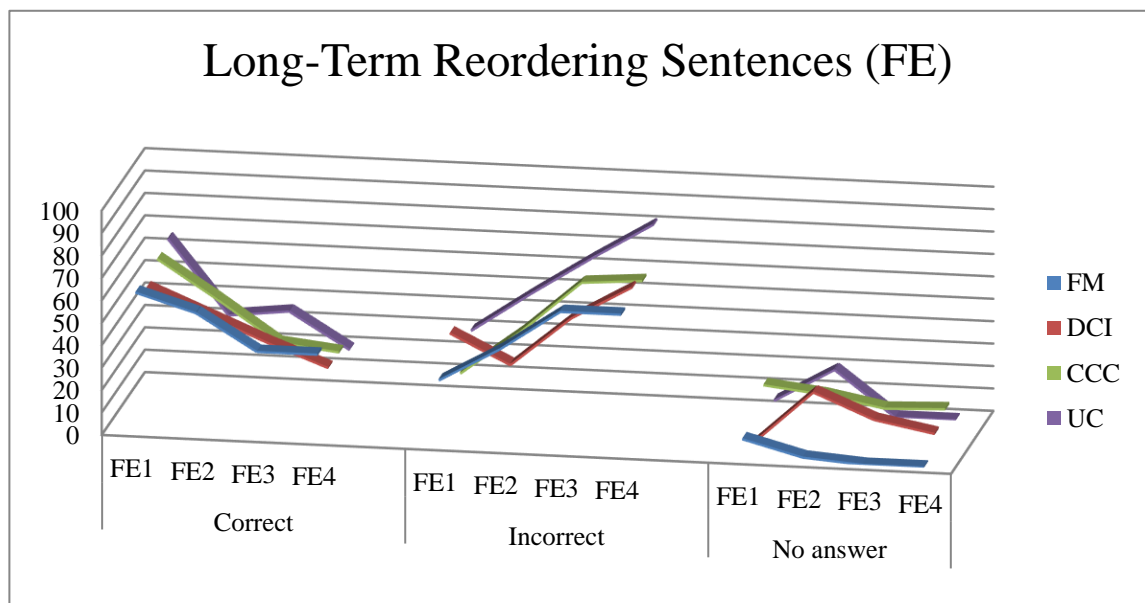
Figure 4.49. Percentages of answer categories for reordering sentences in four formative evaluations

4.7.6. Short- and long-term effectiveness of teaching methods in text production of formative evaluations

Figure 4.50 shows the results of the number of words provided by each group in the text production section. A prominent spike can be seen after the third formative evaluation, again highlighting the importance of more time being spent in the classroom on a particular topic as well as working towards a goal to achieve better learning outcomes. The highest number on the graph is in the FM group in the fourth formative evaluation (213), while the lowest number was also provided by the FM group in the second formative evaluation (49). In general, there was an increase in the number provided in all groups, bar the DCI group, in the long term.

The DCI method is promising in the very short term for text production as shown in Figure 4.50. The CCC method maintained a steady number throughout the evaluations, while the FM and UC methods seem to be more beneficial for the long term in increasing the number of characters and pinyin supplied when describing a picture. Although these figures include both partially correct and fully correct characters and pinyin, they still show some possible long-term benefits to learning vocabulary under the FM and UC methods.
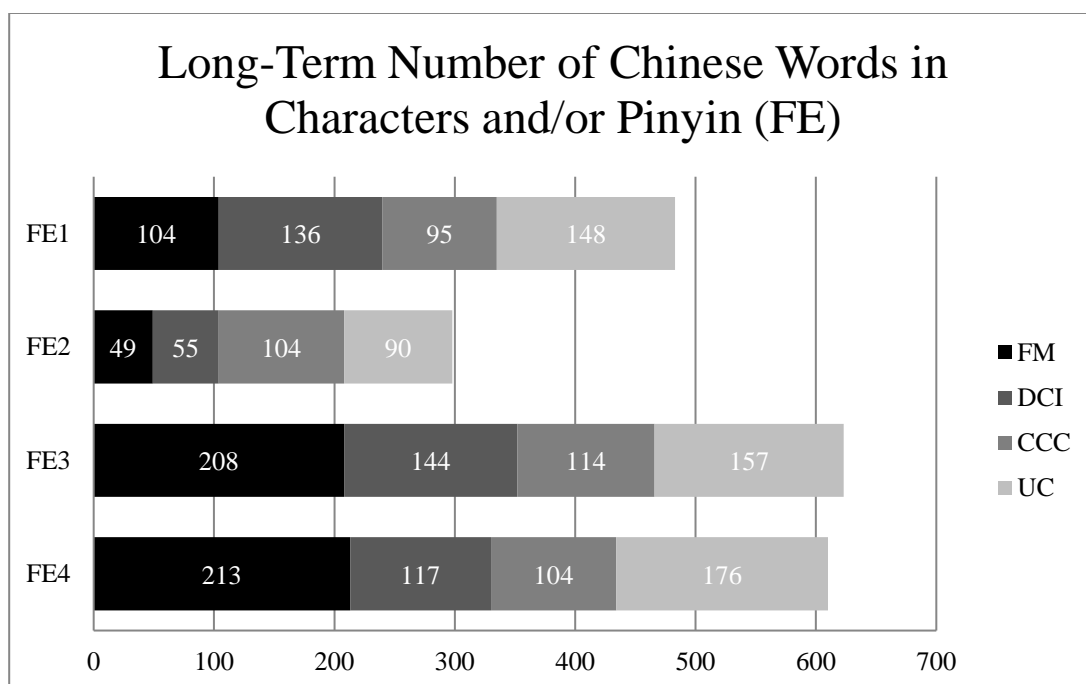
Figure 4.50. Correct and partially correct characters and pinyin provided by each group in four formative evaluations (in numbers)

In terms of the types of answer received in the text production section, Figure 4.51 demonstrates an increase in each group for correct characters provided in the long term, with the lowest incline over the four evaluations noted in the UC group. There is an overall decrease in the correct pinyin provided, which is probably as a result of the increase in correct characters. Here, the DCI and CCC groups show the greatest decline in pinyin, which corresponds with their impressive increase in correct characters. The FM, DCI, and UC groups, however, have an overall increase in participants leaving this section blank. Despite this, as seen from Figure 4.50, the FM group was still able to provide the highest number of words for this section in the fourth evaluation.

Given these results, it can be said that the CCC and FM methods might have enabled participants to answer using more correct characters in the long term. In the short term, the UC method appears to be effective in providing correct characters, whereas the DCI method was perhaps most effective in providing correct pinyin.
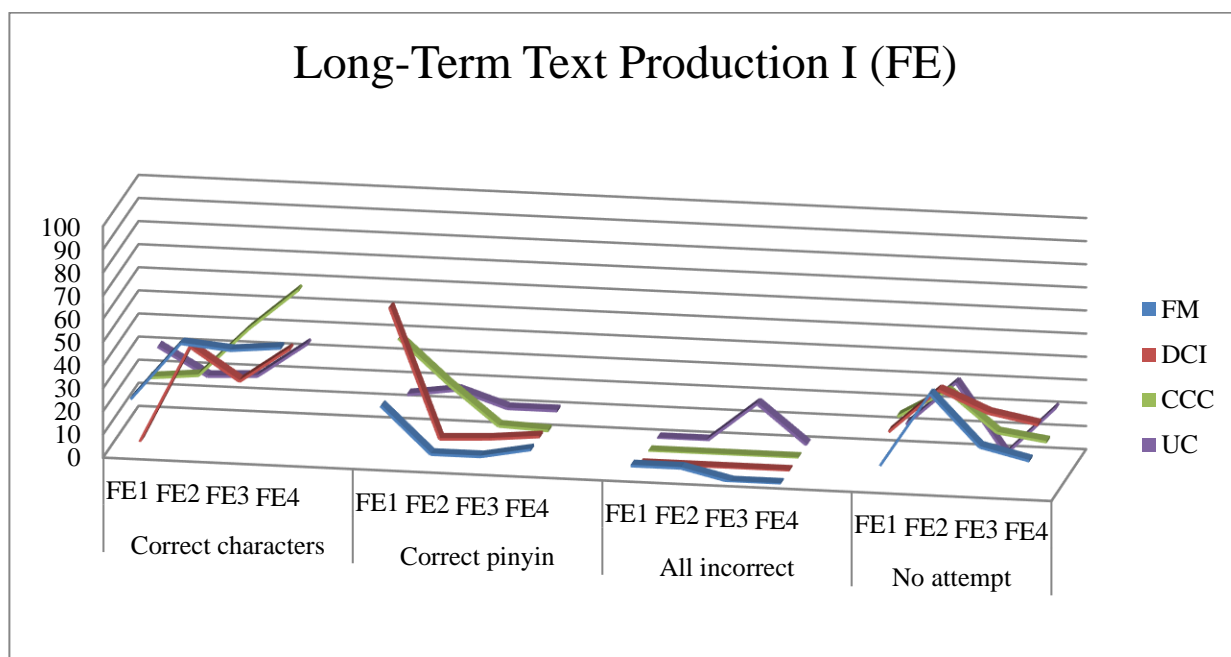
Figure 4.51. Percentages of answer categories for text production I in four formative evaluations

In analysing the way in which the text production section was answered, it is observed in Figure 4.52 that in terms of providing words only, the FM, DCI, and CCC methods produced the highest results in the long term, while all groups show an increase overall. On the other hand, all groups show an overall decrease in the percentage of sentences provided; however, the CCC and UC methods were more promising in the short term. Looking at answers using a mix of words and sentences, the DCI and UC methods seem

to be more effective in the short term, while all methods show a general decrease in the

long term. This trend may tell us that participants of each group were focusing on words

in isolation rather than sentence structure to describe a picture as more and more

vocabulary was learned.
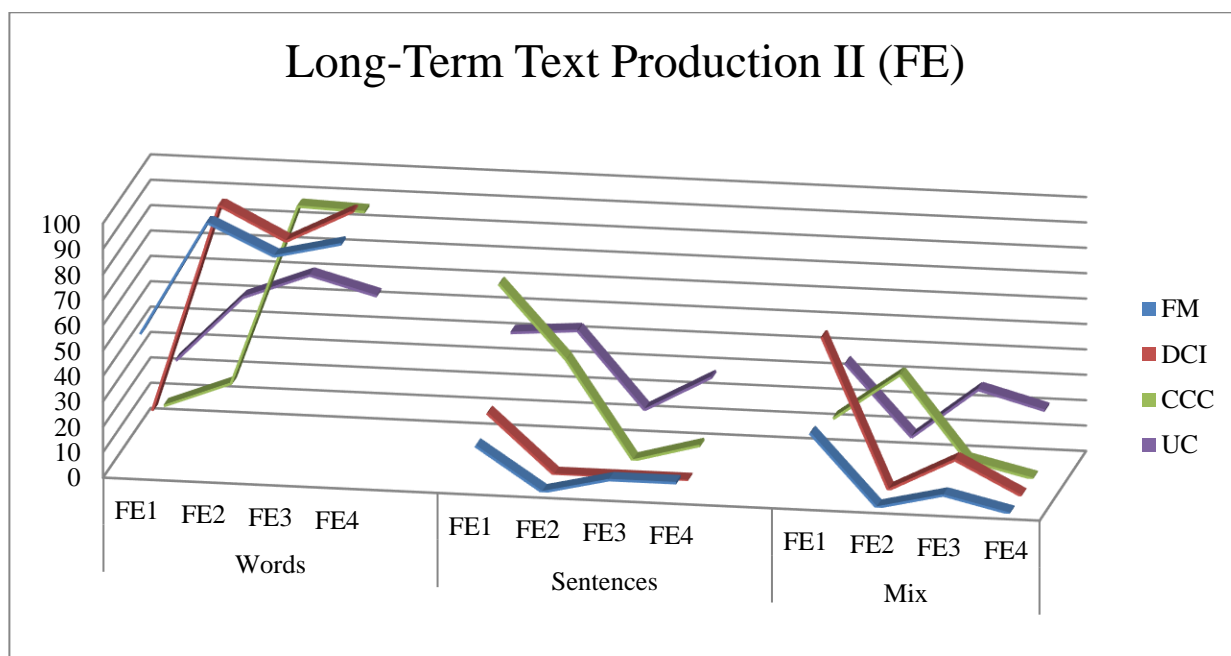
Figure 4.52. Percentages of answer categories for text production II in four formative evaluations

The long- and short-term benefits of each method across the four formative evaluations

are highlighted in the Table 4.10. The initial benefits are based on the short-term

evaluation results (FE1 and FE2), while the long-term benefits are measured on the basis

of whether or not there was an overall increase or decrease in scores over the four

formative evaluations. For clarity, Table 4.10 only shows the correct character or fully

correct answers, while 'n/a' shows no significant long- or short-term effectiveness.

Table 4.10. Long- and short-term benefits of each method across four formative evaluations

	FM	DCI	CCC	UC
Listening dictation	Short	n/a (short-term correct pinyin)	Long	Long
Character recognition	Short	n/a (short-term correct pinyin)	Long	n/a (long-term attempting of questions)
Recalling characters	Short	n/a	Long	n/a
Completing sentences	Long	Long	Short	Short
Reordering sentences	Short	n/a (also only rise in blank answers)	Short	Short
No. of correct/partially correct words supplied in text production	Long	Short	n/a (steady number over four evaluations)	Long
Text production I	Long	Long	Long (highest incline)	Long
Text production II	n/a	n/a	Short	Short and long

As seen from Table 4.10, the current study demonstrates that various methods were

perhaps suitable for various exercises in the short term and the long term. Chapter 6 will

delve into these findings and observations further in section 6.3.

The following chapter demonstrates the results achieved by participants in the two summative evaluations, including long-term and short-term effectiveness. After this, results of the feedback questionnaire are presented.

Chapter 5: The Summative Evaluations and Feedback Questionnaire

This chapter presents the results from the two summative evaluations conducted the week before the Christmas and summer holidays respectively, as well as results from the feedback questionnaires. The summative evaluations differed from the formative evaluations in that the researcher was testing participants' learning outcomes rather than their progression when learning CFL. The results are outlined in the following sections.

5.1. The first summative evaluation

As the purpose of the summative evaluations differed from that of the formative evaluations, the researcher altered the first summative evaluation slightly from the previous first and second formative evaluations by adding more questions to each section, calling out short phrases instead of words for the listening dictation, and naturally allowing more time to complete the paper. This was to ensure that a greater volume and variety of relevant material covered from September until December could be included on the paper to test participants' learning outcomes. As mentioned in Chapter 3 (section 3.3.3.5), the layout of the sections of the summative evaluations remained identical to that of the formative evaluations. A total of 20 participants from the FM group, 21 participants from the DCI group, 22 participants from the CCC group, and 20 participants from the UC group were present for the first summative evaluation. This evaluation was conducted approximately six weeks after the second formative evaluation and after a total of approximately 14 weeks of teaching. After the second

formative evaluation (discussed in Chapter 4), participants in each group had learned an

additional 41 Chinese words and their characters (see Appendix M**,** see also Table 3.1 in

Chapter 3), and therefore a total of 104 Chinese words and their characters. Participants

were given approximately 55 minutes to complete the evaluation, which can be viewed

in Appendix N. As in the case of the formative evaluations, percentages of the

evaluation results have been rounded up to the nearest whole number (unless indicated

clearly by '.5'). As a result, they are approximate percentages.

Some slight changes as previously mentioned in Chapter 4 (see section 4.1) occurred in

the weeks after the second formative evaluation and before the first summative

evaluation. Firstly, the three participants from the UC group withdrew from the study

and secondly, a participant originally part of the FM group was moved to the UC group

due to behavioural issues.

5.1.1. Listening dictation in the first summative evaluation

The researcher called out a total of five Chinese phrases whereby the participants were

required to transcribe the corresponding characters (see Appendix N). As in the previous

evaluations, the researcher also encouraged participants to write the pinyin if they could

not remember the correct characters. The following paragraph highlights the findings of

this section, whereby each Chinese word is treated separately despite forming part of a

phrase or sentence. For example, where part of one phrase is correct and another part

incorrect – namely, partially correct – all occurrences are recorded under the sections in Figure 5.1.

What first stands out from these results in Figure 5.1 is the prevalence of incorrect answers, ranging from 47 percent in the UC group to 56 percent in the CCC group. Overall, there are significantly lower percentages of blank answers, the highest percentages being in the DCI and UC groups with only four percent, which probably accounts for the high percentages in incorrect answers. The second-highest scores lie in the partially correct pinyin answers whereby the tones were incorrect. The UC group scored the highest here with 36 percent while the CCC group scored the lowest with 26 percent. The relatively higher percentages in the partially correct pinyin and correct pinyin answers compared to the answers supplied using characters in all groups suggest a reliance on pinyin when learning Chinese, as well as difficulties in mastering the tones. Four percent correct characters were recorded in the DCI group, three percent in the FM group, two percent in the UC group, and only .5 percent correct characters were recorded in the CCC group.
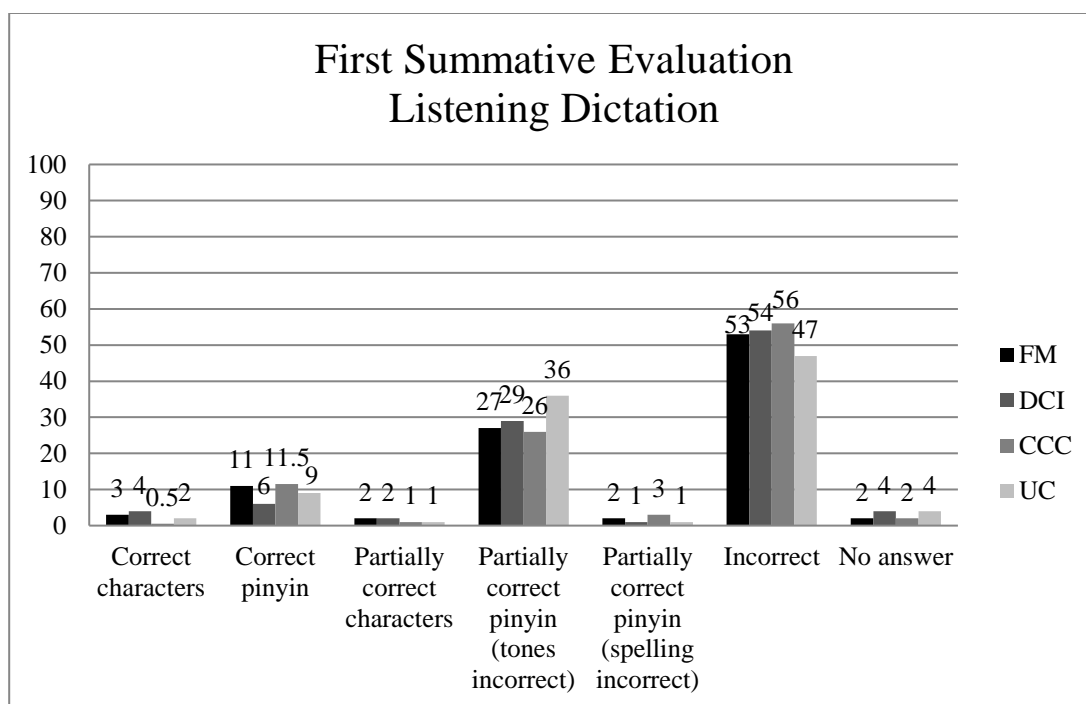
Figure 5.1. Percentages of answer categories for listening dictation in first summative evaluation

5.1.2. Recognition of Chinese characters in the first summative evaluation

In this section, the participants were required to recognise 10 Chinese words in characters by providing the corresponding pinyin and English translation (see Appendix N).

Again, what is most noticeable within these results in Figure 5.2 is the prevalence of incorrect and blank answers. Only five percent and one percent of the CCC and UC groups' answers respectively were correct in both English translation and pinyin, with participants of the FM and DCI groups not answering any questions using the correct English translation and pinyin. The number of incorrect answers and blank answers may

give a clue as to the trends of each group. That is, the FM group and the UC group

answered more questions incorrectly (55 percent and 59 percent respectively), while the

DCI and CCC groups left more blank answers (64 percent and 54 percent respectively).

This may suggest that the FM and UC groups were more willing to attempt this section

or even believed that they knew the answers, whereas the high number of blank answers

in the DCI and CCC groups may suggest that the participants of these groups were

perhaps overwhelmed or lacking in confidence when recognising the characters.
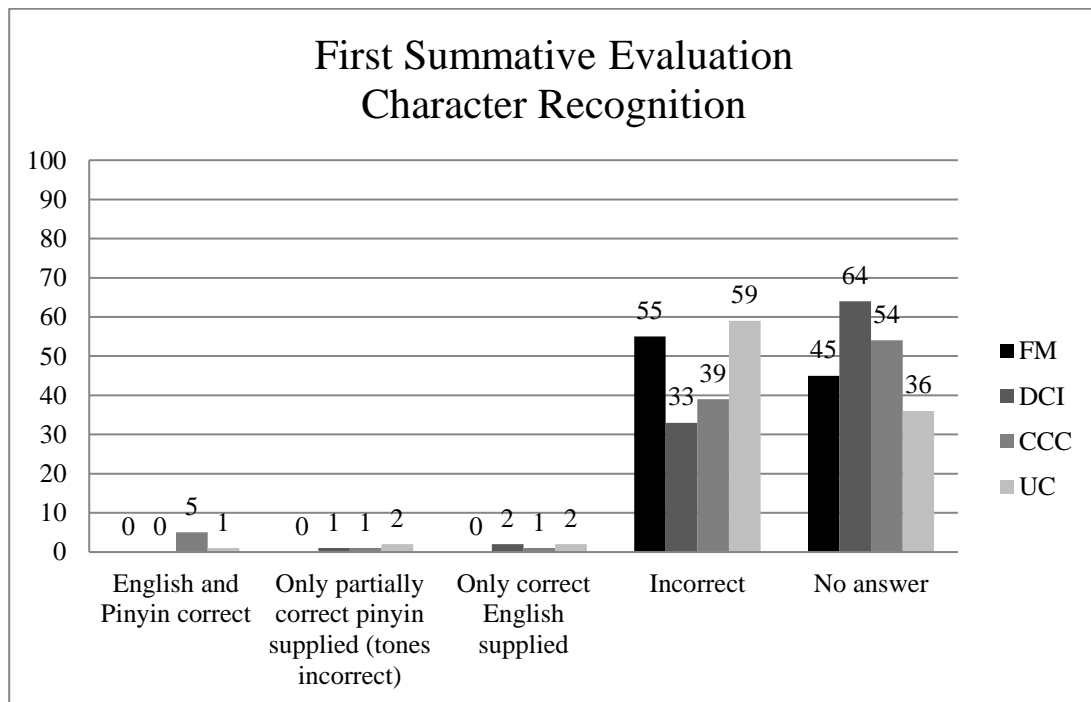
Figure 5.2. Percentages of answer categories for character recognition in first summative evaluation

5.1.3. Recalling Chinese characters in the first summative evaluation

This section contained 10 English words to be translated into Chinese characters (see Appendix N). Again, the researcher noted all variations of answers which are outlined in Figure 5.3.

The FM and UC groups scored the highest percentages of incorrect answers (51 percent respectively), while the FM, DCI, and CCC groups scored the highest percentages of blank answers (45 percent, 65 percent and 45 percent respectively). This further highlights the willingness of the FM and UC participants to attempt the questions, while other groups, particularly the DCI participants, tended to provide more blank answers. Although low percentages, the CCC and UC groups scored the highest percentages of correct characters at six percent and five percent respectively, and the CCC group was the only group that was able to provide any correct pinyin answers (five percent). This may suggest that while coping comparatively well with learning the characters, the CCC group also had a relatively good grasp of the pinyin.
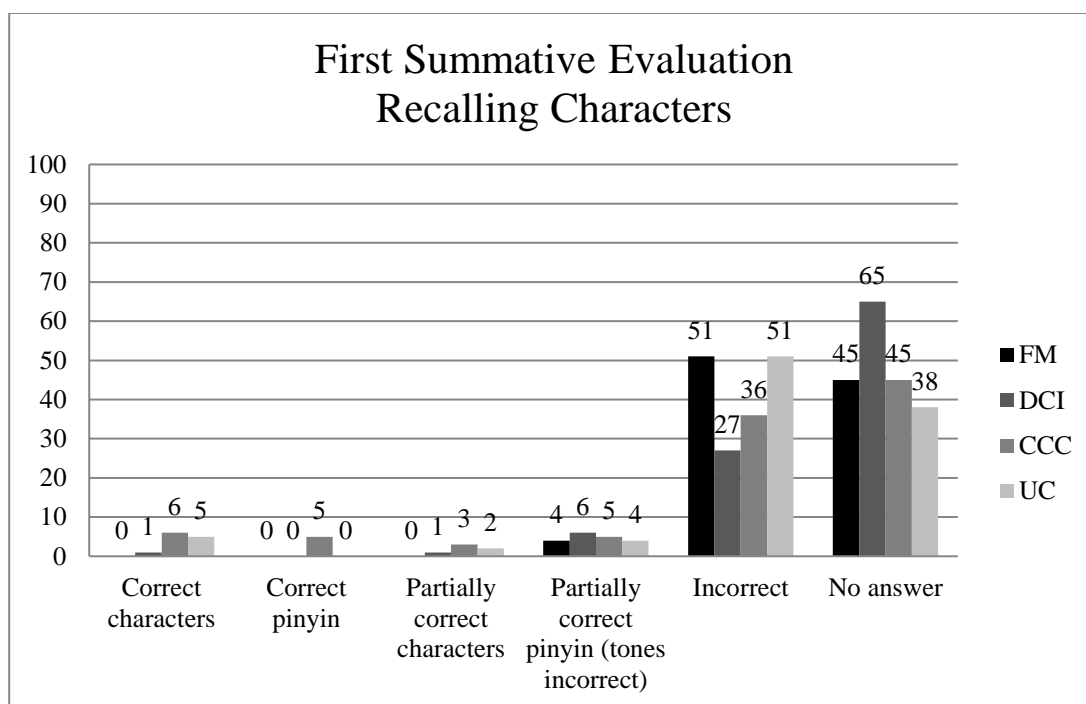
Figure 5.3. Percentages of answer categories for recalling characters in first summative evaluation

5.1.4. Completing sentences with correct characters in the first summative evaluation

This section provided participants with 10 incomplete sentences whereby the correct characters had to be filled in in the blanks provided (see Appendix N). Figure 5.4 shows the results obtained by each group.

The DCI, CCC, and UC groups scored mostly blank answers at 70 percent, 61 percent, and 55 percent respectively. The DCI group not only left the highest percentage of answers blank but also supplied almost all other answers incorrectly. The FM group provided the lowest percentage of blank answers (42 percent) however the participants

also provided the highest percentage of incorrect answers. This may suggest that the group was willing to attempt most questions, despite their inaccuracy in 50 percent of their answers. Although low, the UC group supplied the most correct characters in their answers (five percent), followed closely by the CCC group with four percent, and the FM group with three percent. As with previous sections of the first summative evaluation thus far, an overwhelming majority of percentages is found in the incorrect and blank answers. This may suggest that in the middle of the Chinese course the participants became overwhelmed or unmotivated in their learning. In addition to this, the participants missed some classes in the lead up to the evaluation as a result of the organisation of a transition-year musical. In this way, it may be the case that their extracurricular activity was a distraction that impeded their progress. Feedback questionnaires supplied to the participants upon completion of the course attempted to seek these answers, as displayed in section 5.5.
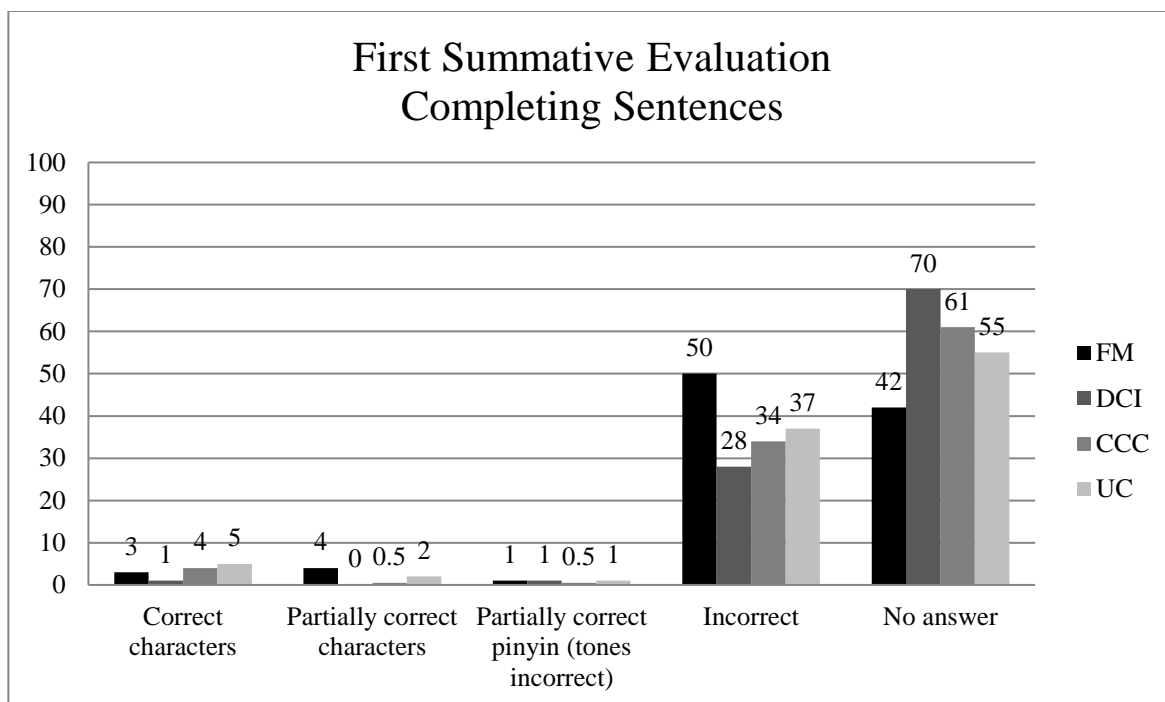
Figure 5.4. Percentages of answer categories for completing sentences with correct characters in first summative evaluation

5.1.5. Reordering sentences in the first summative evaluation

In this evaluation, participants were presented with six sets of three Chinese sentences and had to put these in the correct order as per a conversation (see Appendix N). The researcher only accepted answers whereby all sentences were in the correct order, the results of which are recorded in Figure 5.5.

The highest percentages lie in the column of incorrect answers; however, it can be seen that the FM group performed best in providing 34 percent correct answers, and in addition to this the group attempted all questions. The UC group performed the worst in providing 27 percent correct answers; however, the participants attempted a further 72

percent of questions despite being incorrect. The DCI and CCC groups scored almost

identical to each other, with their correct answers at 29 percent respectively, the lowest

recordings of incorrect answers (54 percent and 53 percent respectively), and a further

17 percent and 18 percent of answers left unattempted respectively.
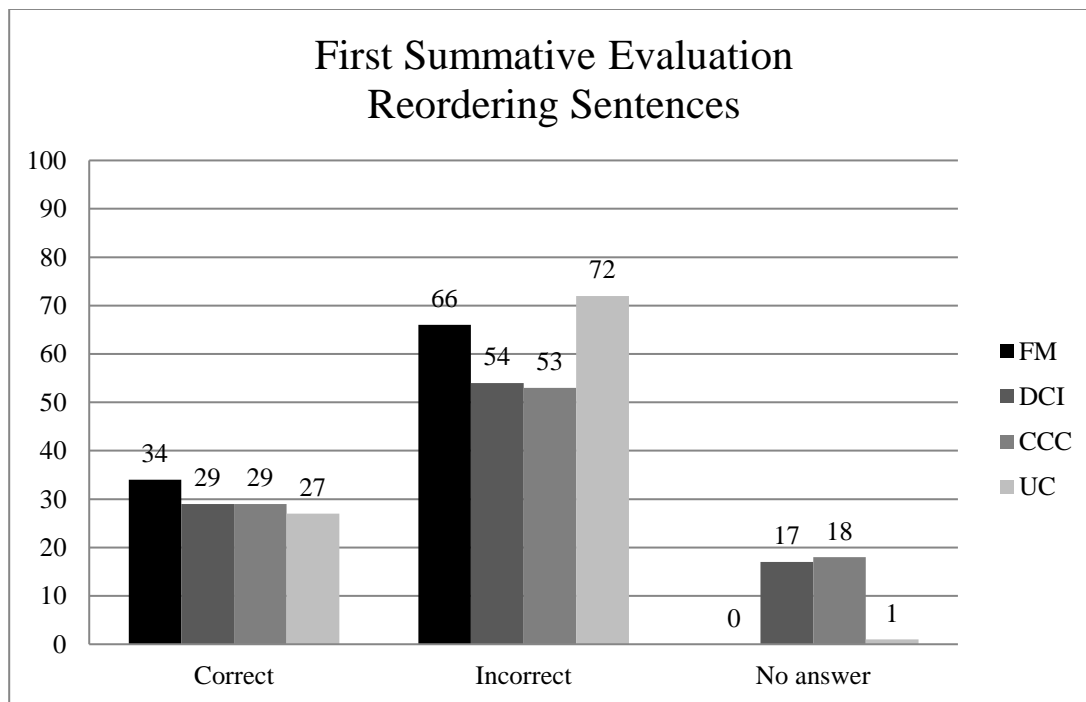
Figure 5.5. Percentages of answer categories for reordering sentences in first summative evaluation

5.1.6. Text production in the first summative evaluation

This section, as in previous evaluations, asked participants to describe a picture using

characters or pinyin, and using words or sentences. For this evaluation, the picture

presented to the participants was that of a group of friends chatting and reading books

(see Appendix N). This gave the participants an opportunity to write on topics covered

in their CFL learning so far, such as conversations, names, school, and discussing plans.

In analysing the total number of correct or partially correct answers provided in

characters and pinyin, the FM group provided 104 Chinese words, the DCI group

provided 92 Chinese words, the CCC group provided 104 Chinese words, and the UC

group provided 142 Chinese words. In this way, it can be seen that the UC group may

have had a better retention of the language compared to the other groups. Table 5.1

highlights the breakdown of results recorded for this section.

Table 5.1. The number and percentage of words in various answer categories for text
production in first summative evaluation

	Correct character	*Correct pinyin*	*Partially correct characters*	*Partially correct pinyin (tones incorrect)*	*Partially correct pinyin (spelling incorrect)*	*All answers incorrect*	*No attempt*
FM	47 (45%)	12 (12%)	14 (13%)	31 (30%)	0 (0%)	1 (5%)	6 (30%)
DCI	25 (27%)	12 (13%)	10 (11%)	45 (49%)	0 (0%)	0 (0%)	8 (38%)
CCC	30 (29%)	19 (18%)	4 (4%)	48 (46%)	3 (3%)	1 (5%)	5 (23%)
UC	41 (29%)	16 (11%)	13 (9%)	72 (51%)	0 (0%)	2 (10%)	1 (5%)

The highest number of answers provided by any one group is the partially correct pinyin

with incorrect tones in the UC group with 72 words and 51 percent of their answers

overall. The DCI and CCC groups also scored the highest in this category with 45 words

(49 percent) and 48 words (46 percent) respectively, which may suggest their reliance on pinyin despite some confusion with the tones. The FM group scored the highest number of Chinese words using correct characters (47 words and 45 percent), which may suggest that the method of focused memorisation allowed for characters to be more easily recalled from memory when given the opportunity to write free text. It is surprising therefore, that the FM group actually provided the highest percentage of incorrect answers in the recalling characters section of this evaluation (see section 5.1.3). This result raises the question as to whether the FM group was better at memorising a number of characters that could be used in a variety of contexts, rather than remembering specific characters as required in the recalling characters section. Results from the second summative evaluation provide more insight into this.

The UC group also provided a large number of Chinese words using correct characters (41 words and 29 percent), however due to the large number of words provided as partially correct pinyin in the UC group, this percentage proportion is not nearly as high as the FM group's percentage for supplying Chinese words using correct characters. Interestingly, the second-highest type of answer in the FM group is the partially correct pinyin section with incorrect tones (31 words and 30 percent), which may suggest that when the character recall became overwhelming, the participants may have preferred to answer using a writing system already familiar to them. It is worth noting that the CCC group was the only group to provide partially correct pinyin with incorrect spelling (three words and three percent), and so the method of using colours to denote the

different tones may have had an impact on the group in remembering the tones of some words better than the spelling.

In terms of providing all incorrect answers, only one participant in the FM and CCC groups (five percent of the groups respectively) and two participants in the UC group (10 percent of the group) answered in this way. In looking at the number of participants who did not attempt this section, the DCI group had the highest number of participants leaving this section blank (eight participants, 38 percent of the group). Next is the FM group with six participants (30 percent of the group) not answering this section, and lastly the CCC group and UC group had five participants (23 percent of the group) and one participant (five percent of the group) respectively who did not attempt this section. Figure 5.6 displays the results as outlined in Table 5.1.

First Summative Evaluation
Text Production I
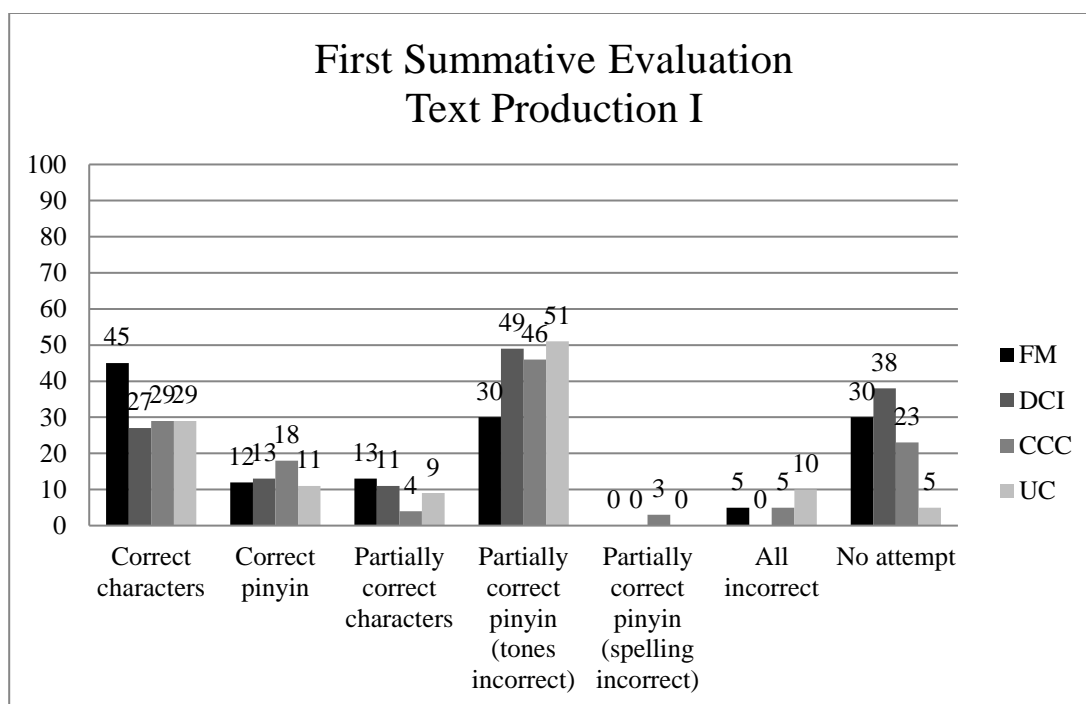
Figure 5.6. Percentages of answer categories for text production in first summative evaluation

Figure 5.7 shows that the FM group preferred to write using words only (62 percent), which may suggest that the method of FM was perhaps more suited to learning characters in isolation. As with previous evaluations, 'words only' refers to Chinese words in pinyin and characters. The DCI group also scored highly in terms of writing words only (54 percent), however given the fact that this group spent time learning the corresponding characters after learning the pinyin of a given lesson, it is unsurprising that their focus was on individual characters. The use of colours may have had an effect on the CCC group in learning individual words as these participants also provided mostly words in isolation (43 percent). The UC group, on the other hand, provided mostly sentences (47 percent) which may suggest that this method helped the

participants to remember more easily the structure of sentences and therefore

strengthened their skills in terms of creating sentences.

**First Summative Evaluation
Text Production II**
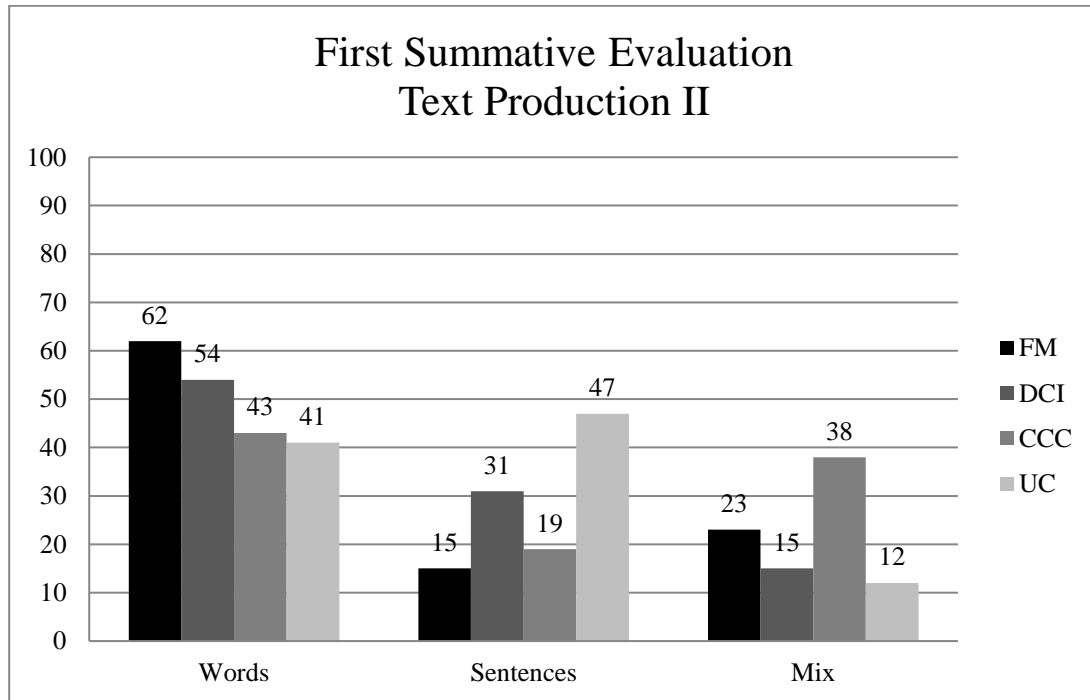
Figure 5.7. Percentages of words only, sentences only, and mix of both for text
production in first summative evaluation

5.1.7. Summary of first summative evaluation

Findings from the first summative evaluation demonstrate that the FM method is

possibly useful for learning character use (see Figures 5.5 and 5.7) and some character

composition (see Figure 5.6). The DCI group demonstrated possible benefits only in the

listening dictation section (see Figure 5.1), while the CCC group demonstrated possible

benefits for learning character composition (see Figures 5.2 and 5.3). The UC method,

on the other hand, is possibly beneficial for learning character use, as demonstrated in Figure 5.4.

It is worth noting that in the two weeks leading up to the first summative evaluation, two classes (one week) of teaching were missed in both the FM and UC groups as the school was closed for public holidays on the only days that these groups were scheduled to have class. Although the researcher set the work that would have been covered in class for homework, it appears this was still a disadvantage to the participants of these groups. At the same time, some participants (five from FM, two from DCI, seven from CCC, and one from UC) were preparing for a concert with the school choir and missed approximately one to two classes because of this. Again, while any class work not completed by these students was assigned as homework, it could be the case that a lack of contact hours with the researcher affected results for most sections of the first summative evaluations. The implications of lack of class contact hours will be discussed further in Chapter 6 (see section 6.5.1).

5.2. The second summative evaluation

The second summative evaluation was conducted the week before the participants finished school for the summer. It was conducted approximately four weeks after the fourth formative evaluation after a total of 28 weeks of teaching, whereby participants had covered a final 22 Chinese words and their characters (see Appendix O, see also Table 3.1 in Chapter 3). The total number of Chinese words and their characters covered

by the participants at the time of the second summative evaluation and subsequently

upon completion of the course equalled 206. During the weeks leading up to the second

summative evaluation, the researcher also assigned the groups identical revision

exercises and introduced the participants to online character recall and recognition

games to help them revise the characters they had learned.

In total, 20 participants from each group were present for the second summative

evaluation. The participants were given approximately 55 minutes to complete this

evaluation (see Appendix P).

5.2.1. Listening dictation in the second summative evaluation

As in the first summative evaluation, the researcher called out five Chinese phrases for

the participants to transcribe using the correct characters, while encouraging the

participants to use pinyin when the characters could not be recalled (see Appendix P).

The researcher again noted the occurrences of how each individual Chinese word was

transcribed in recording the results of the listening dictation.

Figure 5.8 shows that the highest percentages of answers lie in the incorrect answers,

whereby the CCC group provided the most (49 percent) and the DCI group provided the

fewest (41 percent). The second-highest category of answer recorded is partially correct

pinyin with incorrect tones. The DCI group and the UC group scored the highest in this

section with 39 percent respectively, while the CCC group scored the lowest with 25

percent. In terms of correct answers, and in answering in general, the groups favoured using pinyin, whereby each group provided 10 percent to 14 percent of correct pinyin answers and only one to six percent of correct characters. The FM group scored the highest percentage of correct characters, and the lowest percentage was provided by the UC group.
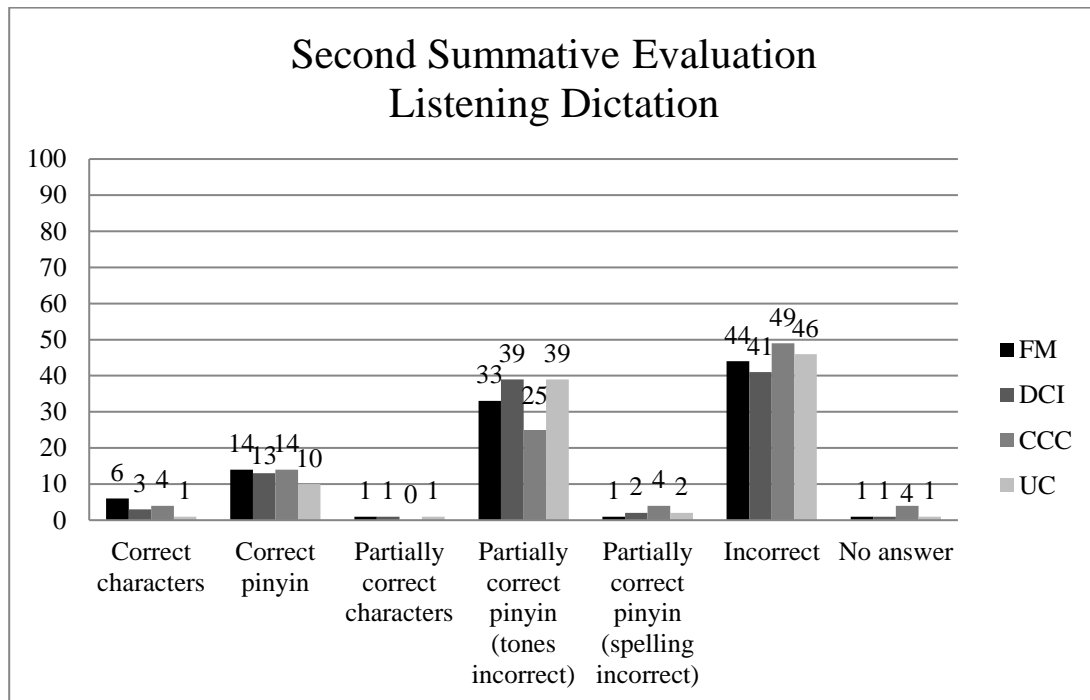
Figure 5.8. Percentages of answer categories for listening dictation in second summative evaluation

Section 4.5.1 in Chapter 4 showed that a participant's learning style was not likely to have influenced their type of answer in the listening dictation section as demonstrated with a chi-square test using SPSS Version 24. It was therefore worthwhile to see if the same result was obtained in relation to the participants' learning outcomes in the summative evaluations.

Table 5.2 shows the results of a chi-square test using SPSS Version 24 to examine the relation between a participant's learning style and the type of answer in the listening dictation sections of the summative evaluations. As in Chapter 4 (section 4.5.1), all participants' answers (correct, partially correct, and incorrect) were categorised into one of three groups: character dominant; pinyin dominant; and half character half pinyin. In Table 5.2, the first output refers to the first summative evaluation, while the second output refers to the second summative evaluation.

Due to the relatively small sample size, the assumption was violated in both cases (10-15 cells with expected count less than five). As a result, Fisher's exact test was consulted to gain an accurate result (Field, 2013; see also Chapter 4, section 4.5.1). As in the case of the formative evaluation results, a relation between the learning style and the response categories in the listening dictation sections of the two summative evaluations is unlikely to exist when the significance threshold was set at .05 (p=.193 in the first summative evaluation, p=.090 in the second summative evaluation, *Fisher's exact test*). Therefore, a particular learning style of an individual may not affect their progression or learning outcomes in a listening dictation test according to the current sample, as demonstrated in both formative and summative evaluations.

Table 5.2. Chi-square output for learning styles of each participant and response categories in listening dictation sections

First Summative Evaluation

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	12.234[a]	8	.141	.136		
Likelihood Ratio	8.113	8	.422	.366		
Fisher's Exact Test	9.235			.193		
Linear-by-Linear Association	.010[b]	1	.921	1.000	.519	.133
N of Valid Cases	83					

a. 10 cells (66.7%) have expected count less than 5. The minimum expected count is .10.

b. The standardized statistic is .099.

Second Summative Evaluation

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	18.162[a]	12	.111	.090		
Likelihood Ratio	16.223	12	.181	.046		
Fisher's Exact Test	14.102			.090		
Linear-by-Linear Association	.277[b]	1	.599	.617	.329	.066
N of Valid Cases	80					

a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .10.

b. The standardized statistic is .526.

5.2.2. Recognition of Chinese characters in the second summative evaluation

As in the first summative evaluation, participants were presented with 10 Chinese words in characters and were asked to provide the corresponding pinyin and English translation (see Appendix P).

The highest percentage displayed in Figure 5.9 is in the blank answers provided by the DCI group (64 percent), while the CCC group also provided mostly blank answers (55.5

245

percent). The highest percentage of incorrect answers was provided by the FM group

with 52.5 percent, while the UC group also demonstrated a high percentage of incorrect

answers (48 percent). Despite some efforts to provide the correct English translation,

this section proved to be very difficult for the participants, with the highest number of

correct pinyin and English answers found in the CCC group at only 3.5 percent.
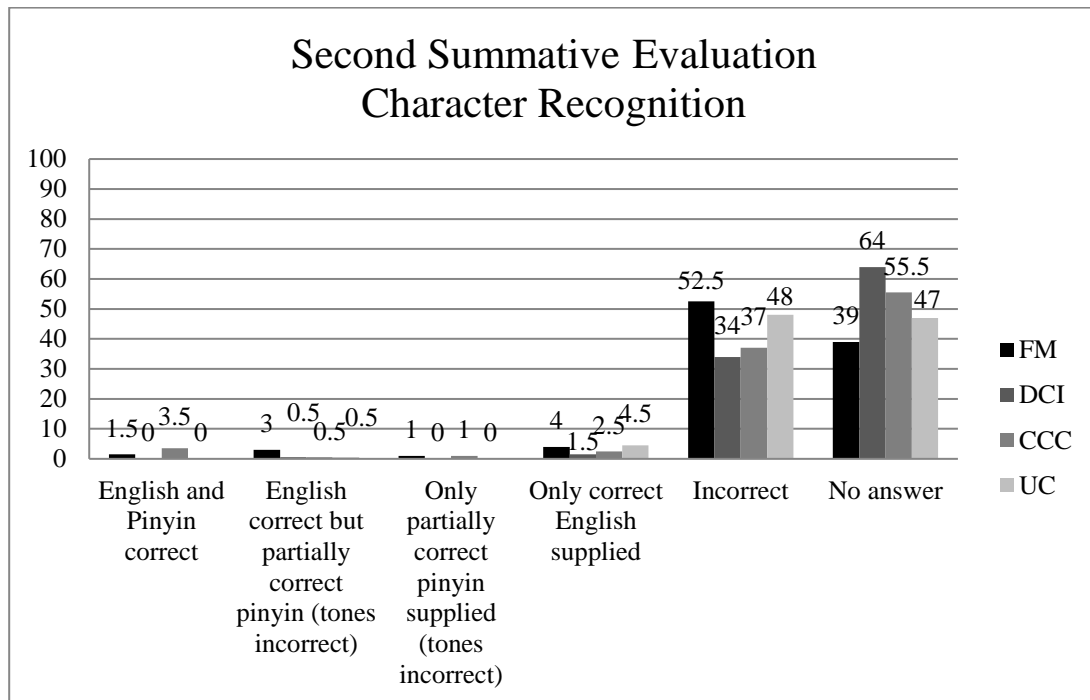
Figure 5.9. Percentages of answer categories for character recognition in second summative evaluation

5.2.3. Recalling Chinese characters in the second summative evaluation

This section included 10 English words that were to be transcribed into Chinese

characters, however the researcher encouraged participants to write pinyin if the

characters could not be remembered (see Appendix P).

The DCI group again scored the highest percentage of blank answers (66 percent), while

the FM group scored the highest percentage of incorrect answers (49 percent) as

demonstrated in Figure 5.10. The CCC and UC groups mostly left questions blank (49

percent respectively). The percentages of the correct and partially correct answers show

an inclination of all groups to answer using pinyin. The FM and CCC groups scored a

higher percentage of correct characters (6.5 percent respectively), while the DCI and UC

groups scored a higher percentage of correct pinyin (four percent and 3.5 percent

respectively). This may suggest that the FM and CCC groups were more comfortable

connecting meaning to shape, while the DCI and UC groups may have relied on the

pinyin to connect meaning to sound.
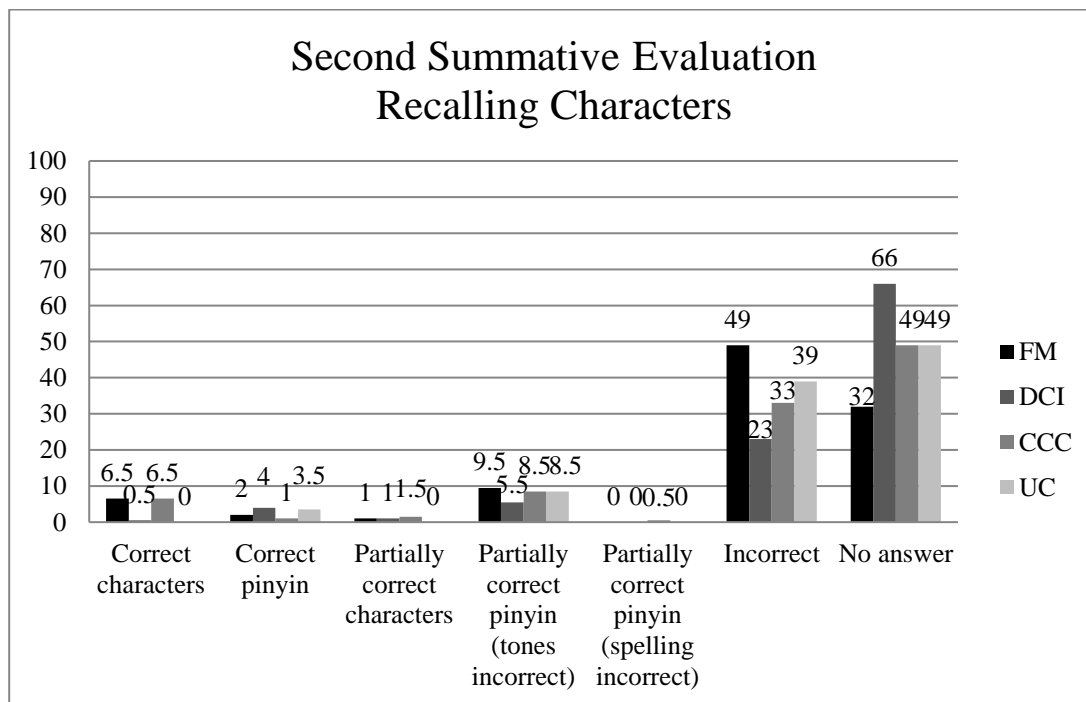
Figure 5.10. Percentages of answer categories for recalling characters in second summative evaluation

It is interesting to note that in comparison with this section in the first summative evaluation whereby the FM group could not provide any correct characters, the group actually scored the highest percentage of correct characters in this evaluation. It is possible, therefore, that the method is more effective in the long-term for this specific activity. In Chapter 4 (see section 4.7), it was found that in the formative evaluations, the FM method demonstrated potential benefits only in the short term for recalling characters. It is therefore interesting to note that when tested on all items learned throughout the year in the second summative evaluation, the FM group was able to recall characters better than other groups, suggesting that this method may have allowed for retention of items learned over one academic year despite seeming only useful for some short-term memorisation in the formative evaluations. The CCC method, on the other hand, displays potential benefits in long-term learning in the formative evaluations as well as the summative evaluations. Chapter 6 addresses these findings in more detail.

5.2.4. Completing sentences with correct characters in the second summative evaluation

In this section, participants were given 10 incomplete Chinese sentences whereby they had to provide the correct characters to make complete sentences (see Appendix P).

As seen in Figure 5.11, the participants appear to have struggled greatly with this section. However, it is evident that more of an effort was made to write correct answers using characters rather than pinyin. The UC group scored the highest in this section with 6.5 percent correct characters, whereas the FM group scored the lowest with only 2.5

percent, which may suggest that although FM appears to be a suitable method for learning characters in isolation, the UC group's method may better equip learners to be able to understand and use characters in Chinese sentences. The FM group also provided the most incorrect answers with 54.5 percent, whereas the DCI group left most sentences unattempted (55 percent). The feedback questionnaire results presented later in this chapter demonstrate that the entire DCI group did not feel confident when presented with the evaluations. As a result, the success of DCI is certainly questioned, and is examined further in Chapter 6.
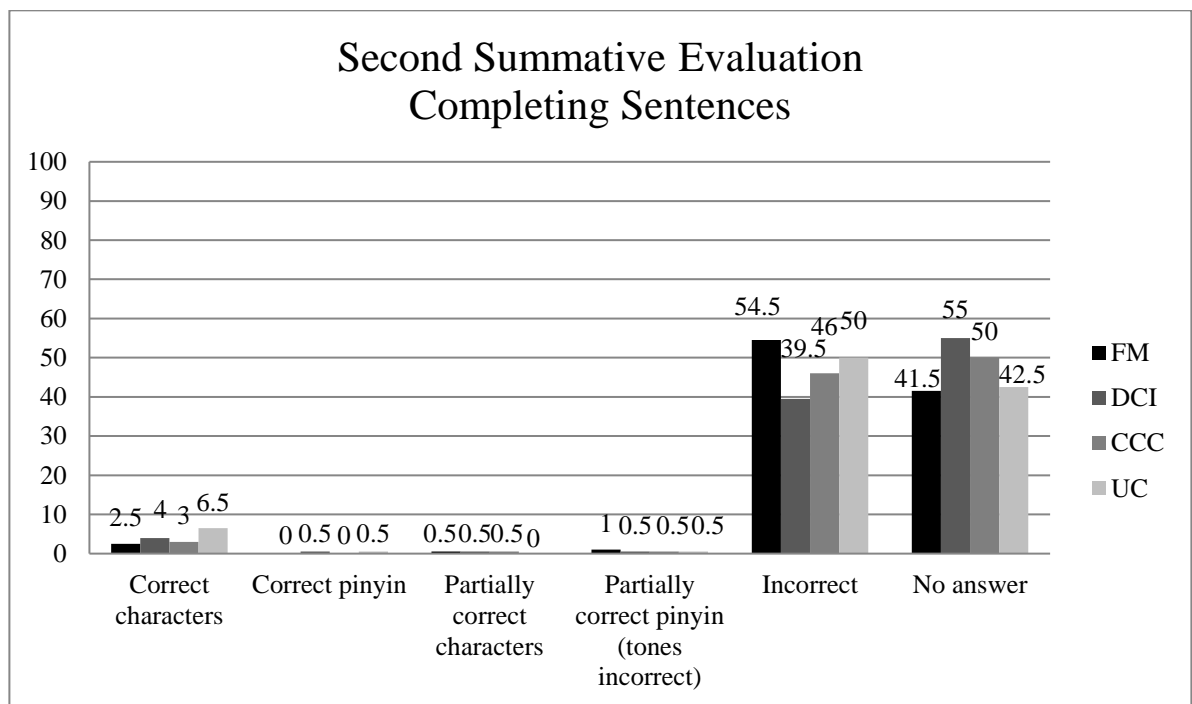
Figure 5.11. Percentages of answer categories for completing sentences with correct characters in second summative evaluation

5.2.5. Reordering sentences in the second summative evaluation

For this section, participants were presented with six sets of three sentences to be reordered as per a conversation (see Appendix P).

The results in Figure 5.12 demonstrate the struggle with this section among all groups, however the UC group scored the highest with 27.5 percent of their answers being correct. The CCC group scored the lowest percentage of correct answers with 21 percent, with all groups scoring between 72.5 percent and 75 percent incorrect answers. The DCI and CCC groups were the only groups to provide blank answers (five percent respectively). These results may again suggest that the UC group, being more accustomed to dealing equally with all aspects of the language, was better able to cope with reordering the sentences, thus scoring the highest in this section.
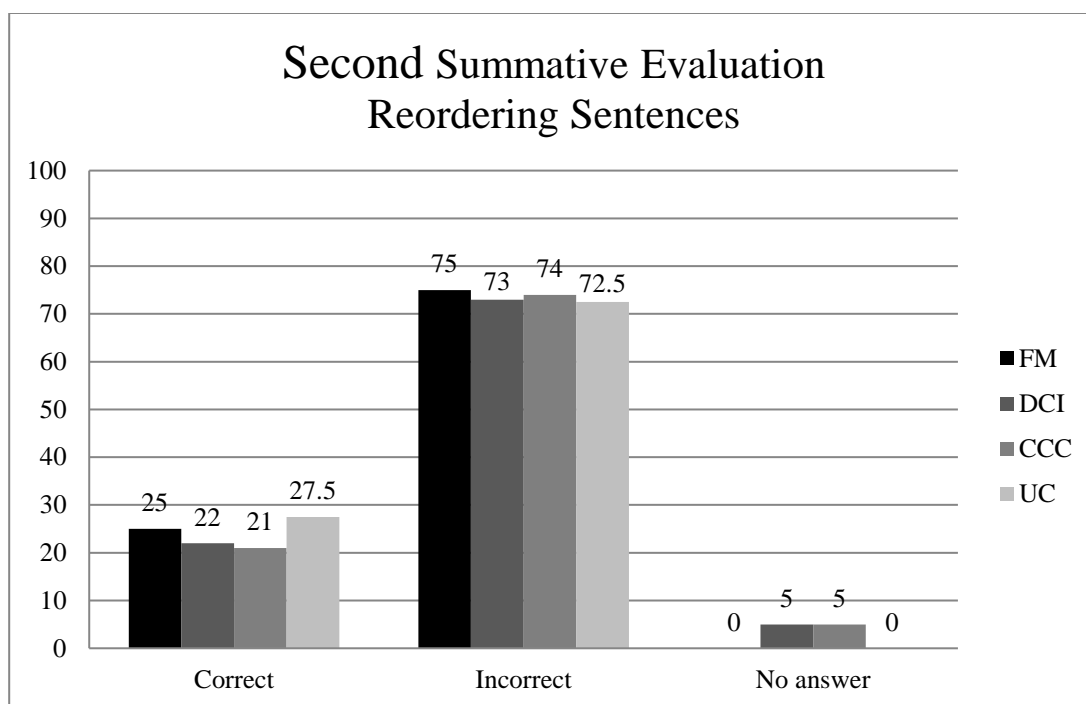
Figure 5.12. Percentages of answer categories for reordering sentences in second summative evaluation

5.2.6. Text production in the second summative evaluation

As in previous evaluations, participants were asked to describe a picture using words or sentences and using characters or pinyin. For the second summative evaluation, the researcher provided the groups with a picture of a busy city, whereby participants had the opportunity to write about any of the topics they had learned, for example people, conversations, activities, jobs, and shopping. Considering the correct and partially correct Chinese words provided in characters and pinyin, the FM group was able to provide 282 Chinese words, the DCI group wrote 151 Chinese words, the CCC group wrote 234 Chinese words, and the UC group supplied 248 Chinese words. The DCI group, although supplying a large number of words, provided less than the three other

groups. This is possibly due to the fact that the highest number of participants (six participants and 30 percent of the group) did not attempt this section of the evaluation in the DCI group. However, the second-highest number of participants (five participants and 25 percent of the group) who did not attempt this section were from the UC group, whereby participants supplied the second-highest number of words. This again leads the researcher to question the effectiveness of DCI for character acquisition. Only one participant (five percent of the FM group) provided only incorrect answers.

Table 5.3. The number and percentage of words in various answer categories for text production in second summative evaluation

	Correct characters	*Correct pinyin*	*Partially correct characters*	*Partially correct pinyin (tones incorrect)*	*Partially correct pinyin (spelling incorrect)*	*All incorrect*	*No attempt*
FM	158 (56%)	18 (6%)	50 (18%)	56 (20%)	0 (0%)	1 (5%)	3 (15%)
DCI	38 (25%)	22 (14%)	7 (5%)	83 (55%)	1 (1%)	0 (0%)	6 (30%)
CCC	113 (48%)	24 (10%)	11 (5%)	85 (36%)	1 (1%)	0 (0%)	3 (15%)
UC	95 (38%)	22 (9%)	21 (8.5%)	109 (44%)	1 (0.5%)	0 (0%)	5 (25%)

Table 5.3 shows that the FM group provided 158 correct words using characters, which equals to more than half of their answers provided (56 percent). The CCC group similarly provided 113 Chinese words written using correct characters (48 percent). The DCI and UC groups as a whole wrote mostly partially correct pinyin with incorrect tones (83 words and 55 percent, and 109 words and 44 percent respectively). This

suggests that the methods of teaching in the FM and CCC groups may have better equipped learners to recall and use characters compared to the DCI and UC groups in this section. What is most worth noting in this section is the FM group's great attempts to write correct characters (158 words and 56 percent), while the DCI group shows a struggle in recalling characters, providing only 38 correct characters and therefore 25 percent of their correct and partially correct answers. In fact, the FM group was able to provide more correct characters (158) alone compared to the total number of words supplied by the DCI group (151). Figure 5.13 displays the results as shown in Table 5.3.

The text production section of all formative and summative evaluations was the only section that allows participants to write as many Chinese words (characters and/or pinyin) as they wished to describe a picture. It is possible, therefore, that the number of participants present for each evaluation may have had an effect on each group's ability to supply a higher number of words in any evaluation. However, the difference in number of participants in each group did not exceed three for any evaluation, and at the same time, these numbers fluctuated for each group. For example, more participants were present in the DCI group for the first summative evaluation (n=21) compared with the FM group (n=20), yet even with this difference of participant numbers the FM group still wrote more correct and partially correct words (104) than the DCI group (92). The same number of participants were present in each group for the second summative evaluation (n=20), however in the second summative evaluation (described in this section), the FM group provided 282 correct or partially correct words compared to 151 in the DCI group. Therefore, it is perhaps unlikely that the number of participants

present for each evaluation has any significant effect on the number of words supplied by each group.

Another potential issue could be that some academically stronger or weaker students may have influenced these results for each group. Prior to conducting the research, however, the researcher was made aware by the school that the participants were not grouped according to academic ability. Furthermore, the researcher was presented with participants' previous State exam results, whereby this mix in academic ability was further evidenced. As a result, each group represented a mix of academic abilities as per a real-life classroom and included students who were considered strong and weak in their academic performance. Still, the study demonstrated that despite this potential issue, three methods consistently stood out in terms of effectively teaching character composition and use in the short and long term (see Chapter 6, section 6.3).
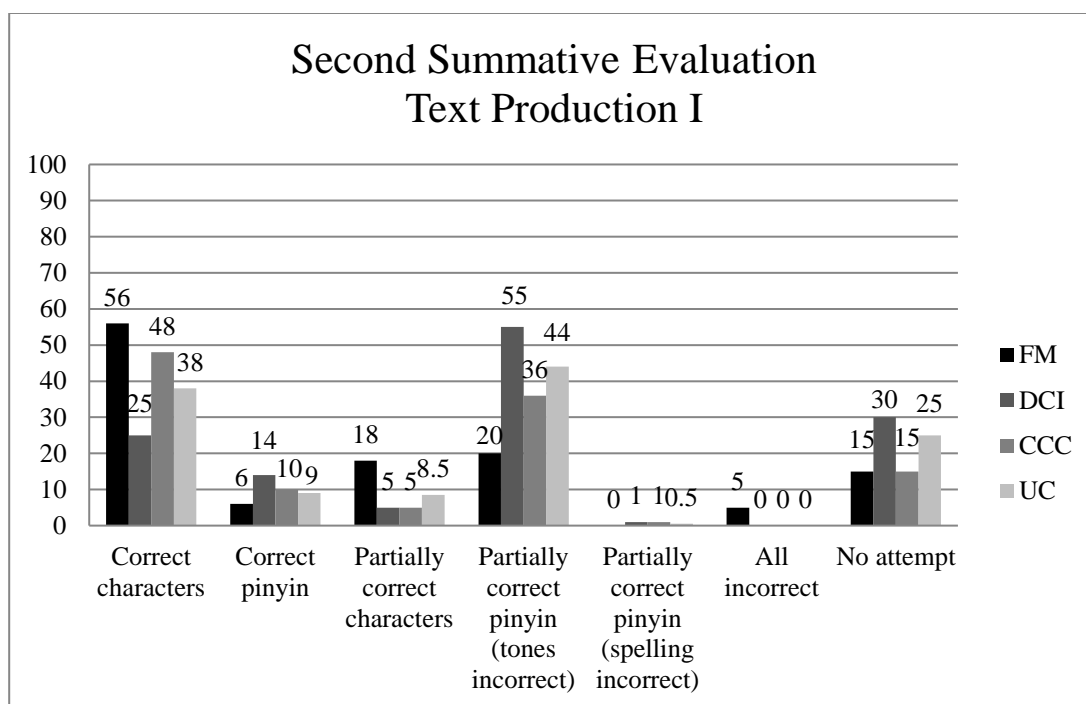
Figure 5.13. Percentages of answer categories for text production in second summative evaluation

A one-way ANOVA test was computed using SPSS Version 24 to assess the effect of a teaching method on the number of words supplied by each group in the text production section of the first and second summative evaluations. Table 5.4 shows the results of the one-way ANOVA, whereby the first output refers to the first summative evaluation and the second output refers to the second summative evaluation. As the significance threshold was set at .05, it is observed that in the significance column of Table 5.4, there does not appear to be a significant relationship between the teaching method of each group and the number of words provided by each group in the text production sections of the first and second summative evaluations ($F(3,80) = .760$, $p=.520$ in the first summative evaluation, and $F(3,76)= 1.083$, $p=.362$ in the second summative evaluation). As a result, it cannot be said for certain that the teaching method of a

particular group influenced the number of words provided in the text production section of either the first or second summative evaluation.

However, this may have occurred due to the nature of many other existing variables in a quasi-experimental study. The feedback questionnaires discussed later in this chapter show that as a majority, participants found learning Chinese characters most difficult, while they were unmotivated and lacking in confidence when presented with the evaluations. Indeed, it is difficult to name one variable as a reason for this outcome in Table 5.4, yet it is still worthwhile to note the participants' feedback (in section 5.5) for other possible influences.

Table 5.4. One-way ANOVA between teaching method and number of words provided in text production section of the first and second summative evaluations

ANOVA

SE1 Text production I

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	73.566	3	24.522	.760	.520
Within Groups	2580.672	80	32.258		
Total	2654.238	83			

SE2 Text production I

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	476.338	3	158.779	1.083	.362
Within Groups	11147.050	76	146.672		
Total	11623.387	79			

As with previous evaluations, the researcher noted the manner in which the participants wrote their answers for the text production section, be it through words only, sentences only, or a combination of words and sentences. Figure 5.14 outlines these observations.

The FM and DCI groups appear to be more comfortable in providing words only (88 percent and 86 percent respectively), whereas the CCC and UC groups show a greater mix of percentages across the board in providing words, sentences, and a mix of words and sentences. It may be said that given these results, the FM and DCI groups' methods may have allowed for better recall of individual words when writing free text in describing a picture, whereas the CCC and UC groups' methods of teaching may have allowed for these participants to be able to form more sentences than the former two groups when creating texts in describing a picture.
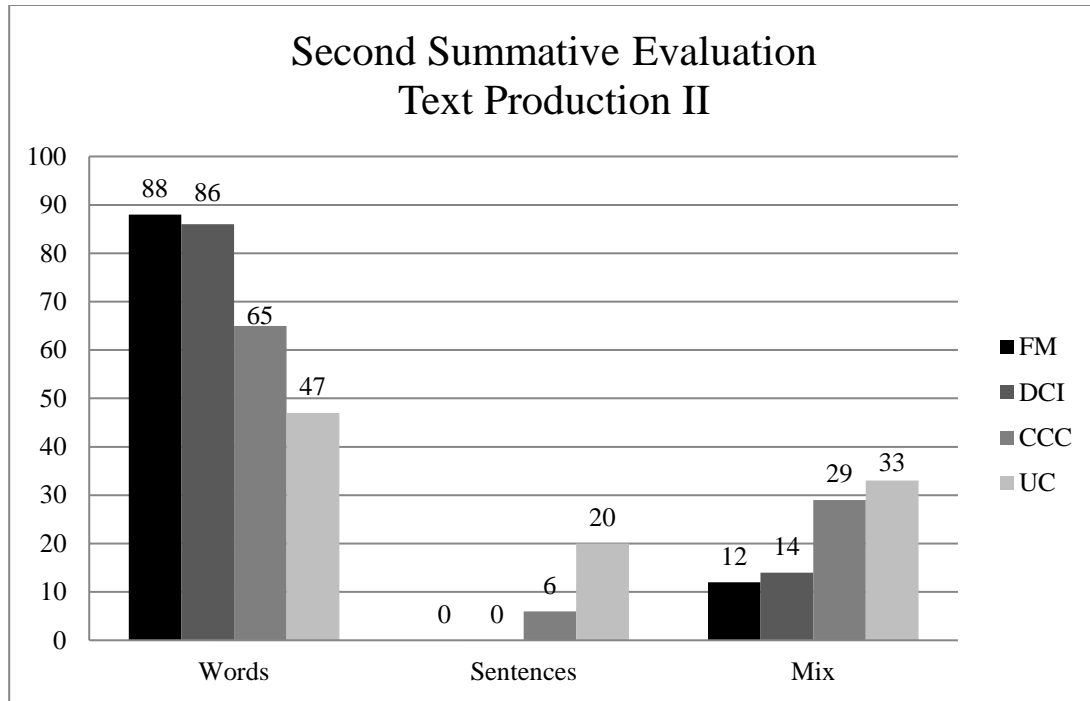
Figure 5.14. Percentages of words only, sentences only, and mix of both for text production in second summative evaluation

5.2.7. Summary of second summative evaluation

Findings from the second summative evaluation show possible benefits to using the FM or CCC methods for learning character composition (see Figures 5.8-5.10 and 5.13). The UC method, on the other hand, is possibly beneficial for learning character use, as demonstrated in Figures 5.11, 5.12, and 5.14. As in the case of the first summative evaluation, the DCI method shows no potential benefits to learning character composition or character use here.

5.3. Short- and long-term effectiveness of teaching methods in summative evaluations

Section 4.7 of Chapter 4 examined the long- and short-term effectiveness of each teaching method in relation to participants' progression over the four formative evaluations. It was therefore worthwhile to investigate the effectiveness of each teaching method on participants' learning outcomes in the short term (first summative evaluation: SE1) and long term (second summative evaluation: SE2), in examining correct characters, correct pinyin, incorrect answers, and blank answers in all summative evaluation sections.

5.3.1. Short- and long-term effectiveness of teaching methods in listening dictation of summative evaluations

Firstly, results from the listening dictation sections in Figure 5.15 show a decrease in incorrect answers among all groups from SE1 to SE2. All groups, bar the CCC group, also decreased their rate of blank answers from SE1 to SE2. As a result, the rate of correct pinyin answers increased among all groups, yet only the FM and CCC groups increased their rates of correct characters from the first to second evaluation.

In examining the short-term results from SE1, the DCI group scored the highest rate of correct characters, while the UC group scored the lowest rate of incorrect characters. Interestingly, the FM and CCC groups scored the highest rate of correct pinyin in the short term, yet participants showed an improvement in providing correct characters in the long term, meaning that these groups were probably becoming less reliant on

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answering using pinyin in the long term. As a result, DCI shows more promise in the short term when writing characters based on their sound, followed closely by FM and CCC, while in the long term, the FM and CCC methods were perhaps more suitable as they were the only groups to increase their percentages of correct characters from the first to second summative evaluations.
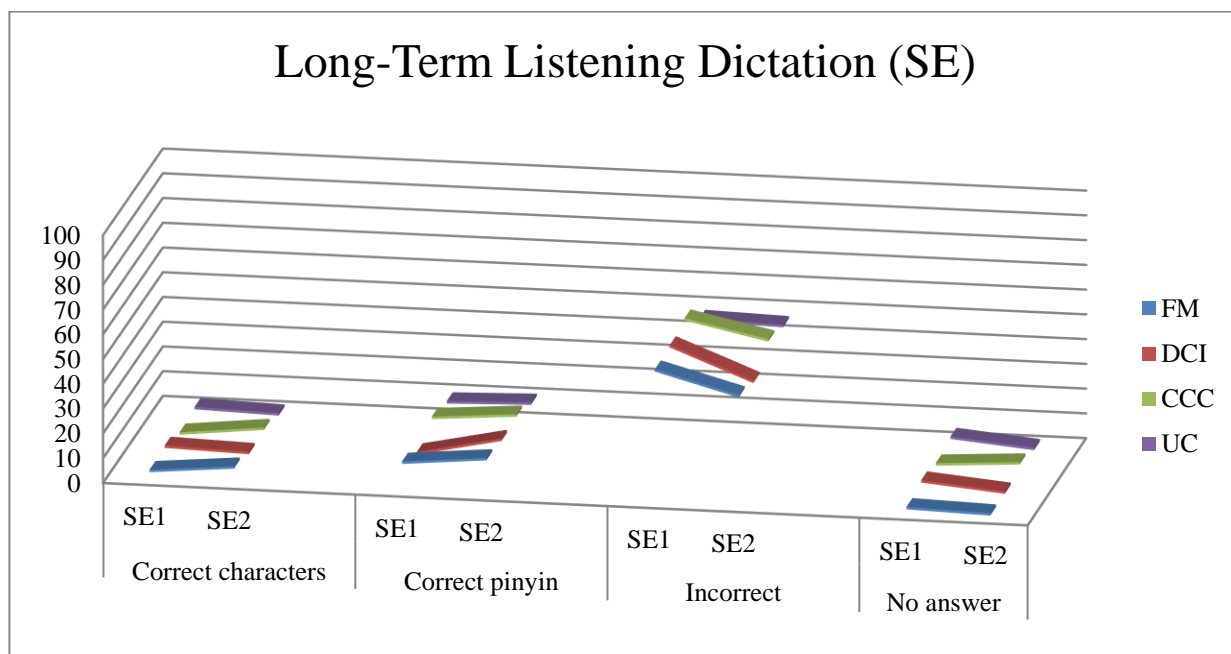
Figure 5.15. Percentages of answer categories for listening dictation in two summative evaluations

5.3.2. Short- and long-term effectiveness of teaching methods in character recognition of summative evaluations

Results from the character recognition section in Figure 5.16 show that all groups, bar the DCI group, decreased their rate of incorrect answers from SE1 to SE2. The UC group show a greater decrease than all other groups, yet the group also present a steep

increase in blank answers. In fact, only the FM group decreased their rate of blank answers, and this group was also the only group to increase their rate of correct answers in the long term. However, the CCC group maintained the highest rate of correct characters among both evaluations despite decreasing their percentage.

Therefore, CCC appears to be more effective in the short term when identifying the correct pinyin and meaning of a character, while both the FM and CCC methods seem to be more effective in the long term of the current study.
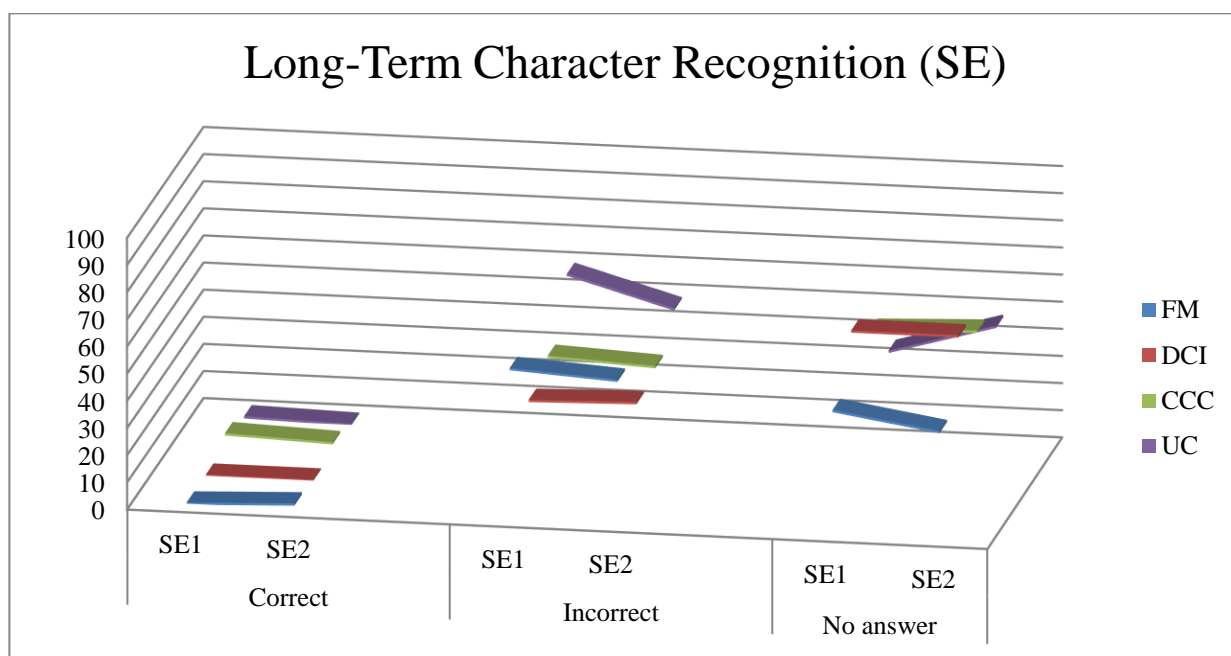
Figure 5.16. Percentages of answer categories for character recognition in two summative evaluations

5.3.3. Short- and long-term effectiveness of teaching methods in recalling characters of summative evaluations

In providing correct characters when presented with the English meanings, the FM and CCC groups again display an increase in correctness in Figure 5.17. The FM group was also the only one to decrease the rate of blank answers at the same time as decreasing incorrect answers. All other groups show a decrease in incorrect answers yet an increase in blank answers. Interestingly and perhaps not surprisingly, the DCI group, with a focus on pinyin in the initial stages of learning, and the UC group, without a specific focus on character-learning methods, provided an increase in correct pinyin.

In the short term, the CCC and UC groups scored highest among all other groups in terms of correct characters. As a result, it seems that the CCC and UC methods were more effective in the short term, while the FM and CCC methods appear to be more effective in the long term.

Long-Term Recalling Characters (SE)
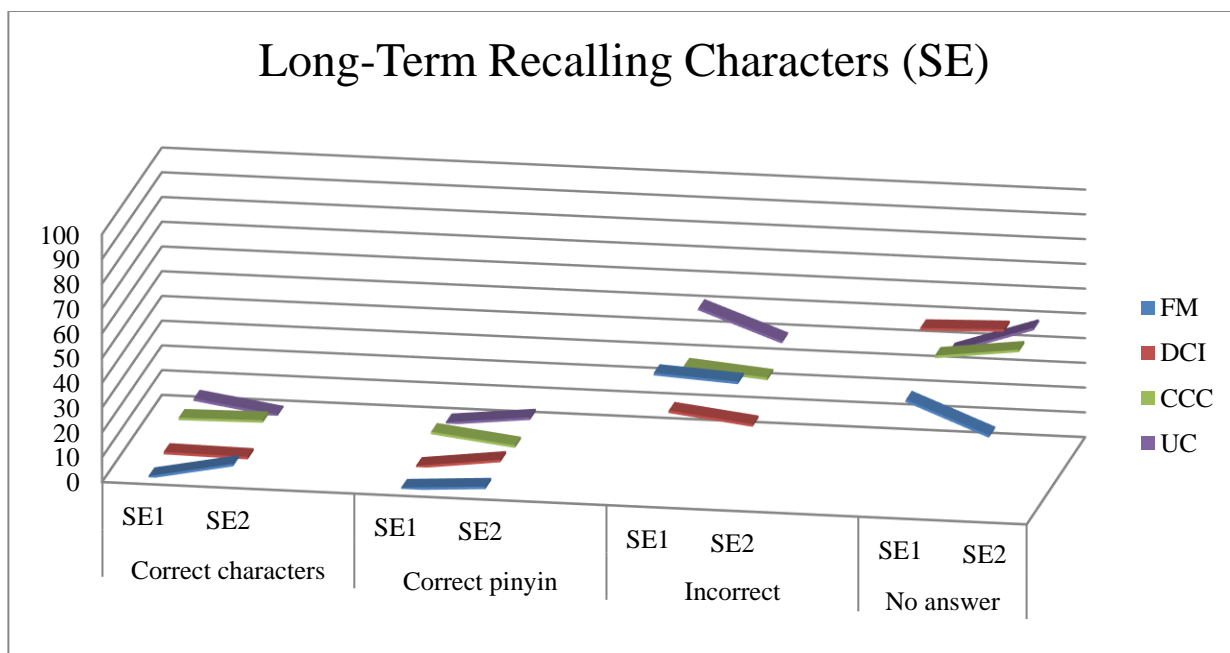
Figure 5.17. Percentages of answer categories for recalling characters in two summative evaluations

5.3.4. Short- and long-term effectiveness of teaching methods in completing sentences of summative evaluations

When asked to fill in the blanks of a Chinese sentence using characters, all groups show a clear increase in incorrect answers, while their blank answers decreased (see Figure 5.18). This suggests that participants were perhaps more willing to try and fill in the blanks correctly in the long term. This time, the DCI and UC groups increased their rate of correct characters and were also the only groups to provide any pinyin in the second summative evaluation. In the short term, the CCC and UC groups scored a higher rate of correct characters, followed closely by the FM group.

From these results, it is suggested that the CCC and UC methods were more suitable in the short term, while the DCI and UC methods were possibly more suitable for developing long-term skills in completing Chinese sentences using the correct characters.
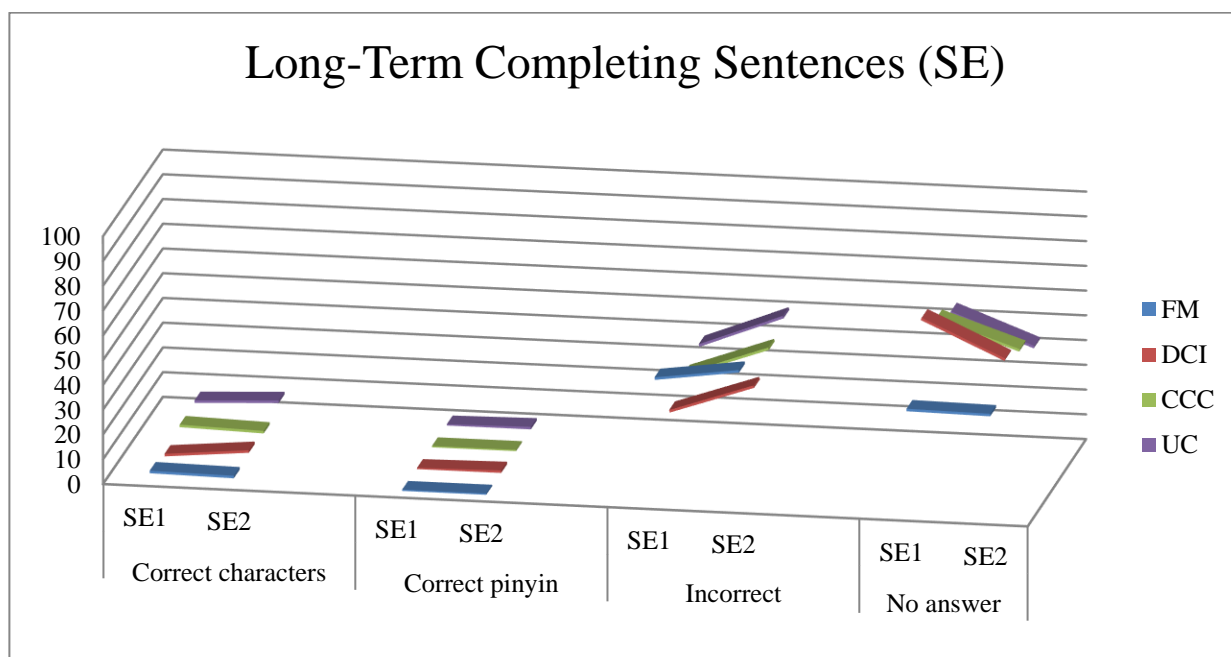
Figure 5.18. Percentages of answer categories for completing sentences in two summative evaluations

5.3.5. Short- and long-term effectiveness of teaching methods in reordering sentences of summative evaluations

In reordering sentences as per a Chinese conversation, it can be seen in Figure 5.19 how all groups' rates of incorrect answers again show an increase, while almost all groups show a decrease in blank answers. The FM group was the only group to maintain a rate of zero percent of blank answers across both evaluations, meaning that participants were

able to attempt all questions. In terms of correctness over the two summative evaluations, the UC group was the only group to show a slight increase in correct answers. In the short term, it was the FM group that provided the highest rate of correct answers.
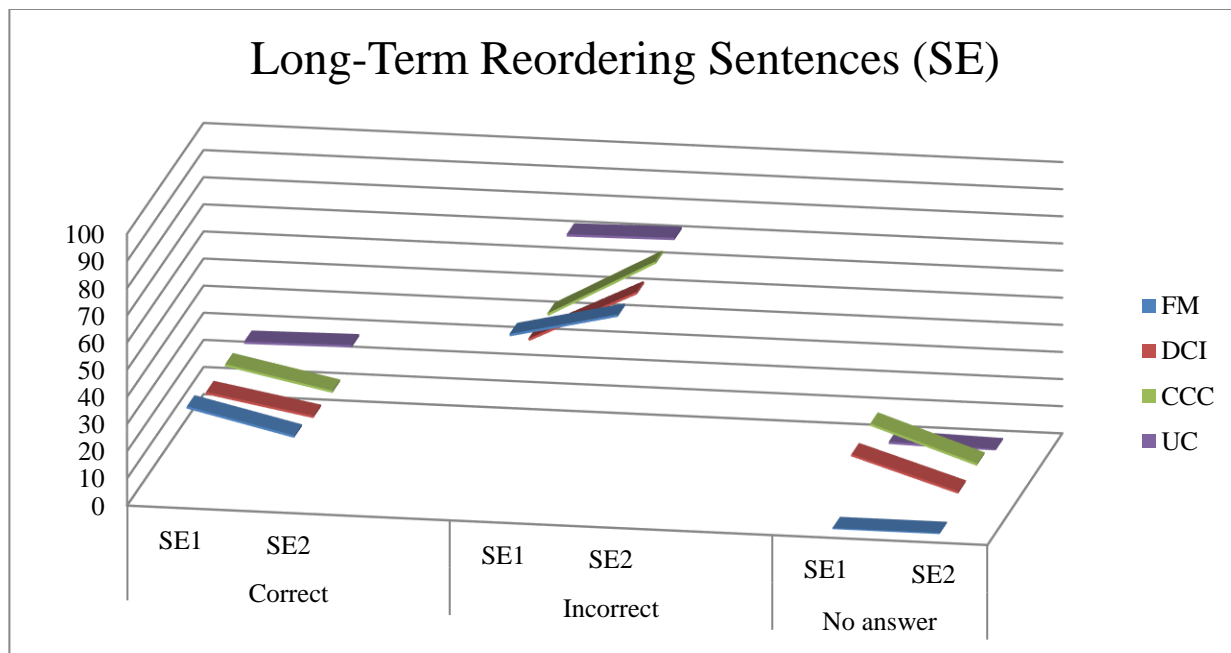
Figure 5.19. Percentages of answer categories for reordering sentences in two summative evaluations

5.3.6. Short- and long-term effectiveness of teaching methods in text production of summative evaluations

Figure 5.20 displays the number of words supplied by each group in the text production section. It shows that in the long term, the FM group provided the most words, whereas in the short term, the UC group provided the most words. While all groups demonstrate

a great increase in the number of words provided from the first to second summative evaluations, it is the DCI group who provided the lowest increase of words.
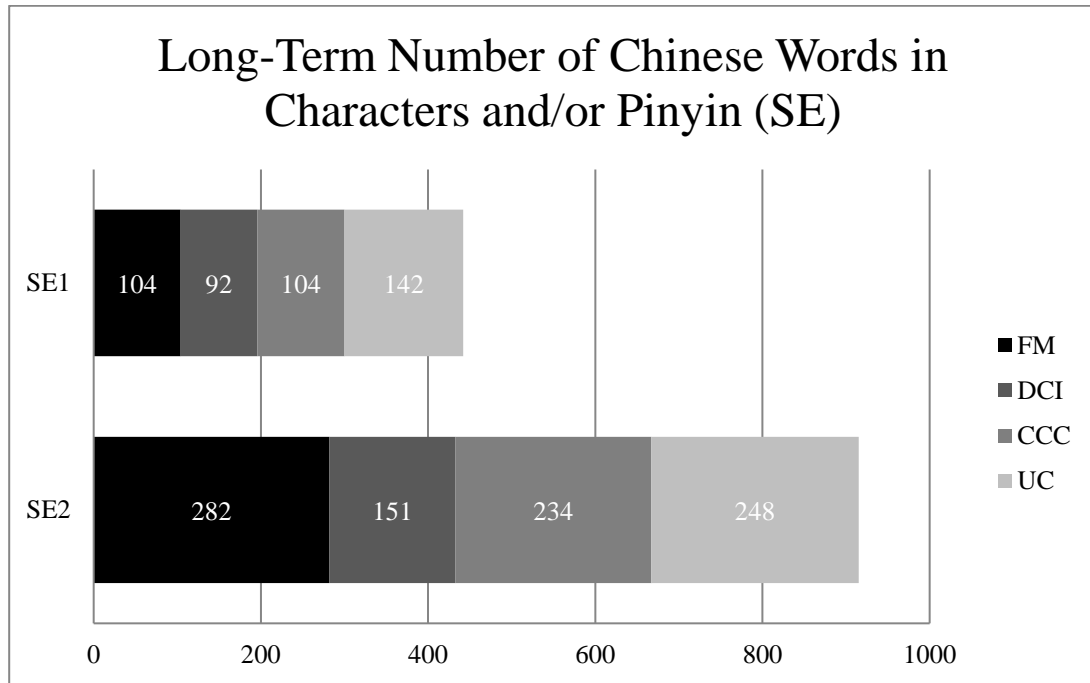
Figure 5.20. Correct and partially correct characters and pinyin provided by each group in two summative evaluations (in numbers)

In examining the way in which the participants provided their correct and partially correct answers, Figure 5.21 shows that all groups, bar the DCI group, provided an increase in correct characters. Similarly, all groups, bar the DCI group, also managed to decrease their correct pinyin answers, demonstrating that the participants were perhaps becoming less reliant on pinyin to describe a picture in the long term. All groups managed to either maintain a low percentage of all incorrect answers (FM, DCI), or decrease the rate of only incorrect answers (CCC, UC). All groups, bar the UC group, also managed to lower their rate of blank answers for this section.

In the long term, findings suggest that the methods of FM and CCC were more suitable in providing correct characters when describing a picture, while in the short term, the FM group again shows most suitability in the current research.
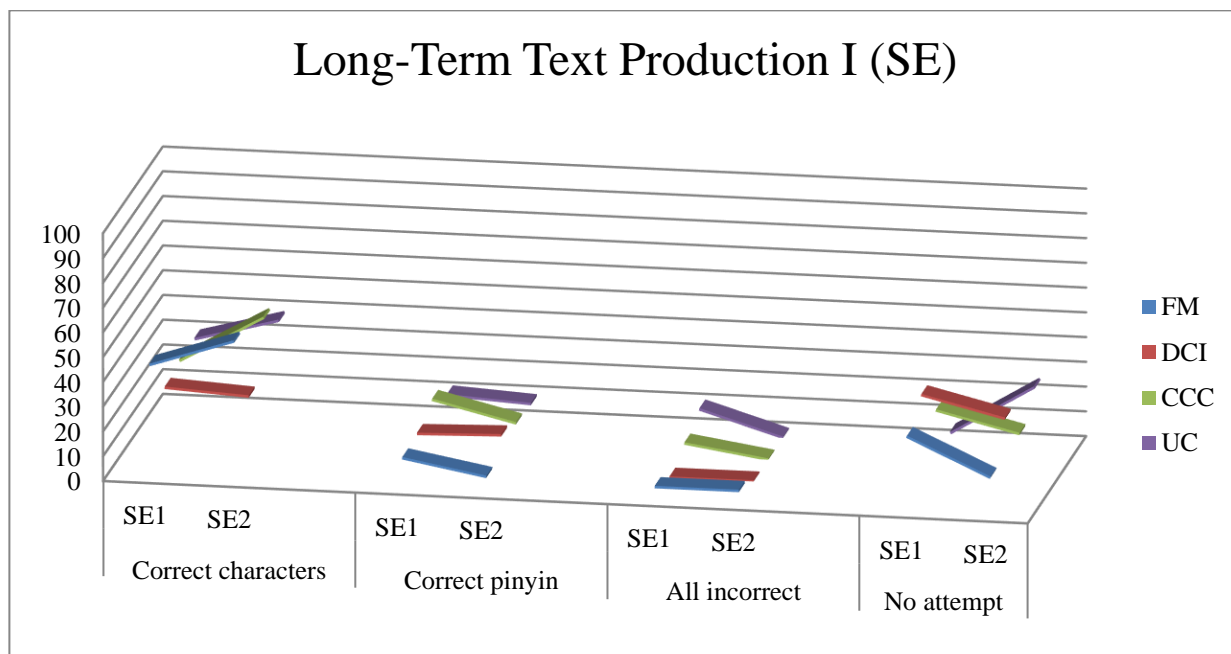
Figure 5.21. Percentages of answer categories for text production I in two summative evaluations

Finally, in examining the way in which the groups provided their answers, Figure 5.22 shows an overall increase in words only, while the rate of sentences only decreased. The UC group was also the only group to increase its use of both words and sentences to describe a picture.

For this section, it is possible that the UC method was more effective both in the long term and the short term, as participants in the UC group coped relatively better than participants in all other groups when describing a picture using sentences.
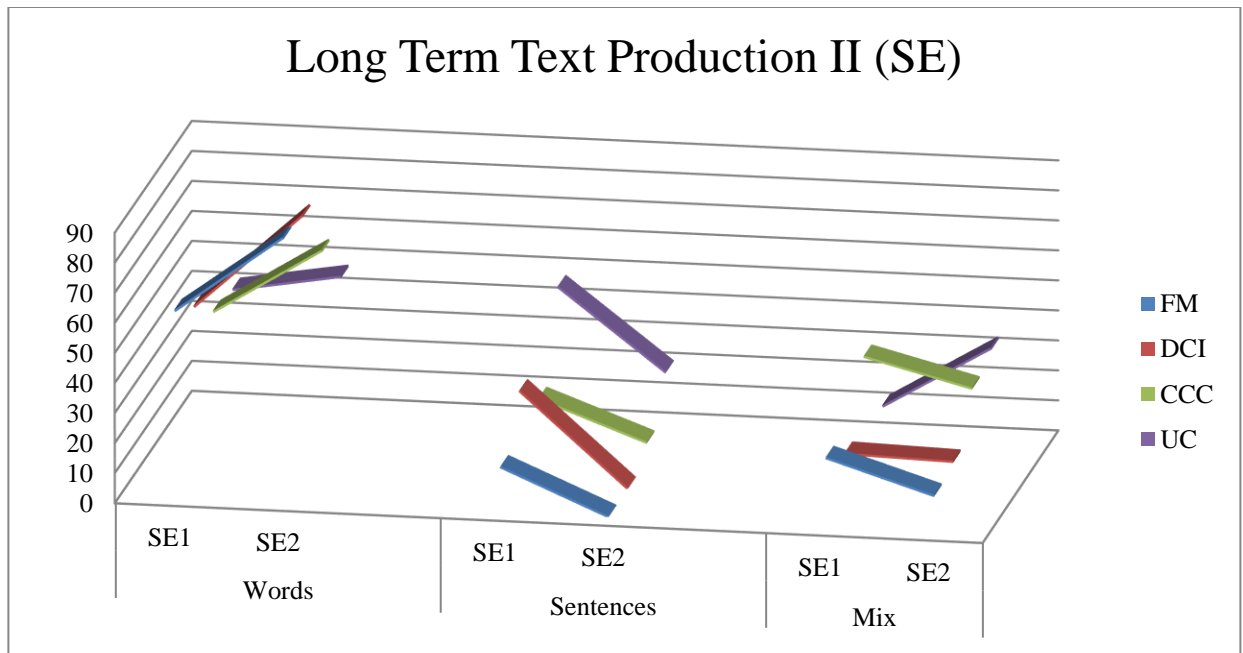
Figure 5.22. Percentages of answer categories for text production II in two summative evaluations

The long- and short-term benefits of each method in the summative evaluations are summarised in Table 5.5. For the short term, rates of correct answers in the first summative evaluation are examined, while in the long term, increases in and higher rates of correctness in the second summative evaluation are considered. In Table 5.5, 'n/a' is used when no significant benefits are observed.

Table 5.5. Long- and short-term benefits of each method across two summative evaluations.

	FM	DCI	CCC	UC
Listening dictation	Long	Short	Long	n/a
Character recognition	Long	n/a	Short and long	n/a
Recalling characters	Long	n/a	Short and long	Short
Completing sentences	n/a	Long	Short	Short and long
Reordering sentences	Long	n/a	n/a	Short and long
No. of correct/partially correct words supplied in text production	Long	n/a	n/a	Short
Text production I	Short and long	n/a	Long	n/a
Text production II	n/a	n/a	n/a	Short and long

From Table 5.5, it is seen that the FM, CCC, and UC groups feature more heavily than

the DCI group in terms of benefits in various sections. For example, the FM group has

more instances of long-term benefits than others, the UC group has more instances of

short-term benefits, and the CCC group shows more of a split between long- and short-

term benefits. Chapter 6 explores these findings further in answering the research

questions of the current study.

5.4. Analysis of learning outcomes

In order to examine any statistically significant relationships among the biographical data collected and participants' overall learning outcomes, further tests were conducted using SPSS Version 24.

Firstly, as the two summative evaluations tested participants learning outcomes in the short term (first summative evaluation) and the long term (second summative evaluation), it was useful to examine the effect that a particular teaching method may have had on participants' overall results for the summative evaluations. To examine this, the researcher first graded each paper. A copy of the marking scheme can be viewed in Table 5.6.

Table 5.6. Marking scheme for summative evaluations

Type of answer	*Score*
Fully correct	2
Partially correct (character/pinyin/English when asked for character/pinyin/English)	1
Correct pinyin (when asked for character)	1
Partially correct pinyin (tones/spelling) when asked for character	.5
Incorrect	0
No answer	0

A one-way ANOVA test was conducted using SPSS Version 24 in order to examine any effect that a particular teaching method may have had on participants' learning

outcomes. The results from Table 5.7 show that a statistically significant relationship is not likely to exist between the teaching method experienced by participants and their learning outcomes over the two summative evaluations, when the significance threshold was set at .05 ($F(3,79)=1.346$, $p=.265$ in the first summative evaluation, and $F(3,76)=.452$, $p=.655$ in the second summative evaluation). As a result, the relatively poor scores achieved by participants may not be linked exclusively to their given teaching method. As is the nature of a quasi-experimental study, a host of variables may have contributed to these poor results. At the same time, this finding also hints that each teaching method may be useful for different aspects of each evaluation, and therefore different aspects of learning Chinese characters. With the feedback questionnaire, as demonstrated in section 5.5, the researcher asked questions covering aspects relating to personal opinions of learning Chinese, motivation, changes that could be made to the CFL course, and a section was also provided for further comments in an attempt to decipher why the participants scored poorly in the summative evaluations.

Table 5.7. One-way ANOVA between teaching method and learning outcomes of participants for both summative evaluations.

ANOVA

Summative score SE1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	184.749	3	61.583	1.346	.265
Within Groups	3613.878	79	45.745		
Total	3798.627	82			

Summative score SE2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	110.238	3	36.746	.542	.655
Within Groups	5150.150	76	67.765		
Total	5260.388	79			

Secondly, as Chinese is a logographic language, it may have been the case that visual learners could have performed better in learning the language. Similarly, a person who prefers to write when learning may have outperformed others, as previous research states the importance of writing to facilitate learning Chinese characters (e.g. Tan et al., 2005).

A one-way ANOVA test was thus carried out using SPSS Version 24 in order to explore any effect the learning styles of participants may have had on their learning outcomes in both summative evaluations, the results of which can be seen in Table 5.8 ($F(4,78)=1.054$, $p=.385$ in the first summative evaluation, and $F(4,75)=.945$, $p=.443$ in the second summative evaluation). As the significance is greater than the significance threshold of .05, it is suggested that the learning style of the participants did not have an

effect on their learning outcomes in the summative evaluations of the current study. In

addition, better or worse outcomes of a certain group may not be linked to the learning

style, thus other variables should be considered.

Table 5.8. One-way ANOVA between learning style and learning outcomes of
participants for both summative evaluations.

ANOVA

Summative score SE1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	194.830	4	48.708	1.054	.385
Within Groups	3603.796	78	46.203		
Total	3798.627	82			

Summative score SE2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	252.436	4	63.109	.945	.443
Within Groups	5007.952	75	66.773		
Total	5260.388	79			

Finally, it is investigated whether or not the learning outcomes of participants were

influenced by participants not studying another foreign language. For this, another one-

way ANOVA test was conducted using the learning outcomes of participants as

described previously.

The results from Table 5.9 again show no statistical significance between not studying a

foreign language and participants' learning outcomes for both summative evaluations

when the significance threshold was set at .05 ($F(1, 81)=.411$, $p=.523$ in the first

summative evaluation, and $F(1, 78)=.148$, $p=.702$ in the second summative evaluation).

Pending further evidence, this finding may be useful for future curriculum planning. In secondary schools in Ireland, students generally study at least one foreign language from their first year; however, this is not mandatory in all schools. Problems may arise when students who had not been previously studying a foreign language in the junior cycle are suddenly limited with third-level education options that require a certain grade in a foreign language. Therefore, once the Chinese course has been introduced to the senior cycle of secondary schools, students will have the opportunity to study a language for the Leaving Certificate, thus broadening their third-level options. As the proposed Leaving Certificate course will start at the beginner level in the fifth year of schooling, it would be particularly useful to know if a student's lack of learning a foreign language previously could influence their learning outcomes in a CFL course.

Table 5.9. One-way ANOVA between studying another foreign language and learning outcomes of participants for both summative evaluations.

ANOVA

Summative score SE1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19.198	1	19.198	.411	.523
Within Groups	3779.429	81	46.660		
Total	3798.627	82			

Summative score SE2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.953	1	9.953	.148	.702
Within Groups	5250.434	78	67.313		
Total	5260.388	79			

5.5. The feedback questionnaire

The feedback questionnaire was distributed after all participant groups had completed

the final summative evaluation and therefore once the CFL course had concluded. The

purpose of this questionnaire was to collect feedback from the groups about their

personal opinions of learning Chinese. This feedback was then used to conduct further

analyses with participants' results from the evaluations, sharing insights into possible

reasons for certain results, as addressed in the following sections. The researcher used

mainly open-ended questions in order to allow participants the freedom to write specific

answers. At the same time, the participants sometimes gave more than one answer for

each question. For example, in one instance, a participant indicated that the easiest

aspect of learning Chinese was 1) learning the pinyin and 2) translating sentences.

Therefore, the percentages indicated on the graphs for the open-ended questions in the

following sections relate to the percentage of answers collectively supplied by each

group, and not the percentage of participants per group (e.g. Figures 5.24 and 5.25).

The following sections indicate clearly what the percentages relate to, while it should

also be noted that these percentages have been rounded up to the nearest whole number

(unless indicated by '.5') and therefore are approximate percentages. Each question is

highlighted individually, and further discussions of the data are conducted in Chapter 6,

whereby the feedback questionnaires may shed some light onto future considerations for

the compilation of a new CFL programme. A copy of the feedback questionnaire may be

viewed in Appendix Q, whereby a summary of the key points received from participants

in this questionnaire may be viewed in the relevant tables of Appendix R and throughout the following sections.

Due to some participants conducting a foreign exchange programme with the school during the last few weeks of the school year, it was not possible for all participants to complete the final questionnaire. Additionally, those participants who withdrew from the study did not complete the questionnaire. Altogether, 14 participants conducted this foreign exchange meaning that 19 participants from both the FM and DCI groups respectively answered the questionnaire, 20 participants from the CCC group completed the questionnaire, and 18 participants from the UC group completed the questionnaire.

5.5.1. Enjoyment of learning Chinese

Participants were first asked to indicate if they enjoyed learning Chinese by circling 'yes' or 'no'.

As can be seen from Figure 5.23, the group that enjoyed learning Chinese the most was the CCC group (40 percent), whereas the group that enjoyed learning Chinese the least was the FM group (82 percent). On a whole, each group's most dominant answer was 'no', meaning that none of the groups had a majority of participants who enjoyed learning Chinese.
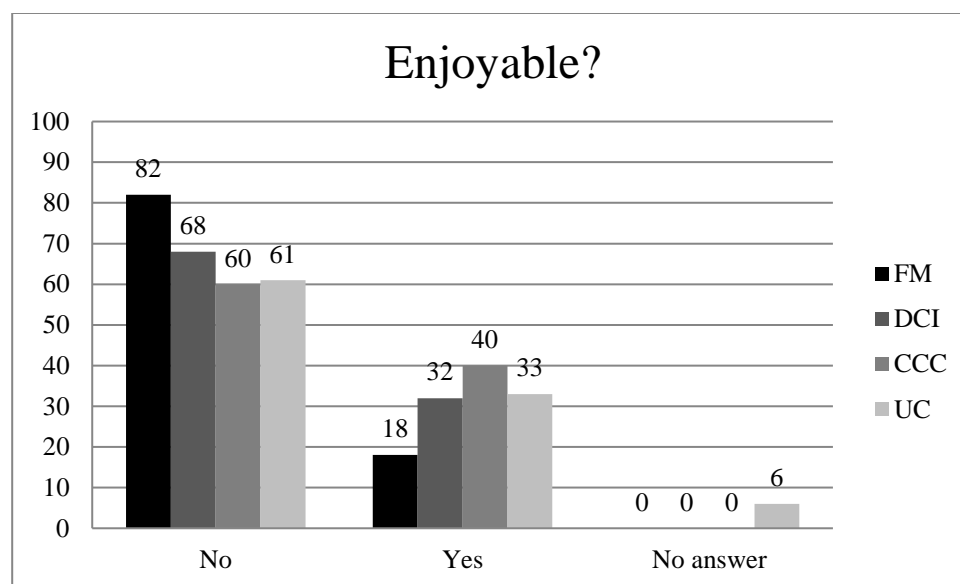
Figure 5.23. Participants' answers when asked if they found learning Chinese enjoyable (in percentages)

Figures 5.24 and 5.25 highlight the reasons given for each group's enjoyment and non-enjoyment of learning Chinese. It should be noted that due to the volume and similarity of certain answers (e.g. describing having no interest in learning Chinese and being bored when learning Chinese), for this question and all other open-ended questions, the researcher has condensed the answers into various categories. As a result, it is not possible to see the relative dominance of some answers in a particular category in the given figures. Therefore, for all open-ended questions, key points of the answers provided by participants may be viewed in the relevant tables of Appendix R while they are also referred to throughout the following sections.

As can be seen from Figure 5.24, three main reasons are given amongst all participants who state that they enjoyed learning CFL. The highest percentage of answers in all groups is related to the enjoyment of broadening horizons (e.g. "new language",

"something different"), with 57 percent of answers in the FM group, 71 percent in the DCI group, 78 percent in the CCC group, and 50 percent in the UC group mentioning this (see Table R.1 in Appendix R). It can be seen that 43 percent of answers in the FM group, 14.5 percent in the DCI group, 22 percent in the CCC group, and 12.5 percent in the UC group also mention that learning Chinese was enjoyable because it sparked participants' curiosity ("interesting"). Finally, 14.5 percent and 37.5 percent of answers in the DCI and UC groups state that learning CFL was "fun".
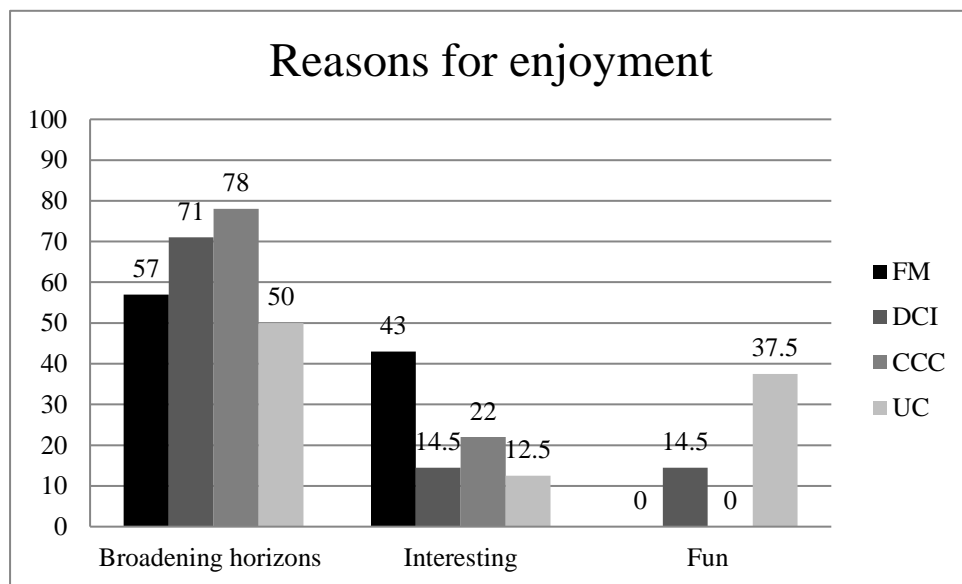
Figure 5.24. Reasons for finding Chinese enjoyable (in percentages)

As more participants answered that they did not enjoy learning CFL, naturally there were more reasons given as to why they answered 'no' to the first question. The DCI and CCC groups' highest percentages showed that participants found learning Chinese to be difficult (44 percent and 50 percent of answers respectively), with 29 percent of answers in the FM group and 38 percent in the UC group also highlighting this. On the

other hand, the FM and UC group answers demonstrate the highest percentages stating that learning Chinese was uninteresting (e.g. "boring", "no interest", "no use for it") for the participants in these groups (39 percent and 38 percent of answers respectively), while 25 percent of the DCI group's answers and 20 percent of the CCC group's answers also state this lack of interest. Approximately 25 percent of answers in the FM group, six percent in the DCI group, 20 percent in the CCC group, and 24 percent in the UC group highlight the structure of the class being unenjoyable, while seven percent of the FM group's answers, 25 percent of the DCI group's answers, and 10 percent of the CCC group's answers show that issues within the class affected their enjoyment of the course (see Table R.2 in Appendix R). These issues relate to items such as the behaviour of the class, the nature of the year of study being less demanding, absences, and participants' belief that they were not good at languages in general. In this way, the issues within the class were not particularly relevant to the CFL class content and structure specifically (see further discussion in section 5.5.15). Nevertheless, it is worth noting that the researcher dealt with these issues professionally, and always ensured the wellbeing of participants as advocated in the Plain Language Statement.
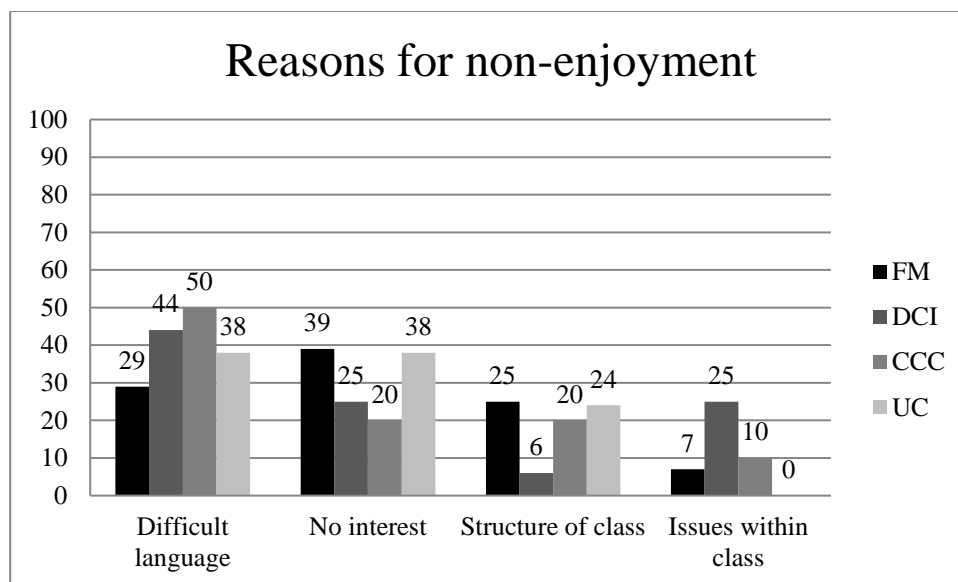
Figure 5.25. Reasons for not finding Chinese enjoyable (in percentages)

5.5.2. Challenges of learning Chinese

The participants were asked if they found learning Chinese to be challenging by circling 'yes' or 'no'.

As can be seen clearly from the Figure 5.26, all groups had an overwhelming 'yes' response when asked this question. The DCI group answers were the highest with 100 percent of participants stating that they found Chinese to be challenging, while 91 percent of the FM group, 95 percent of the CCC group, and 94 percent of the UC group also answered 'yes' to this question. A small percentage in the FM group (4.5 percent), CCC group (five percent), and UC group (six percent) answered 'no' in this section, and only 4.5 percent in the FM group stated that some parts were challenging, and others were not.
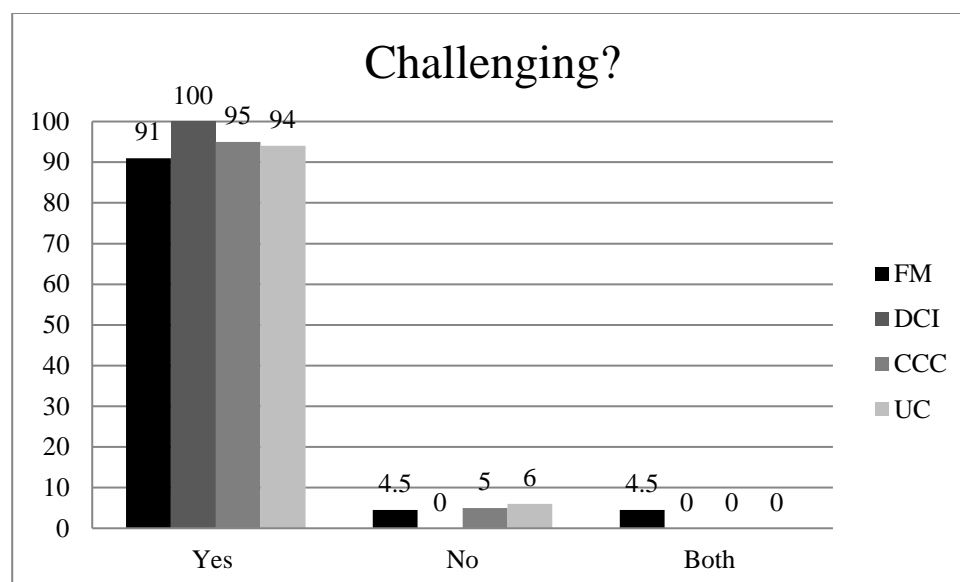
Figure 5.26. Participants' answers when asked if they found learning Chinese challenging (in percentages)

One participant from the FM, CCC, and UC groups respectively answered 'no' for this question. A one-way ANOVA test was therefore conducted to ascertain whether participants' overall results from each summative evaluation were affected by their belief that Chinese was or was not difficult ($F(1, 81)=14.495$, $p=.000$ in the first summative evaluation, and $F(2, 77)=4.335$, $p=.016$ in the second summative evaluation). Taking the significance value at .05, Table 5.10 shows a statistical significance between all participants' thoughts on whether learning Chinese was difficult or not and their generally poor results obtained in both summative evaluations (see sections 5.1 and 5.2). As a result, it is possible that in relation to the current study, participants' thoughts on whether or not Chinese was challenging had an effect on their learning outcomes in the summative evaluations. Given the relatively poor evaluation results throughout the study, this further supports previous literature stating the difficulty in learning CFL (e.g. Hoenig, 2009; Shen, 2010; Xing, 2006).

Table 5.10. One-way ANOVA between whether or not participants found learning Chinese to be difficult and learning outcomes of participants for both summative evaluations.

ANOVA

Summative score SE1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	576.572	1	576.572	14.495	.000
Within Groups	3222.054	81	39.778		
Total	3798.627	82			

Summative score SE2

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	532.348	2	266.174	4.335	.016
Within Groups	4728.039	77	61.403		
Total	5260.388	79			

Figure 5.27 shows that one of the main reasons in the FM, DCI, CCC, and UC groups

for finding learning Chinese to be challenging was related to the difficulty of the

language (e.g. "difficult", "complicated", "confusing") (75 percent, 70 percent, 55

percent, and 63 percent of answers respectively). The structure of the class was also

described as being challenging in 16 percent of the FM group answers, five percent of

the DCI group answers, 32 percent of the CCC group answers, and 16 percent of the UC

group answers (see further discussion in section 5.5.15). Again, issues within the class

as previously discussed in section 5.5.1 appear in three percent of FM group answers, 10

percent of DCI group answers, four percent of CCC group answers, and 16 percent of

UC group answers. Some three percent of FM group answers, 15 percent of DCI group

answers, and five percent of UC group answers highlight that not studying made

learning Chinese challenging, while three percent of the FM group could not

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communicate a reason. Nine percent of the CCC group did not wish to comment (see

Table R.3 in Appendix R).
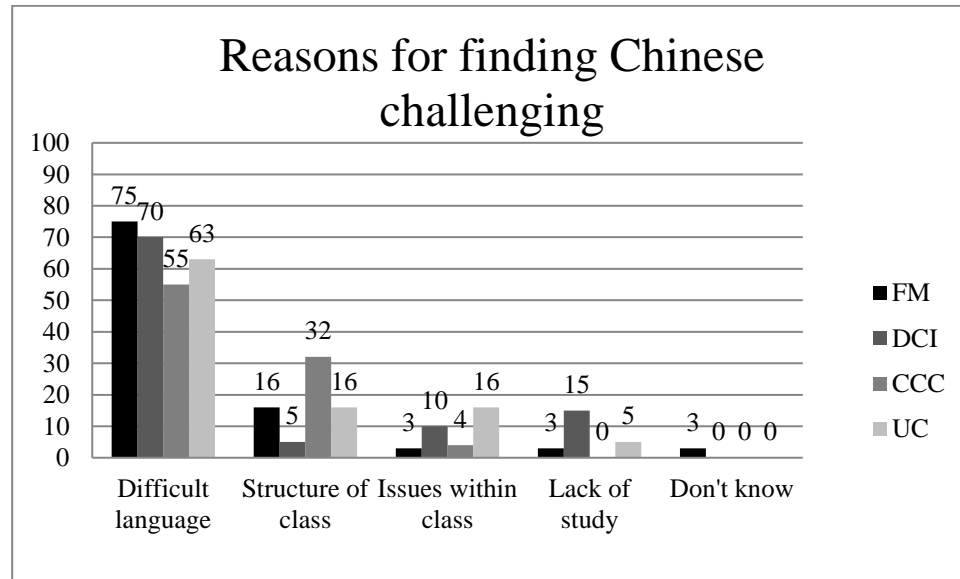
Figure 5.27. Reasons for finding Chinese challenging (in percentages)

Only one participant in the FM, CCC, and UC groups respectively stated that they did

not find the course challenging. The reason given by the FM participant was that they

did not care about the course enough, while the CCC participant believed that although

they found it challenging, they were able to handle it well. Finally, the UC participant

believed that the repetitiveness of the layout of classes contributed to them not finding

the course challenging.

5.5.3. Confidence completing evaluations

This question set out to determine whether or not the participants felt confident when sitting the evaluations, including the reasons for their answers. The researcher wished to understand more clearly why the participants answered so many incorrect answers and left so many blank answers during their evaluations, and it was hoped that this question could shed some light on the issue. Firstly, the participants were asked whether or not they felt confident when presented with the evaluations.

The highest answer provided by all groups is undoubtedly 'no', i.e. that participants were not confident when completing the evaluations, as displayed in Figure 5.28. The group showing the highest percentage in this category is the DCI group with 100 percent, followed by the FM, UC, and CCC groups at 86 percent, 78 percent, and 70 percent respectively. Some participants did state that they were confident when presented with the evaluations, however. Five percent of the FM group, 25 percent of the CCC group, and 22 percent of the UC group answered 'yes' to this question. Furthermore, nine percent of the FM group and five percent of the CCC group stated that some parts of the evaluations allowed them to feel confident. In the case of the FM group it was the listening dictation, and in the case of the CCC group it was the simple sentence structure that allowed them to feel confident, whereas in both cases the characters made them lose confidence as indicated on their questionnaires.
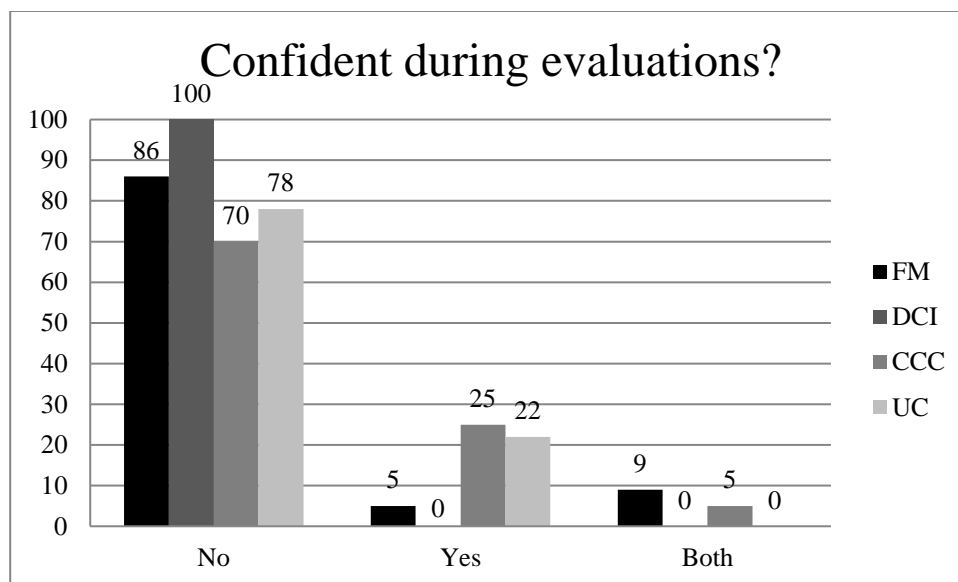
Figure 5.28. Participants' answers when asked if they were confident when completing evaluations (in percentages)

As the vast majority of participants stated that they did not feel confident when sitting their evaluations, it was worthwhile to investigate whether or not this may have contributed to the relatively low scores in both summative evaluations. For this, a one-way ANOVA was carried out to investigate the effect of confidence, or lack thereof, on participants' summative evaluation scores.

With a significance threshold of .05, Table 5.11 demonstrates that no statistically significant relationship exists between a participant's confidence, or lack thereof, when sitting the evaluations and their learning outcomes of the two summative evaluations ($F(2, 80)=2.807$, $p=.066$, and $F(2, 77)=.849$, $p=.432$). As a result, it cannot be said that a participant's level of confidence affected their learning outcomes in either summative evaluation. Therefore, while confidence has been found to have a positive effect on language learning outcomes (e.g. Wang, Spencer, & Xing, 2009), in the current study, it

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is perhaps unlikely that participants' confidence has influenced the summative

evaluation scores.

Table 5.11. One-way ANOVA between whether or not participants felt confident during evaluations and learning outcomes of participants for both summative evaluations.

ANOVA

Summative score SE1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	249.103	2	124.551	2.807	.066
Within Groups	3549.524	80	44.369		
Total	3798.627	82			

Summative score SE2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	113.528	2	56.764	.849	.432
Within Groups	5146.860	77	66.842		
Total	5260.388	79			

Figure 5.29 demonstrates that 100 percent of participants in the FM and CCC groups

who answered 'yes' were confident during the evaluations as they believed they put in

sufficient effort when preparing for the evaluations. Meanwhile, 50 percent of the UC

group's answers also show this, while 25 percent of the same group's answers state that

the similar layout of the evaluations also gave the participants confidence. A further 25

percent of the UC group did not wish to comment (see Table R.5 in Appendix R).
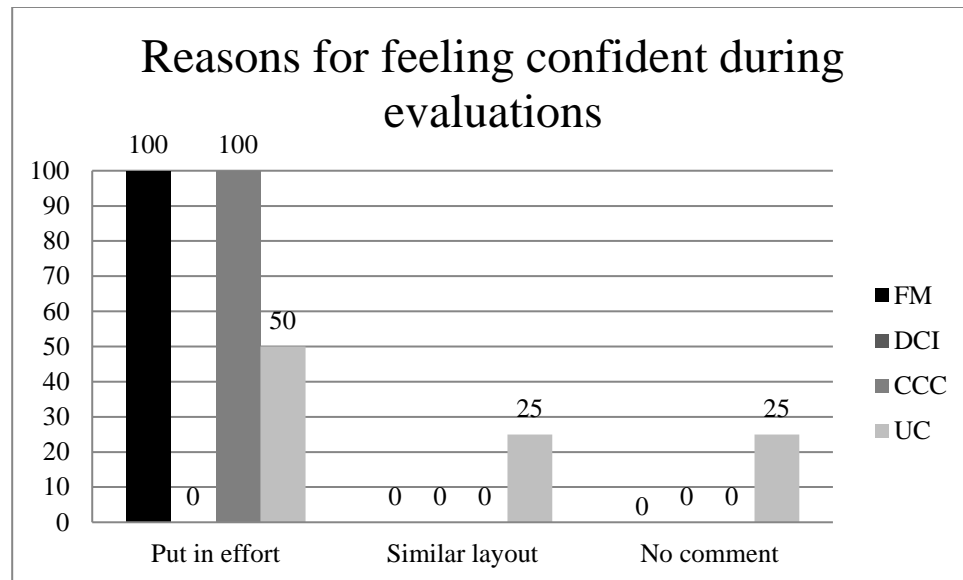
Figure 5.29. Reasons for feeling confident during evaluations (in percentages)

In terms of not feeling confident, as displayed in Figure 5.30, the main answers for all groups show that the majority of participants were underprepared when completing the evaluations (e.g. "didn't study", "didn't know anything", "didn't try") (62 percent, 35 percent, 50 percent, and 31 percent of FM, DCI, CCC, and UC groups' answers respectively), or they found Chinese difficult (19 percent, 55 percent, 29 percent, and 44 percent of FM, DCI, CCC, and UC groups' answers respectively). It is interesting to note that participants in all four groups also expressed feelings of panic and stress, as well as feeling overwhelmed and not believing that they could do well when completing the evaluations as displayed in the 'emotions' column (see Table R.6 in Appendix R), while a further 9.5 percent of FM group's answers, 14 percent of CCC group's answers, and six percent of UC group's answers informed the researcher that some participants had no interest in learning Chinese (see Table R.6 in Appendix R).
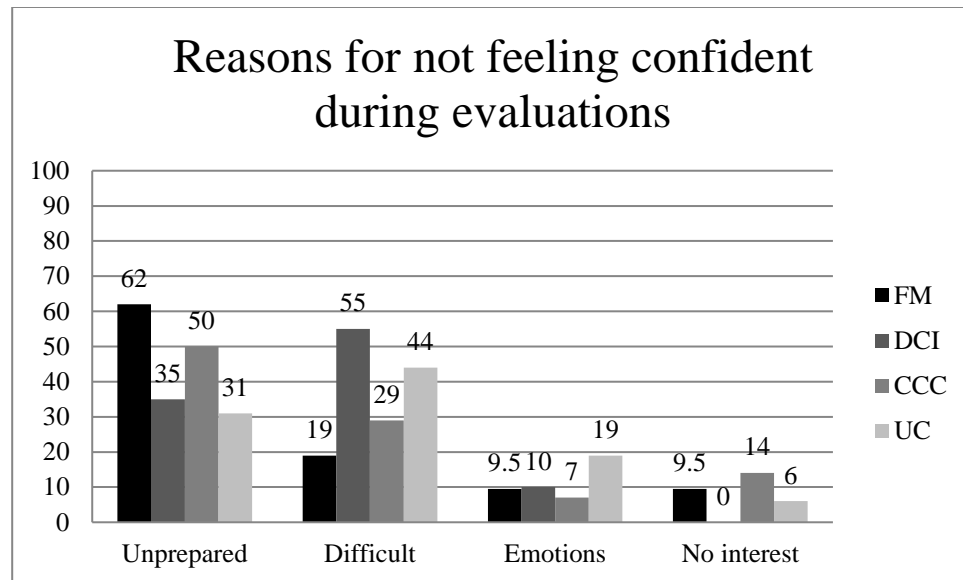
Figure 5.30. Reasons for not feeling confident during evaluations (in percentages)

5.5.4. Motivation of participants

This question aimed to discover how motivated each group was to learn Chinese. As with the previous question relating to the participants' confidence, the researcher wished to understand why the participants were scoring low in the evaluations.

As can be seen in Figure 5.31, the majority of participants in each group did not feel motivated to learn Chinese, with the highest percentage of 'no' answers visible in the FM group (86 percent), and with 68 percent of the DCI group, 55 percent of the CCC group, and 78 percent of the UC group also answering in this way. At the same time, there were participants in each group who did feel motivated to learn Chinese, and the highest in this category is the CCC group (35 percent), followed by the DCI group (26 percent), the UC group (22 percent), and the FM group (14 percent). Some participants

of the DCI (six percent) and CCC (10 percent) groups also stated that they felt

motivated at times but did not at other times.
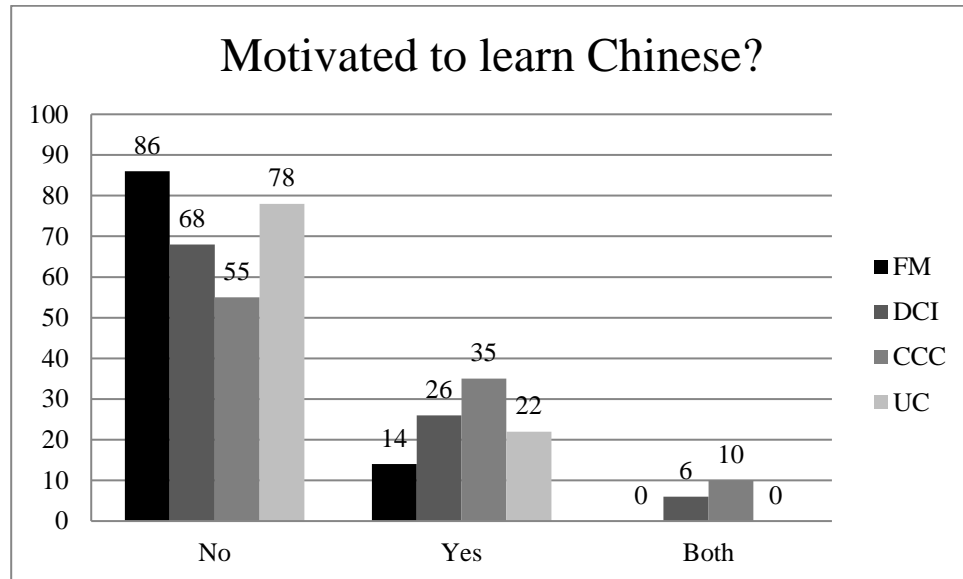
Figure 5.31. Participants' answers when asked if they were motivated to learn Chinese
(in percentages)

In terms of feeling motivated to learn Chinese, all answers in the FM group stated that

having an interest in Chinese made participants feel motivated, with 40 percent of DCI

group answers, 57 percent of CCC group answers, and 25 percent of UC group answers

also stating this as displayed in Figure 5.32. Around 20 percent, 29 percent, and 25

percent of answers in the DCI group, CCC group, and UC group respectively highlight

that making an effort motivated the participants. Around 40 percent of the DCI group

answers claim that despite the difficulty of the language, participants were still

motivated presumably by the challenge of learning CFL, whereas 50 percent of the UC

group answers show that participants were kept motivated by the rewards. A further 14

percent of the CCC group did not wish to comment (see Table R.7 in Appendix R).

As participants provided no further explanations for being motivated to learn CFL in the answer of 'made effort', it remains unclear as to what exactly they meant by this. It may be the case that the participants wished to avoid writing a negative answer in the feedback questionnaire, and instead notify the researcher that they tried to be motivated by making an effort with their learning. In any case, their answers do not detract from the overall finding from the questions on motivation which demonstrates that the participants were, in general, unmotivated to learn CFL.

Finally, it is interesting to note how internal and external factors play a role in the motivation of the participants. Chapter 6 explores intrinsic and extrinsic motivation further, and how these may affect the language learning outcomes of an individual.
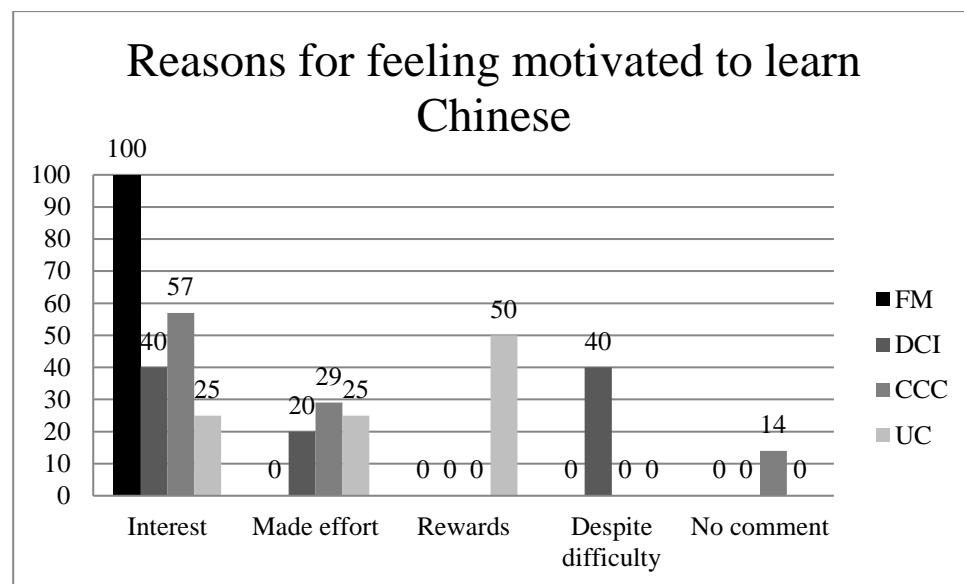
Figure 5.32. Reasons for feeling motivated to learn Chinese (in percentages)

Figure 5.33 shows that the top reasons for not feeling motivated to learn Chinese for all groups were a lack of interest to learn Chinese (e.g. "no interest", "bored", "lost motivation") (70 percent, 38 percent, 47 percent, and 61 percent of FM, DCI, CCC, and UC group answers respectively) and the difficulty of learning Chinese (e.g. "confusing", "difficult", "too much content") (15 percent, 54 percent, 53 percent, and 28 percent of FM, DCI, CCC, and UC group answers respectively). Meanwhile, 10 percent and 11 percent of the FM and UC group answers respectively mentioned that the structure of the class was demotivating (see further discussion in section 5.5.15), while five percent of the FM group answers and eight percent of the DCI group answers had an issue with the lack of an incentive, such as not receiving more rewards and the fact that Chinese was not yet an examined subject on the school curriculum (see Table R.8 in Appendix R).
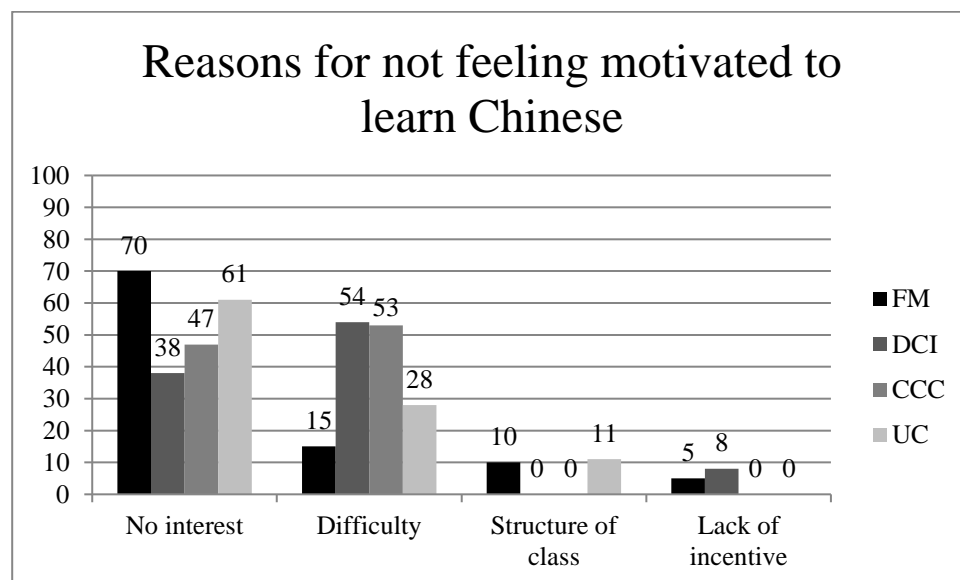
Figure 5.33. Reasons for not feeling motivated to learn Chinese (in percentages)

5.5.5. Efforts to improve learning

This question asked participants to state how they could have made their learning more effective. This question not only allowed for participants to reflect on their role as learners throughout the course, but also allowed the researcher to see some characteristics and tactics that the participants perceived to play a key role in learning Chinese.

Figure 5.34 shows that the overwhelming majority of answers in all groups (83 percent, 59 percent, 70 percent, and 64 percent of FM, DCI, CCC, and UC group answers respectively) demonstrate that the participants believed that they should have put in more effort throughout the course to improve their learning outcomes (e.g. "study", "pay attention", "try harder"). However, nine percent of the DCI group answers and five percent of the UC group answers show that participants believed they could have done nothing more; similarly five percent of DCI, CCC, and UC group answers respectively demonstrate that a small number of participants did not know what they could have done to improve their learning outcomes. A suggestion to try different methods was mentioned in four percent, 18 percent, 20 percent, and 21 percent of the FM, DCI, CCC, and UC group answers respectively (e.g. "ignore characters", "write more", "slower pace"), while 13 percent, nine percent, five percent, and five percent of answers in the FM, DCI, CCC, and UC groups mentioned some personal issues that participants believe hindered their progress (see Table R.9 in Appendix R).

While some of the personal issue answers may be difficult to address (for example: "be better at languages"; "be smarter"; "have interest"), it can be deciphered that through answers such as these, participants were of the impression that Chinese is a challenging language that requires a lot of work and effort. It is clear, however, that the majority of participants in all groups not only believed that learning Chinese requires much independent study time, but also perhaps that they did not do enough, or have enough time, throughout the year to achieve the best results possible. Indeed, each group only had two hours per week in the classroom learning Chinese, which, as stated in Chapter 4 (see section 4.5), is much fewer than the lowest foreign language classroom contact hours recorded in Europe in the year 2015/2016, and significantly fewer than the hours allocated to foreign languages on the Leaving Certificate curriculum. This is further evidence that more contact and independent learning hours are needed when learning CFL, which will be useful to note for future developments of a CFL programme.
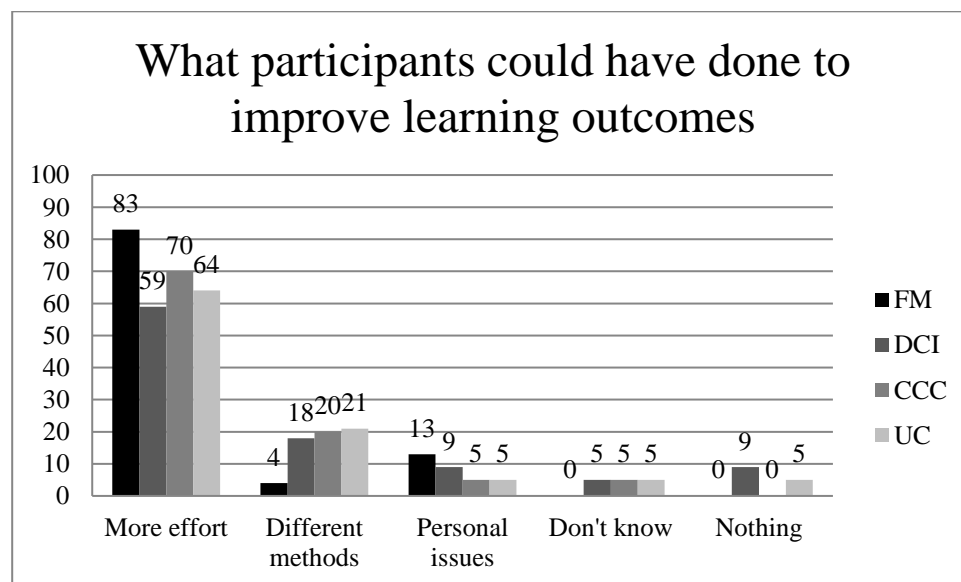
Figure 5.34. Participants' answers when asked how they could have improved their learning outcomes (in percentages)

5.5.6. Most difficult aspect of learning Chinese

For this question, participants were asked to name the aspect they believed to be most difficult when learning Chinese. Although the researcher had an understanding of what the participants found to be difficult after having taught them for an academic year, she wished to allow participants the opportunity to report on these aspects. The answers provided by the participants may have also shed light on possible weak points of certain teaching methods.

Figure 5.35 shows that the most populated categories for each group lie in the columns concerning characters and all aspects of learning CFL. Firstly, 71 percent, 60 percent, 75 percent, and 78 percent of answers provided by the FM, DCI, CCC, and UC groups respectively show that characters were the most difficult aspect of learning Chinese for the participants; while 13 percent, 35 percent, 15 percent, and 17 percent of answers provided by the FM, DCI, CCC, and UC groups respectively show that everything was difficult for them. Eight percent and 10 percent of the FM and CCC groups' answers show difficulties with the written exercises such as sentence structure, translation, and the evaluations (see Table R.10 in Appendix R). Indeed, these written exercises tested participants' character acquisition skills as well as skills in using characters, so it is unsurprising that these were mentioned. A further eight percent and five percent of answers in the FM and UC groups respectively mention a difficulty with the structure of

the class (see further discussion in section 5.5.15), while the DCI group also mentioned that learning pinyin[9] was most difficult (five percent of answers).
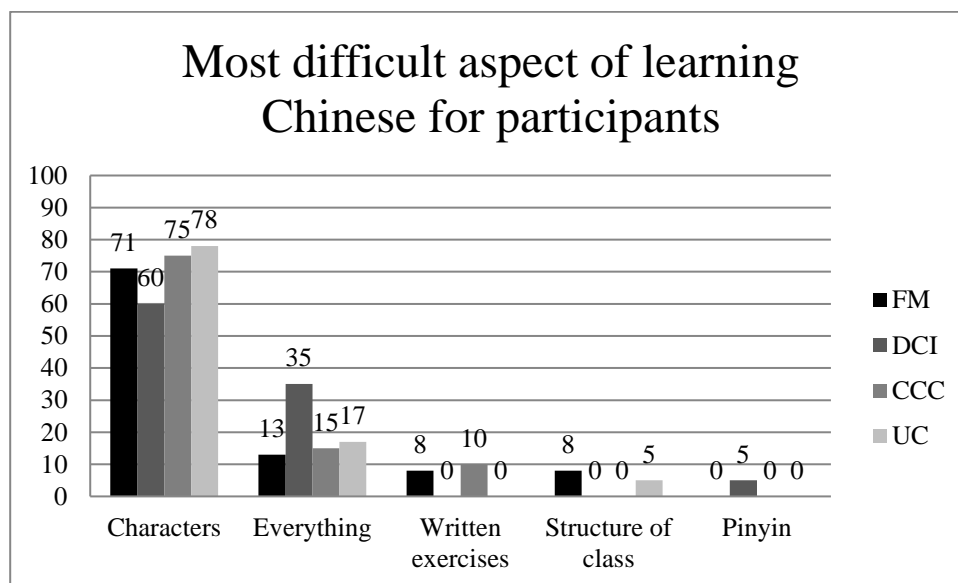
Figure 5.35. Participants' answers when asked to name most difficult aspect of learning Chinese (in percentages)

5.5.7. Easiest aspect of learning Chinese

This question aimed to establish any aspects that the participants may have coped with better than other aspects, and perhaps which teaching method may have aided learning in certain areas over others.

While some answers of all groups demonstrate that nothing, pinyin, the initial weeks of learning, written exercises, and oral exercises were the easiest aspects of learning

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[9] In the feedback questionnaire, the 'pinyin' category also refers to pronunciation and oral work. Complete descriptions of each category can be viewed in the relevant tables of Appendix R.

Chinese, it can be seen in Figure 5.36 that not one group mentions that learning the characters was the easiest aspect. Many answers are related to speaking and pronunciation (pinyin, oral, listening, initial weeks), suggesting that indeed the more difficult aspects for beginner CFL learners may lie in the writing of the language. Interestingly, the CCC group had the most mention of speaking, pronunciation, and tones, which may suggest that using colours to depict tones has the potential to positively influence a learner's skills in speech and pronunciation. In fact, the CCC participants also highlighted explicitly in their answers that the colours helped make learning Chinese easier (see Table R.11 in Appendix R). It was noted by the researcher that a reliance on pinyin was developing for participants in the UC group both during class time and in the summative evaluation results, and in this section they are indeed the participants who mentioned that pinyin was the easiest aspect of learning Chinese at a higher rate than all other groups (32 percent of answers).
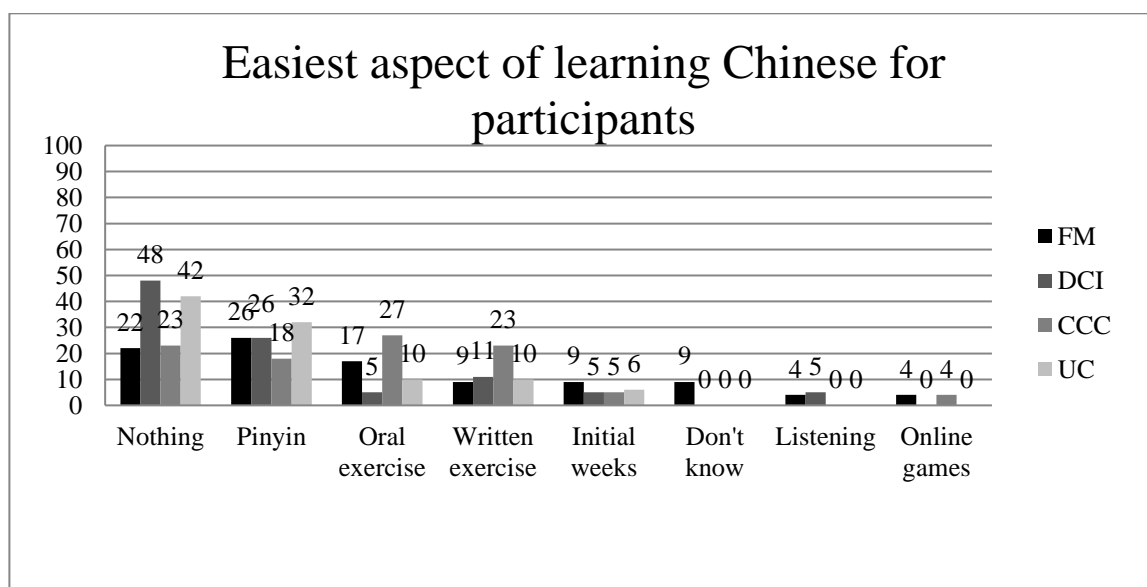
Figure 5.36. Participants' answers when asked to name easiest aspect of learning Chinese (in percentages)

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5.5.8. Extra iPad activities

The policy of the school in which the research was conducted stated that all students must be in possession of an iPad. The researcher used the iPad in class as a means for accessing the online textbook through a PDF viewer, as well as accessing the adapted lessons and revision exercises through an online learning platform. As well as this, the researcher conducted online games with the participants as a means of revision in the weeks preceding the second summative evaluation. However, the researcher wished to verify additional websites or applications, if any, that the participants tended to use in their own time.

It was noted that 95 to 100 percent of all groups did not use any extra resources; however, five percent of the FM group used an alternative online platform for revision exercises (Quizlet*)* while five percent of the DCI group used a dictionary from time to time.

Quizlet Inc. (2017a) is an online learning community for teachers and students, whereby study sessions can be accessed on a wide range of topics. The CFL sections contain mainly flashcards, recall and recognition exercises, and translation exercises (Quizlet Inc., 2017b). In other words, the exercises conducted when using Quizlet were quite similar to those exercises conducted during class time and for homework as revision. Given this, the similarity of the format used in class and the very small percentage of participants using Quizlet should not have impacted the group's results in any significant way.

5.5.9. Methods of studying for evaluations

This question set out to identify any additional methods of learning used by the participants when revising for the evaluations. While the researcher strictly taught the four groups using their own particular methods for the course of the study (see Chapter 3, Table 3.3), she also wished to note any other methods used by the participants when revising for the evaluations. Similarly, given that she could only monitor what was happening inside the classroom, this question aimed to examine what kinds of activities the participants were conducting in their own time.

The findings in Figure 5.37 show that the three top answers provided by the FM, DCI, CCC, and UC groups were reading notes, writing out notes, and not studying. It is worth mentioning that 'notes' represents all characters, pinyin, and exercises learned and conducted during class time and recorded in the participants' copybooks, as well as the NPCR lessons and the adapted lessons. Approximately 44 percent of answers in the FM group, 30 percent in the DCI group, 43 percent in the CCC group, and 60 percent in the UC group indicate that no study was completed, while 32 percent of answers in the FM group, 35 percent in the DCI group, 43 percent in the CCC group, and 20 percent in the UC group state that the participants read over their notes as study. Around 16 percent of answers in the FM group, 25 percent in the DCI group, 10 percent in the CCC group, and 15 percent in the UC group show that the participants wrote out their notes as study.

The CCC group perhaps believed that the colours helped them to visually memorise the characters as the highest percentage of answers within the CCC group show that

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participants tended to read over notes as study. It is surprising here that twice the

percentage of answers in the FM group mention that participants read over their notes

compared to writing them out, as their method was heavily based on the repeated

writing of characters. However, some 15 percent of answers in the FM group also state

that the participants used the class time as study (see Table R.12 in Appendix R),

whereby they practised writing out the characters repeatedly. Interestingly, around 4.5

percent of answers in the CCC group and five percent in the UC group also state that the

participants used the class time as their revision (see Table R.12 in Appendix R). Five

percent of answers in the DCI group and UC group respectively, and four percent in the

CCC group, state that the participants studied orally, while eight percent of answers in

the FM group mention using the online games or the aforementioned online platforms.

Finally, five percent of answers in the DCI group state that the participants would only

sometimes revise.
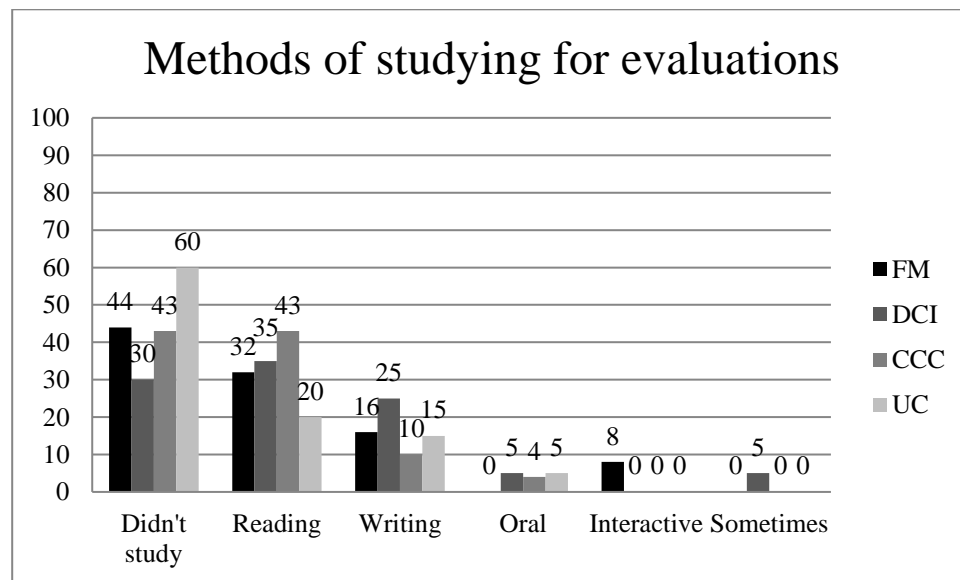
Figure 5.37. Participants' answers when asked to state how they studied for the evaluations (in percentages)

5.5.10. Methods used to learn characters

As with the previous question, the researcher wished to examine any variations in methods used to study the characters that differed from what had been taught during class time.

The most populated categories for this question lie in the categories concerning writing and not studying as seen in Figure 5.38. Most answers from the FM group (48 percent) and CCC group (62 percent) show that participants wrote out characters to learn them, while 25 percent of answers from the DCI group and 32 percent of answers from the UC group also mentioned writing as a strategy. A majority of DCI answers show that participants did not study (55 percent), with 20 percent, 19 percent, and 32 percent of answers from the FM, CCC, and UC groups respectively also highlighting a lack of study. Interactive methods were noted in eight percent, five percent, and 20 percent of FM, CCC, and UC group answers respectively, while reading was mentioned by 14 percent and 16 percent of CCC and UC group answers. A further eight percent and 15 percent of FM and DCI answers also mentioned that participants tried to use different methods to aid learning of the characters, while 12 percent and five percent of FM and DCI answers mention studying orally. Four percent of FM answers also demonstrate that the organisation of notes played a big role in learning characters (see Table R.13 in Appendix R).

The FM and CCC groups tended to stick to their teaching methods when learning characters (i.e. repeatedly writing the characters or using colours respectively) however,

the results suggest that many in the DCI group did not find a suitable method for

learning characters, as they mostly did not study and focused more on pinyin as is

evident from their evaluation results reported here and in Chapter 4. The UC group tried

a variety of methods such as reading, writing, and online games, but a large percentage

also did not study. This may suggest that sufficient training in methods for learning the

shape of characters is needed as it may be difficult for beginner CFL learners to find a

suitable method in their own time.
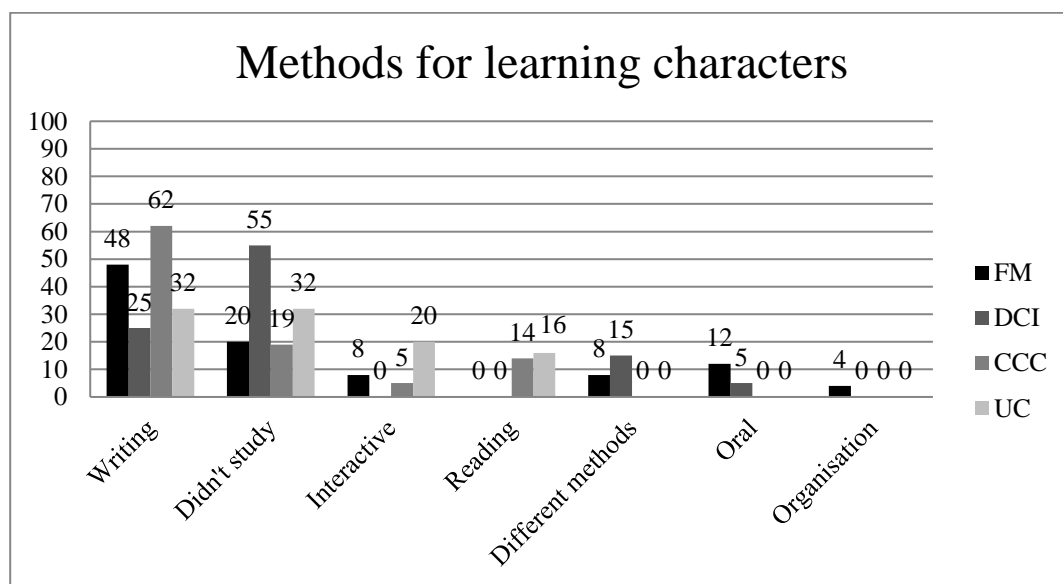
Figure 5.38. Participants' answers when asked to state how they learned the characters (in percentages)

5.5.11. Aspect of learning Chinese enjoyed most

For this question, the researcher wished to establish the most enjoyable aspect of

learning Chinese experienced by the participants. It was hoped that in ascertaining what

the participants enjoyed most, useful information for future CFL programmes and teaching plan developments could be provided.

Figure 5.39 displays the most popular answers whereby all groups mentioned the categories of: culture; pronunciation; everything; and online games. The highest percentage of answers recorded in the FM group is in the category of characters at 21 percent, in the DCI group it is 25 percent in the pronunciation category, for the CCC group it is 23 percent in the culture category, while in the UC group it is also the culture category at 42 percent. In the case of FM and DCI, it is interesting to note that the groups' highest percentages lie in the main component of their specific teaching methods (characters and pinyin), whereas the methods of CCC and UC appear to have sparked an appreciation for Chinese culture. It is worthwhile to note that in the case of the FM and DCI groups, exposure to characters and pinyin respectively has possibly led to the enjoyment of participants in learning these aspects. Similarly, it is beneficial to explore further the incorporation of more cultural topics for future curricula (see Table R.14 in Appendix R).

It is worth pointing out here, however, that enjoyment of a particular method alone will not lead to desirable results in learning outcomes. The DCI group is a prime example of this having stated their enjoyment of learning pinyin yet scoring poorly in the formative and summative evaluations as recorded in sections 5.1, 5.2, and in Chapter 4 (sections 4.2, 4.3, 4.4, and 4.5).
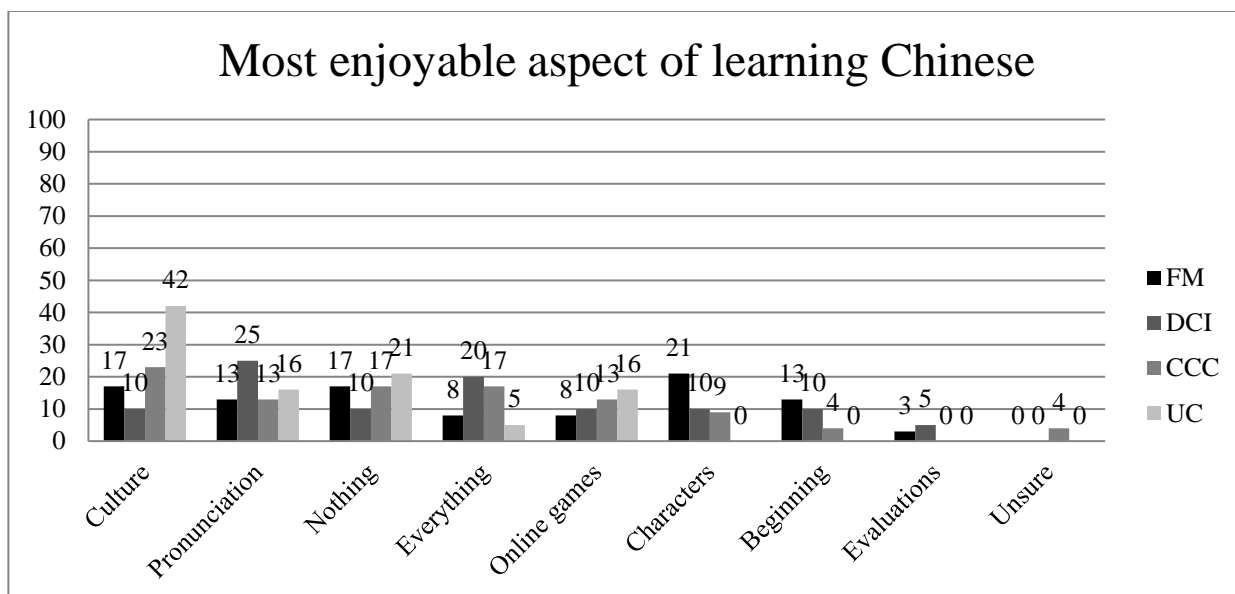
Figure 5.39. Participants' answers when asked what they enjoyed most about learning Chinese (in percentages)

5.5.12. Aspect of learning Chinese enjoyed least

This question attempted to examine any tasks that the participants did not enjoy completing. It was hoped that the information collected would be useful for future curriculum and lesson planning developments, in giving insights with regard to maintaining interest among CFL beginner learners in learning the language.

Figure 5.40 shows that the most popular answers among the groups fall under the categories of: characters; everything; and evaluations. This time, the majority of all group's answers mention the characters (e.g. "writing", "characters", "translating") (42 percent, 47 percent, 50 percent, and 42 percent of the FM, DCI, CCC, and UC group answers respectively). The second-highest percentages of the DCI and UC group answers lie in the category of everything (29 percent and 26 percent of answers

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respectively), whereas the second-highest percentages of the FM and CCC group answers are seen in the evaluations category (23 percent and 25 percent of answers respectively) (see Table R.15 in Appendix R).

This demonstrates that the participants mostly disliked key aspects of learning Chinese such as the characters, the evaluations, and learning the language in general. These are clearly necessary components to learning CFL and cannot be excluded from future curriculum plans, however items such as introducing more cultural topics and conducting work on online platforms may increase and maintain interest in beginner CFL learners as demonstrated in the previous section. On a separate note, the fact that participants highlighted that they disliked conducting the evaluations and learning the language in general may be linked to the fact that prior to beginning transition year, they would have been under the impression that they would not have to conduct homework or evaluations (see Chapter 3, section 3.3.2). Indeed, the researcher observed and received oral feedback from the participants indicating that they were somewhat displeased at having to conduct a year-long course that was assessed numerous times, considering that transition year is deemed to be less intense than any other year in secondary school, as it is the only year whereby students are not preparing for any State examinations.
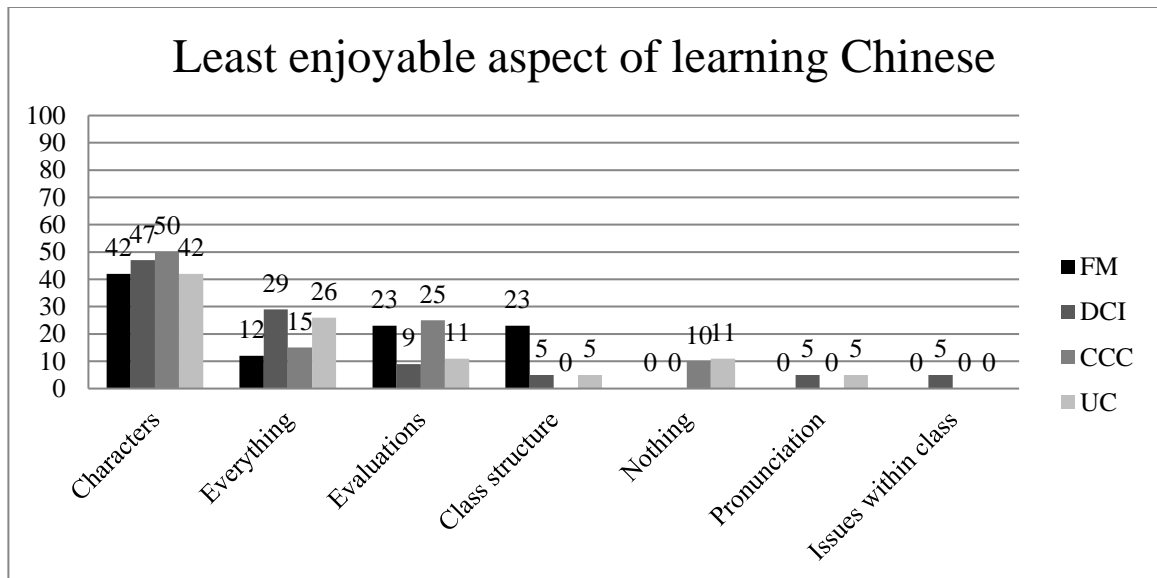
Figure 5.40. Participants' answers when asked what they enjoyed least about learning Chinese (in percentages)

5.5.13. Most helpful aspect when learning Chinese

Steering away from the enjoyment and non-enjoyment of learning CFL, the researcher wished to identify with this question any techniques or exercises used that the participants believed helped them during the learning process.

The answers common to all groups in Figure 5.41 include the categories of: characters; online resources; pronunciation; and nothing. The top answer category for the FM and DCI groups is characters (e.g. "writing", "repetition", "stroke order") (23 percent and 27 percent of answers respectively) while the top answer for the CCC and UC groups is online resources (38 percent and 42 percent respectively).

Again, it is worth noting that the characters were most helpful for the FM group, whose teaching method was based on repeatedly writing the characters. It is surprising that the DCI group also mentioned characters, considering that the group was first taught via pinyin. However as seen in Appendix R (Table R.16), writing characters, learning the stroke order, and reading characters were deemed to be helpful in their study of CFL. In terms of online resources, the CCC and UC groups found the revision games and adapted lessons (available on one of these online resources, see Table R.16 in Appendix R) to be most helpful when learning Chinese. Therefore, a variety of platforms and more time learning spent learning CFL (through revision exercises, for example) are certainly worth investigating for future curricula of CFL.
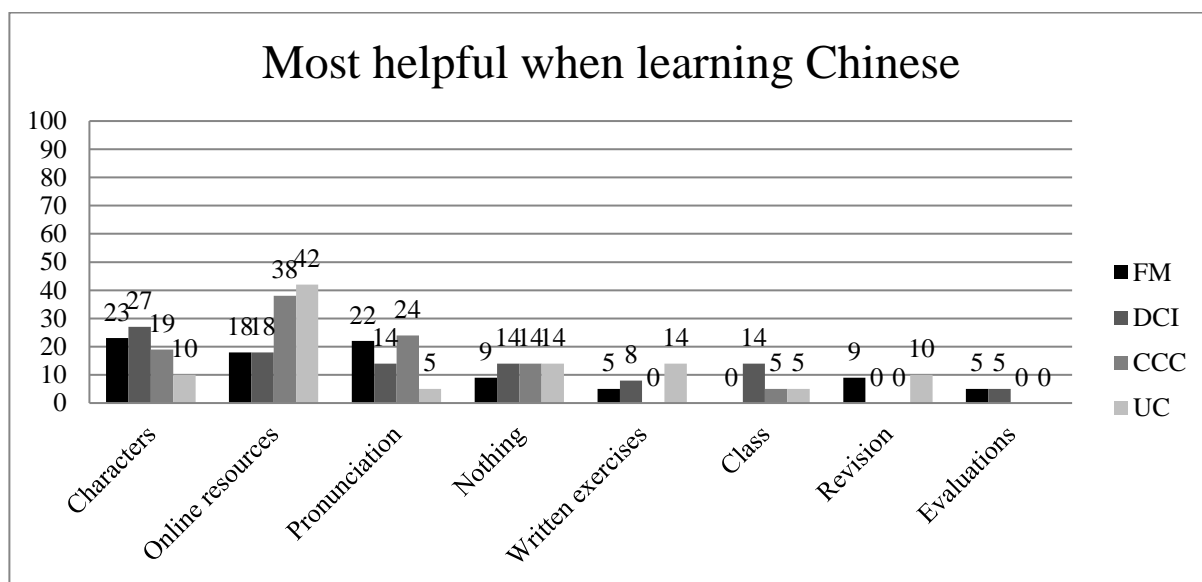
Figure 5.41. Participants' answers when asked what was the most helpful when learning Chinese (in percentages)

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5.5.14. Least helpful aspect when learning Chinese

The researcher wished to establish from this section any areas the participants felt did not contribute to their overall learning of Chinese.

Despite the majority of the FM and DCI groups' answers stating that characters were most helpful when learning Chinese, in the current question, 'characters' is the most populated column with 18 percent, 36 percent, 52 percent, and 33 percent of answers in the FM, DCI, CCC, and UC groups respectively mentioning this as displayed in Figure 5.42. The structure of the class (such as the repetitive nature of each lesson to ensure that the teaching methods were the only variables that changed, the amount of content covered, and not being taught Chinese in the same way as other foreign languages - see Appendix R, Table R.17) was recorded by 35 percent, 23 percent, 5 percent, and 33 percent of answers in the FM, DCI, CCC, and UC groups respectively as being unhelpful. All groups also mentioned that nothing was least helpful, while the FM, DCI, and CCC groups mentioned that everything was unhelpful (five percent, nine percent, and 10 percent of answers respectively).

It is possible that participants mentioned characters for this question as they also found them to be the most difficult aspect of learning Chinese (see section 5.5.6), and therefore not learning these characters sufficiently would indeed have hindered the participants' perceived progress. Participants' mention of their experience learning other foreign languages is interesting to note. Oral feedback from the participants demonstrated that, in most cases, other foreign languages tend to be taught in the schools under specific

themes, for example: the weather; days of the week; school; and hobbies, while vocabulary lists are commonly memorised. The NPCR textbook follows a communicative approach with dialogues serving as the main body of text in each section. The participants may not have been accustomed to this format as other foreign language courses cover a wide range of literature and reading exercises such as essays and advertisements, thus their possible desire to learn in a way that was familiar to them. Some answers in the FM, CCC, and UC groups (five percent, five percent, and six percent respectively) also highlighted that the online resources were of no help, which may have come down to personal preference. It has already been demonstrated that another personal aspect, that is, the learning style of each participant, was perhaps unlikely to have affected the results of the summative evaluations (see section 5.4), and so despite disliking the online resources, it is perhaps unlikely that this would have affected their learning outcomes.
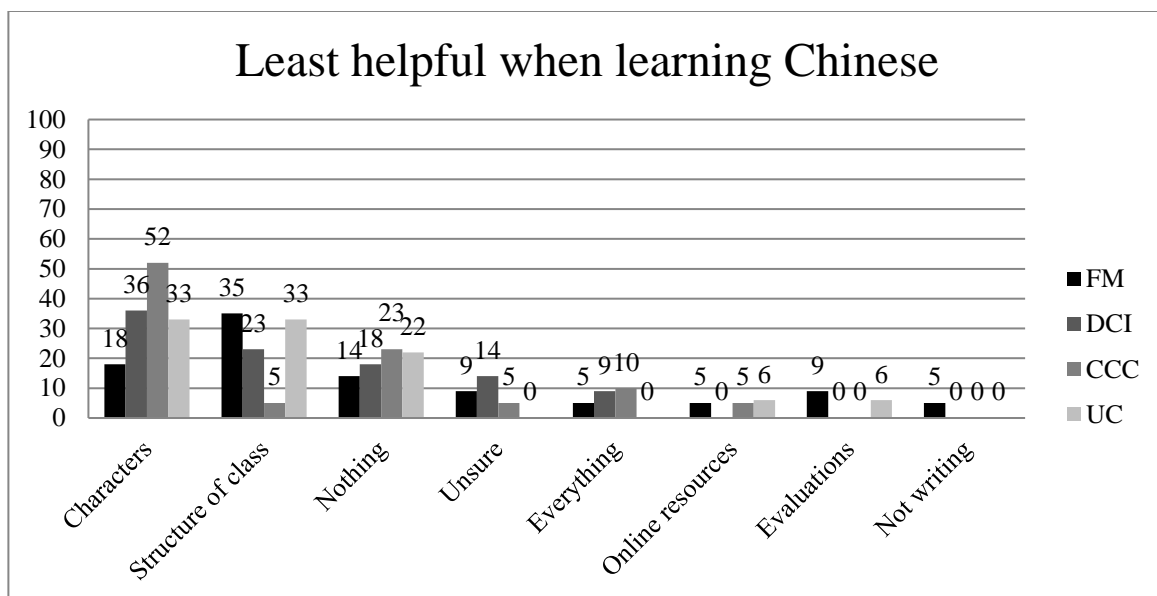
Figure 5.42. Participants' answers when asked what was the least helpful when learning Chinese (in percentages)

5.5.15. Suggestions for improvement of the course

The researcher included this question in order to identify any other activities or topics that the participants believed would have helped them achieve more effective learning or engagement with the course. For this, a variety of answers was provided (see Appendix R, Table R.18), and the categories can be seen in Figure 5.43.

The most popular category of answer has to do with altering the structure of the class (67 percent, 67 percent, 52 percent, and 50 percent of answers in the FM, DCI, CCC, and UC groups respectively). Items in this category included, for example: "more culture"; "projects"; "group work"; "not conducting in transition year"; "should be a choice subject"; "more time"; "less content"; and "more variety" (see Table R.18 in Appendix R). It is interesting to note that participants wished to engage in more projects

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and group work, as well as hoping for more variety in classrooms, including learning

more about Chinese culture (see Table R.18 in Appendix R). One of the goals for

Ireland's Strategy for Foreign Languages in Education 2017-2026 is to create a more

engaging learning environment (Department of Education and Skills, 2017), and so it is

promising to note that these activities have the potential to be well-received by students

in Irish secondary schools according to the current study. At the same time, more

classroom hours are clearly needed to teach future learners of CFL, as will be discussed

further in Chapter 6. Another interesting point is participants' opinion that the course

should not have been conducted in a non-examined year, and that they should have had

a choice to learn CFL for the year. It echoes previous comments (see Appendix R) that

participants felt displeased at having to complete such an intensive course during

transition year. Indeed, research carried out by Li, Nowlan, Furlong, and Wang (2019)

involving some secondary schools in Ireland that are currently offering a non-examined

Chinese course have noted that motivation is higher in students when Chinese is

optional.

The second most popular category includes answers relating to different methods of

teaching Chinese (33 percent, 14 percent, 32 percent, and 35 percent of answers in the

FM, DCI, CCC, and UC groups respectively). Those items suggested include: "more

interactive" methods; "teach like other foreign languages"; and to make classes more

"fun". The fact that the participants wished to be taught as per their other foreign

languages demonstrates the difficulty and complexity of learning Chinese, as it is simply

not possible to replicate methods used for any other Roman alphabetic language to teach

Chinese given its complex writing system (see Chapter 6). On the other hand, the other two examples relate to creating a more engaging environment as mentioned previously.

It is interesting to note the specific methods mentioned by each group. Some answers in the FM group suggested less writing and more oral work, which may hint that the participants felt that they were spending too much time writing characters. The CCC group mentioned not using colours, spending more time on characters, and even delaying characters. This highlights that the use of colour may be down to personal preference when learning Chinese (despite the evaluation results in the current study being comparatively positive for this group), while their suggestion to delay the characters hints that learning characters took up a lot of their time and may have been quite overwhelming. Similarly, the UC group suggested that participants should delay learning the characters, while others noted that they should spend more time learning characters (see Table R.18 in Appendix R). However, it is seen in the current study that the delaying of characters did not appear to have any positive effect on learning outcomes of participants, and so it appears that more time spent learning characters rather than delaying the process is perhaps more beneficial.
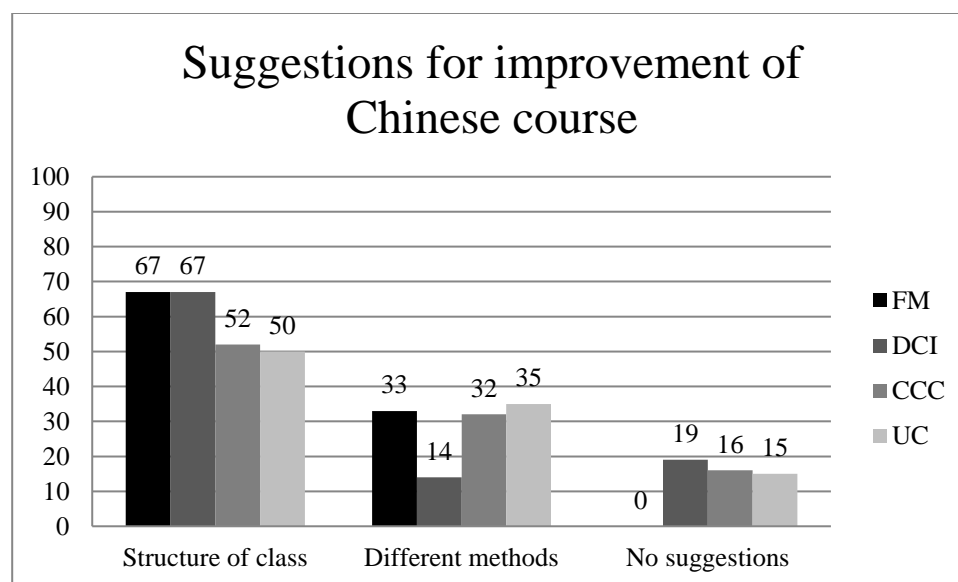
Figure 5.43. Participants' answers when asked what improvements could be made to the course (in percentages)

5.5.16. Any other comments

The researcher included this question so that the participants could add any comments that did not fit into their previous answers. A large majority of participants answered that they had no further comments and thanked the researcher for teaching them, presumably because all relevant items had been covered throughout the questionnaire. All in all, only two participants from the DCI group contested the appropriateness of teaching transition-year students which also came up in previous answers, while one participant from the CCC group mentioned they should not have used iPads even though it was the school policy.

5.5.17. Summary of feedback questionnaire

Findings from the feedback questionnaire demonstrate firstly that the CCC group had more positive feelings towards learning CFL than any other group (e.g. Figures 5.23. 5.28, and 5.31), whereas the DCI group generally showed the opposite (e.g. Figures 5.26 and 5.28). The main reason for finding Chinese challenging for all groups was that it was a difficult language to learn (Figure 5.27), and the majority of all groups believed that participants would have achieved better learning outcomes had they put in more effort (Figure 5.34). The majority of participants in all groups named the characters as the most difficult aspect of learning Chinese (Figure 5.35), while the top answer in each group for the least enjoyable aspect of learning Chinese was also characters (Figure 5.40). A popular method of studying characters in the participants' own time included writing them out (FM, CCC, and UC), while the second most popular answer states that the participants did not study in their own time (Figure 5.38). Participants mostly enjoyed learning about Chinese culture or learning the pronunciation of various characters (Figure 5.39), while they also found learning the characters and using online resources most helpful (Figure 5.41). Their recommendations for the improvement of the course mainly concerned the structure of the class, including learning more about Chinese culture, learning less content, conducting projects and group work, and having more in-class hours (see Figure 5.43 and Table R.18 in Appendix R).

The following chapter discusses the data collected in relation to the research questions of the current study and outlines potential steps towards a future CFL teaching methodology and programme.

Chapter 6: Discussion

Chapter 4 included the presentation and analysis of the participant profile of each group and the results from all four formative evaluations, while Chapter 5 included the two summative evaluations and the participants' feedback on the CFL course that was provided in the form of a written questionnaire. This chapter discusses the results in terms of what the research set out to ascertain. Firstly, each research question is highlighted before analysing the results of all four groups in terms of long-term and short-term learning of character composition and character use, while highlighting additional relevant information gained from the feedback questionnaire answers and the researcher's observations. The chapter concludes by highlighting pedagogical implications in the development of a teaching methodology for Chinese as a foreign language, as well as recommendations for a new CFL programme.

6.1. The research questions

The research questions as stated in Chapter 1 are:

What methods are more effective for learning character composition?

What methods are more effective for learning character use?

Is one teaching method more long-term effective than others when teaching character composition and character use?

The research questions ask about the short- and long-term effects of each teaching method on beginner learners, more specifically, their effects on learners' character composition skills and skills in using the characters in context. For this, it is most useful to look at the results from the two summative evaluations as these actually tested the learning outcomes of the participants. As highlighted in Chapter 3 (section 3.3.3.5), each section on the evaluation papers tested the participants in various ways, in terms of character composition and using characters in various contexts. Therefore, all three questions of the current research can be examined at once, as it is useful to identify methods best suited for character composition and character use in both the long- and short-term periods (see Chapter 1, section 1.2).

The following sections are divided according to the short-term and long-term effectiveness, discussing each method's effect on participants' character composition skills and skills in using various characters in different contexts. For these sections, the main focus is on fully correct answers only, looking to the highest percentages of each group as documented in Chapter 5 in order to gauge the effectiveness of a given method under each evaluation section. Differing from Table 4.10 in Chapter 4 whereby observations of each method were recorded in relation to various benefits in the formative evaluations, the following sections only discuss the group and therefore method that shows the most fully correct answers in each section of the summative evaluations.

It is worth noting that in the CCC and UC groups, as highlighted in Chapter 4, five participants had access to a Special Needs Assistant on account of their learning difficulties. As a result, two participants in the CCC group and three participants in the UC group were granted permission to use notes during their evaluations. Again, as mentioned, these three UC group participants all withdrew before the first summative evaluation, meaning that no data was received from them in the two summative evaluations. In the case of the CCC group, however, the data was included for both summative evaluations. As is the nature of a quasi-experimental study, the researcher wished to capture a true representation of a typical secondary school classroom, and so their results were included in the data collection and analysis.

6.1.1. Short-term effectiveness

For this section, results of the first summative evaluation are consulted under character composition and character use to analyse the short-term effectiveness.

6.1.1.1. Character composition

The main evaluation sections testing character composition were the listening dictation, character recognition, character recall, and text production sections.

Looking back to Chapter 5, the DCI group scored the highest percentage of correct characters at four percent in the listening dictation section in the first summative evaluation. For the recognition section, the CCC group performed best with five percent and when recalling characters, the group also performed the best with six percent of correct characters. Finally, in the text production section, the highest number of words using correct characters was recorded in the FM group at 47 correct characters collectively supplied.

Referring to the descriptions of each evaluation exercise from Chapter 3 (section 3.3.3.5), it is seen that the DCI group was comparatively better at rapidly associating and transcribing the sound of Chinese words to the character shapes in the short-term listening dictation. In identifying the sound and meaning of a given character, as well as demonstrating skills in supplying the shape of a character from the meaning provided, the CCC group was comparatively better in both the recognition and recall sections. Finally, when given the opportunity to compose a free text in describing a picture, the FM group was able to supply the most correct characters in connecting participant's own interpretation of the picture to the character shape.

In the case of the DCI group, it is possible that the use of and focus on pinyin for the initial weeks before learning the characters aided the group in identifying the sounds of the characters better than their peers in other groups. The listening dictation was the only timed section on the evaluation paper and therefore presumably more difficult for

the participants. This result shows that in the short term, it may be useful to dedicate time to learning pinyin in order to become more accustomed to hearing the sounds of the characters. Similarly, in a more recent study conducted by Chen, Perfetti, Fang, Chang, and Fraundorf (2019), evidence was found that when native speakers of Chinese read a Chinese word in pinyin, the corresponding Chinese character is automatically activated. In the current study, it may be the case that the Chinese characters were activated by the DCI group upon hearing the pinyin, albeit perhaps not to the same extent as a native speaker.

The CCC group appears to be the comparatively stronger group when recognising and recalling characters. The recognition section required two elements to be fully correct when recognising characters, that is, meaning and sound, whereas the recall section required participants to recall the character shape only when presented with English words. With the recall section, however, a further step is likely to be involved. When presented with an English word, participants were likely to first recall the pinyin before transcribing the character. Therefore, an intermediate step was involved as Zhang and Reilly (2015) describe in their paper. These two evaluation sections, though not under time constraints as in the listening dictation, possibly required more effort from the participants as explained in Chapter 3 (section 3.3.3.5). It is interesting that the CCC group scored highest in both sections, indicating that colour-coding characters could perhaps be useful in helping participants to retain knowledge of character shape, meaning, and pronunciation in the short term.

Finally, the FM group scored comparatively better in the text production section in providing more correct Chinese characters than all other groups. Although this section required the participants to use characters to describe a picture, it was possibly not as demanding as the previous sections testing character composition. Here, participants were able to choose any characters related to the picture either using words or sentences as they drew on their own interpretation of the picture, whereas in the previous sections the researcher provided participants with specific words to transcribe into characters, the meaning, or pinyin. In other words, if they were not familiar with or were not competent in producing a particular character for the text production section, participants were able to opt for another one that would be suitable to describe the picture. Therefore, while the result indicates that the FM group was better able to describe a picture using correct characters than other groups in the short term, it may also be said that this section was perhaps not as challenging as others mentioned in terms of character composition.

The DCI, CCC, and FM groups all demonstrate the top scores and therefore comparative effectiveness in various sections for short-term character composition. As demonstrated, the CCC group was the only group to score the highest in two sections: both recognition and recalling of characters in the first summative evaluation. It seems, therefore, with top scores in these two generally demanding sections, that CCC was comparatively more effective when learning character composition in the short-term stages of learning CFL in this study (see also Osborne, 2018[10]). At the same time, there appear to be

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[10] Results of short-term recall and recognition skills of each group have been published in this paper.

benefits to incorporating the DCI method, as the DCI group showed comparatively

higher skills in rapidly linking the sound of characters to the correct composition, while

the FM group also demonstrated benefits in recalling characters from memory to

describe a picture, albeit perhaps without the same demands as the recall section.

6.1.1.2. Character use

The main sections testing character use in context were the completing sentences,

reordering sentences, and text production sections.

The top results from Chapter 5 show that in the completing sentences section, five

percent of the UC group answered using correct characters in the short term. In the

reordering sentences section, the FM group provided 34 percent of correct answers and

finally, in the text production section, 47 percent of the UC group used sentences only to

describe the picture, showing a greater competence in forming sentences without relying

on individual words to describe the picture. It is worth noting that the results from the

text production section here and displayed in Chapter 5 show only how the participants

answered without taking into account their preference to write using characters or

pinyin. In fact, it is seen that only one participant from the FM group used only

characters to describe the picture using only sentences in the first summative evaluation.

This demonstrates that all other groups were reliant on pinyin to communicate when

writing sentences only. Therefore, other methods appear to have been more effective in

forming sentences, albeit when using pinyin rather than characters. This is discussed further in this chapter.

Taking note of the descriptions of each evaluation section in Chapter 3 (section 3.3.3.5), and referring to the results of short-term effectiveness for character use, it may be said that firstly the UC group was comparatively better at understanding an incomplete sentence written using characters, selecting a suitable Chinese word to use in the sentence, and supplying the correct character shapes from the meaning in the completing sentences section. The FM group performed best out of all groups in making sense of character meaning when presented with character shape in a given context in the reordering sentences section. Finally, when mapping participants' own meanings onto characters to describe a picture in the text production section, the FM group was the only group to supply only sentences using only characters. This demonstrates that the FM group was the only group to not rely on pinyin to describe the picture using only sentences, thus performing better in terms of character use. On the other hand, the UC group wrote the highest percentage of sentences only using pinyin and characters, thus demonstrating the potential benefits of this method for participants' understanding of sentences patterns.

From examining the short-term results, two main groups stand out in terms of character use and understanding of the language, albeit when using pinyin. Firstly, the UC group dealt comparatively better with completing Chinese sentences. It was probably due to

their equal focus on all four aspects of reading, writing, speaking, and listening that participants from the UC group were better able to read these sentences and choose the correct characters to fill in the blank spaces, that is, they could understand the context and therefore select the characters required. The FM group was comparatively better at reordering Chinese sentences as per a conversation. It was probably due to their focus on characters in isolation that the participants were better able to translate the characters in these sentences and order the sentences correctly. However, in this exercise, participants did not need to recall characters, they only needed to recognise them and understand the context by doing so. As a result, it seems that this section required less work from the participants apart from recognising and understanding. It is perhaps not surprising that the FM group scored the highest out of all groups in this section given the participants' focus on learning characters in isolation.

The text production section demonstrates again that the FM and UC groups scored comparatively higher in providing sentences only to describe a picture. However, the two results represent two different aspects. In the case of the UC group, the participants supplied the highest percentage of sentences only out of all groups. However, these sentences were written using pinyin with some characters, demonstrating that the UC group's method may actually have aided participants in understanding sentence formation, yet without the ability to write these sentences using only characters. On the other hand, in the case of the FM group, one participant (five percent) in the group described the picture using only sentences written using characters. Thus, in this case, the FM group's method may have allowed for relatively better results in describing a

picture using only characters and only sentences. In addition, this finding also supports the previous short-term finding in that the FM group had developed skills of recalling characters from memory to a higher rate than their peers in other groups in the text production section.

To sum up, the FM and UC groups appear to be the comparatively better methods for developing skills in using characters while the groups also demonstrated an understanding of sentence structures in the short term. The FM group scored highest in the reordering sentences section, and in the completing sentences section, the UC group scored the highest. While the FM group presented one participant using only characters to write sentences in describing a picture, the UC group actually showed a significantly higher percentage of participants being able to describe the picture using only sentences, albeit with a mix of pinyin and characters. In this way, it seems that the UC group's method was perhaps more useful to beginner learners in acquiring character use and also using the language in general, while the FM group again mainly displayed potential benefits of using FM to develop character composition skills, which also appears to have aided the participants' reading skills.

In short, the methods beneficial for short-term character learning in relation to the current study are displayed in Table 6.1.

Table 6.1. Most useful methods for short-term character learning.

Short-term character composition			Short-term character use	
Overall	CCC		*Overall*	UC
Recalling characters	FM		*Recognition of characters*	FM
Associating sound to character shape	DCI			

6.1.2. Long-term effectiveness

The previous sections discussed the results of the first summative evaluations to explore

the short-term effects of the teaching methods, including the possible benefits of using

CCC, FM, or DCI for learning character composition, and the possible benefits of using

UC or FM for learning character use. For this section, results of the second summative

evaluation are consulted under character composition and character use to ascertain the

long-term effectiveness.

6.1.2.1. Character composition

As previously discussed, the evaluation sections to be examined when analysing each

group's long-term character composition skills include the listening dictation, character

recognition, character recall, and text production sections of the second summative

evaluation.

As demonstrated in Chapter 5, the FM group scored the highest percentage (six percent) of correct characters when rapidly associating a character's sound to its shape in the listening dictation section. The CCC group came top with 3.5 percent when identifying character sound and meaning from the shape in the character recognition section, while both the FM and CCC groups scored the highest percentage (6.5 percent) in demonstrating skills in transcribing characters after being presented with the English meaning when recalling characters. Finally, in demonstrating skills in recalling characters from memory when describing a picture in the text production section, the FM group scored the highest number of words using correct characters at 158.

Both the FM and CCC groups demonstrated long-term effectiveness in developing participants' character composition skills. The FM group managed to come top in the listening dictation section and therefore the only timed section on the evaluation paper as previously discussed. In this way, it may be said that the method of FM potentially enabled participants to rapidly transcribe the characters better than their peers in other groups in the long term when they heard the sounds. The CCC group came top in another demanding section requiring two aspects of the characters to be provided, that is, sound and meaning, in the character recognition section (see Chapter 3, section 3.3.3.5). Both the FM and CCC groups scored comparatively higher percentages in recalling characters, however, the FM group provided the highest number of Chinese words using correct characters to describe a picture.

As a result, it may be said that although both methods showed positives in the learning outcomes of participants' character composition skills, the CCC group was perhaps more suited to specific character recognition and recall in the long term whereas the FM group demonstrated potential benefits to recalling characters when presented with sound, meaning, and when describing a picture.

6.1.2.2. Character use

As in the short-term section, the main sections testing character use in context were the completing sentences, reordering sentences, and text production sections.

Looking to Chapter 5, the UC group scored the highest in all three sections. In the completing sentences section, the group provided 6.5 percent correct characters, in the reordering sentences section the group scored 27.5 percent correctness, and in the text production section, 20 percent of answers were written using sentences only. As mentioned when describing the short-term results; the results for sentences only in the text production section actually include sentences written using both characters and pinyin. When the category of using only sentences and characters was taken into consideration, only one participant in the CCC group could provide complete Chinese sentences using only Chinese characters, without the need to rely on using additional words in isolation or pinyin. As in the case of the short-term results, the UC group's results show that this method was perhaps suited for learning sentence structure, albeit while using pinyin rather than enhancing skills of character use. While the CCC group

did not present the highest percentage for providing sentences only, it was the only group to supply sentences using characters only, thus presenting the highest results in terms of character use skills when describing a picture.

The results of long-term character use as highlighted in this section, and in reference to Chapter 3 (section 3.3.3.5), show that the UC group was better at selecting a Chinese word to use in an incomplete sentence and supplying the correct character shape from the meaning in the completing sentences section. The group was also comparatively better at understanding the meaning of characters when presented with character shape in a given context in the reordering sentences section. Finally, the CCC group was the only group able to supply only sentences using only characters when describing a picture in the text production, thus demonstrating their skills in recalling character shape from the meaning and forming complete sentences. As the CCC group did not rely on pinyin to describe the picture using sentences as in the UC group, the participants performed better in terms of character use. On the other hand, and as in the case for the short-term results, the UC group provided the highest percentage of sentences using pinyin and characters thus illustrating the potential benefits of a unity curriculum on participants' understanding of sentence formation.

To sum up, the methods most suitable for long-term character learning in the current study are displayed in Table 6.2.

Table 6.2. Most useful methods for long-term character learning.

Long-term character composition		Long-term character use	
Recognising characters	CCC	Overall	CCC + UC
Recalling characters	FM + CCC	Sentence structure not specifically using characters	UC

The previous sections discussed the short-term and long-term effects of each teaching method on participants' development of character composition skills and skills in using characters in various contexts. The following section therefore discusses the participants' feedback in relation to the findings from this section.

6.2. Addressing participants' feedback

While the summative evaluation results provided information on each group's language learning outcomes, it is also interesting to examine each group's results in relation to their opinion on learning Chinese in order to gain a better understanding of their results, all of which will then contribute to ascertaining the suitability of the methods when teaching CFL.

6.2.1. The feedback questionnaires (CCC group)

Firstly, previous sections demonstrate that the CCC group showed potential benefits for short-term and long-term learning of character composition, as well as long-term character use in this study. It is interesting to note that this group, according to the feedback questionnaires, was also the group to find learning Chinese most enjoyable (40 percent) (see Chapter 5, section 5.5.1), while also providing the lowest percentage in stating that Chinese was challenging because it was a difficult language (55 percent) (see Chapter 5, section 5.5.2). The participants demonstrated the most confidence when presented with the evaluations (25 percent) and stated that the effort they put in to learning Chinese allowed for this confidence (100 percent) (see Chapter 5, section 5.5.3). They showed the highest percentage of feeling motivated to learn Chinese (35 percent) (see Chapter 5, section 5.5.4) and stated that to improve their learning, they could have put in more effort (70 percent) (see Chapter 5, section 5.5.5), demonstrating the further potential for this method. The group found the written and oral exercises the easiest (23 percent and 27 percent respectively) (see Chapter 5, section 5.5.7), highlighting firstly their skills in recognising and recalling characters as demonstrated from the evaluations, and secondly perhaps how colour-coding the characters allowed them to remember the tones of characters more easily. The potential benefits of using colour when learning Chinese are again apparent when it is observed that the group tended to read when studying for evaluations (43 percent) (see Chapter 5, section 5.5.9), and presumably focus on the colours of the characters, while CCC participants outperformed their peers in short-term and long-term learning of character composition,

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as well as long-term character use. They also preferred to write characters to learn them

(62 percent) (see Chapter 5, section 5.5.10), demonstrating elements of the FM method.

This shows that the method of CCC is not only potentially an effective way for

participants to learn character composition in the short term and long term, as well as

character use in the long term, but it may also manifest a positive attitude in participants

when learning beginner Chinese. Dzulkifli and Mustafar (2013) have claimed that using

colour in lessons can aid participants' memorisation, concentration, and comprehension

of a lesson. While an element of memorisation is claimed to be needed when learning

characters (e.g. Guan et al., 2011; Winke, 2013), the colour used in the method of CCC

seems to have aided the participants in the memorisation process to a higher standard

than all other groups. The colour may have also contributed to participants'

concentration levels in class, as the use of colour was assumed to capture participants'

attention (Dzulkifli & Mustafar, 2013), as well as aid their comprehension of the lesson,

as was demonstrated from the evaluation results and feedback of this group.

Furthermore, despite the one-way ANOVA in Chapter 5 (section 5.5.3) showing no

significance between whether or not the participants felt confident during evaluations

and the learning outcomes of participants for both summative evaluations, it is still

possible that the CCC group's motivation, confidence, and effort also played a role in

their learning outcomes when previous research is analysed. For example, in a study

carried out by Wang et al. (2009), it was noted that participants with a higher level of

confidence outperformed their peers who were not confident in their language abilities.

Luo and Limpapath (2016) similarly demonstrate that higher levels of motivation in

language learners led to more positive learning experiences. Finally, Ruan, Duan, and Du (2015), Yu (2010), and Luo and Limpapath (2016) explain that when an individual is intrinsically motivated, and therefore has a personal interest in the language they are learning, they will perform better than individuals who are being influenced by external factors such as rewards or grades. Indeed, in the current research, the CCC group demonstrated the highest levels of both confidence and motivation to learn Chinese, which may have also contributed to their relatively positive learning outcomes.

6.2.2. The feedback questionnaires (FM group)

Secondly, the evaluation results show that the method of FM potentially allowed for participants in this group to develop some short-term character composition skills and some short-term character use skills, while in the long term the group demonstrated potential character composition skills. The group had the highest percentage of finding Chinese unenjoyable (82 percent) (see Chapter 5, section 5.5.1), which is not too surprising given the monotonous nature of their method. The group had the highest percentage of answers stating that participants found learning Chinese unenjoyable because they had no interest in learning it (39 percent) (see Chapter 5, section 5.5.1), yet the group provided the lowest percentage among their peers, despite an overwhelming majority of the group, in stating that learning Chinese was challenging (91 percent) (see Chapter 5, section 5.5.2). The main challenge for this group was actually the structure of the class, whereby the method of FM was specifically mentioned (32 percent) (see Table R.3 in Appendix R), and the group also presented the highest percentage of feeling

unmotivated to learn Chinese (86 percent) (see Chapter 5, section 5.5.4). To improve

their learning outcomes, participants believed that they should have put in more effort

when learning (83 percent) (see Chapter 5, section 5.5.5) and, despite the group's focus

on characters through the method of FM; the participants still provided the highest

percentage of answers stating that they felt unprepared when sitting the various

evaluations (62 percent) (see Chapter 5, section 5.5.3).

The findings show that there is some potential benefit to the method of FM in

developing skills for some short-term character composition and some short-term

character use, as well as long-term character composition. While this method is popular

among teachers and students of CFL (e.g. Winke & Abbuhl, 2007; Yu, 2018), the

effectiveness of CCC has actually surpassed that of FM as seen in Tables 6.1 and 6.2.

The FM group's feedback may lend some clues as to why this may have happened. The

FM group found learning Chinese most unenjoyable, while participants in this group

were the most unmotivated and least interested to learn Chinese in the study, which,

according to Luo and Limpapath (2016), would have had a negative effect on their

learning experience. While it is seen that some FM is needed for successful learning of

characters (e.g. Guan et al., 2011; Winke, 2013), it is perhaps the case that so much

exposure to this method actually demotivated the participants thus somewhat hindering

their potential. This claim is further backed up in participants' answers stating that the

structure of the class was most challenging, with specific mention of their teaching

method. It is demonstrated here and in the case of the CCC group how the role of

motivation plays a significant role in the learning outcomes of each group and must be taken into consideration for future CFL curricula.

In addition, it was mentioned in Chapter 2 (section 2.4.1) that the more focus applied during FM, the more effective the learning outcome would be (e.g. Greenberg, 2000). As participants stated in the feedback questionnaire that they should have put in more effort, it can be assumed that they were perhaps not focusing as much as they should have been when learning characters through FM. The researcher controlled the environment in the classroom, yet she did not have control over homework and out-of-classroom preparation for the evaluations. Therefore, the importance of applying sufficient focus to learning characters through the method of FM is highlighted. While it appears that the method of FM does carry some benefits to learning Chinese, in the current study it possibly created negative attitudes and reduced the level of concentration presumably due to the monotony of FM, which in turn has the potential to affect learning outcomes unfavourably.

6.2.3. The feedback questionnaires (UC group)

Thirdly, the UC group demonstrated potential short-term and long-term benefits in character use, while also showing potential benefits to learning sentence structures in the long term. What is worth remembering is that this group did not learn Chinese under a character-specific teaching method and instead focused equally on all four skills of reading, writing, speaking, and listening (see Table 3.3 in Chapter 3, see also section

2.4.4 in Chapter 2). Therefore, one of the main points to take from the evaluation findings is that this method does not appear to be suitable for learning character composition, and that in order to achieve character composition skills, one must dedicate more time to the written aspect of the language. As highlighted in Chapter 2 (section 2.4.4, see also Table 3.3 in Chapter 3), the UC participants did conduct written exercises using the characters, and were also instructed how to write the characters, yet it seems that a lack of a specific focus on the characters means that the method does not appear to be effective for developing character composition skills. As mentioned previously, an element of memorisation is said to be required for character composition learning (e.g. Guan et al., 2011; Winke, 2013), and so if this was an element of the UC group, it may have been the case that this group would have performed better in the character composition sections of the evaluations.

From the answers provided by this group in the feedback questionnaires, it is evident that the majority of the UC group did not find learning CFL enjoyable (61 percent) (see Chapter 5, section 5.5.1), with the majority stating that they did not find learning CFL enjoyable due to a lack of interest, and because the language was difficult to learn (38 percent respectively). The majority of the group found learning Chinese challenging (94 percent) (see Chapter 5, section 5.5.2); however, some 22 percent were confident in completing the evaluations mainly because of the effort they put in when learning (50 percent) (see Chapter 5, section 5.5.3). The group was, in general, not motivated to learn CFL (78 percent), the main reason for this being that participants had no interest in learning it (61 percent) (see Chapter 5, section 5.5.4). The UC participants believed that

they should have put in more effort to enhance their learning outcomes (64 percent) (see Chapter 5, section 5.5.5), whereby this is probably referring to not spending enough time learning characters and, interestingly, the group provided the highest percentage of answers in mentioning that participants should have tried to study using a different method (21 percent) (see Chapter 5, section 5.5.5). This point is highlighted when the group stated that the characters were the most difficult aspect of learning Chinese (78 percent) (see Chapter 5, section 5.5.6), again reinforcing the notion that if the participants had been focusing more on character composition through memorisation strategies such as in the case of the FM and CCC groups, they could have attained more favourable outcomes. The group had the highest percentage of answers saying that participants did not study for the evaluations (60 percent) (see Chapter 5, section 5.5.9) and that when it came to learning characters, the majority of the group mentioned that they tried writing, or again did not study (32 percent respectively) (see Chapter 5, section 5.5.10).

The main points of interest here are that the UC group did not cope well in the evaluations in terms of character composition in either the short term or the long term. Their feedback also demonstrates that the participants did not enjoy Chinese and were unmotivated, uninterested, and found Chinese challenging. The participants felt that they did not work to their potential, and that they should have tried another method to learn CFL, which raises the question regarding the effectiveness of the method. Again, a lack of both motivation and confidence seems to have created a negative experience for the group (e.g. Luo & Limpapath, 2016; Wang et al., 2009). The characters were

particularly difficult for this group which is unsurprising given that participants did not specifically focus on character learning strategies. Despite this, some still tried to learn by writing characters, yet a recurring answer in the group shows that many participants did not study for the evaluations. It can be seen from this finding that when learning characters, a 'default' learning strategy was perhaps FM (see also Winke & Abbuhl, 2007). Indeed, even CCC – a method shown to be quite effective as discussed earlier – contains elements of FM while allowing for a more creative and enjoyable learning experience through the integration of colours. The UC group also coped better when using pinyin to create sentences, demonstrating to the researcher that there are some potential benefits to improving understanding of sentence formations with this method. In fact, sections 6.1.1 and 6.1.2 demonstrate that the UC method was useful in the long- and short-term learning of the use of characters, however it did not show any benefits for long- or short-term learning of character composition. Therefore, the UC group actually highlights the issue as mentioned in Chapter 2 (section 2.3.2.1), that finding a balance between learning the characters and the four aspects of language learning (reading, writing, speaking, and listening) is imperative to Chinese language acquisition (Shen, 2015).

6.2.4. The feedback questionnaires (DCI group)

Finally, the DCI group did not show significant positive results in long-term or short-term character composition or character use. The DCI participants performed better in one section only: the listening dictation of the first summative evaluation. DCI had been

tested in Packard's (1990) study whereby it was mentioned that the method should provide a strong foundation in the language prior to the characters being introduced. The group learning under DCI in Packard's (1990) study showed benefits in discriminating Mandarin syllables and speaking Chinese. Similarly, the participants of the current study also demonstrated some benefits to discriminating Mandarin syllables in the short term, as seen in the listening dictation of the first summative evaluation. However, when dealing with the language through characters as opposed to pinyin, and when writing Chinese rather than speaking it, the participants of the current study had the most issues with the language. This finding is in line with a more recent study conducted in the exploration of a delayed introduction of characters versus an early introduction, whereby it was found that in introducing characters at an earlier stage, participants performed better in character-centred exercises (Knell & West, 2017). Although Allen (2009) has stated that learning characters is an inefficient use of a beginner learner's time, the current study shows that even a lag on teaching characters to beginner learners has the potential to significantly impact character learning outcomes negatively, a point that is also demonstrated in Knell and West's (2017) study.

It is interesting to note that the beginner learners' skills of language use were comparably higher in the DCI group of Packard's (1990) study compared with a control 'no-lag' group, while Ye (2013) reported benefits in overall language acquisition with DCI. In the current study, language acquisition was not a specific focus in the evaluations, which may account for the varying outcomes between this study and previous ones. Although the DCI group showed a tendency to write answers using

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pinyin in many cases, participants still had a high rate of inaccuracy with correct tones. In addition, while some 31 percent of participants answered using sentences only in the first summative evaluation, they relied on writing mostly words in isolation for the second summative evaluation (86 percent) and, in addition, could not provide any answers using sentences only. Thus, it appears that the method of DCI was perhaps not beneficial to learning character composition or character use in the current study.

On the other hand, this method was also expected to have reduced anxiety in beginner learners by reducing the cognitive workload of the DCI group in delaying the introduction of characters (e.g. Packard, 1990), so it is worthwhile to examine the feedback questionnaire answers of this group. The group provided the second-highest percentage of answers stating that learning CFL was unenjoyable (68 percent) (see Chapter 5, section 5.5.1), with the main reason stating that it was a difficult language to learn (44 percent). The entire group (100 percent) found learning CFL to be challenging (see Chapter 5, section 5.5.2), while the participants also stated that they were not confident when presented with the evaluations (100 percent) (see Chapter 5, section 5.5.3) and were unmotivated to learn CFL (68 percent) (see Chapter 5, section 5.5.4), with the main reason in each case being that the group found learning Chinese difficult. Some 59 percent of the group stated that they should have put in more effort to improve their learning outcomes (see Chapter 5, section 5.5.5), and that in learning CFL; nothing was easy (48 percent) (see Chapter 5, section 5.5.7). Interestingly, the group provided the lowest percentage stating that participants did not study for the evaluations (30 percent), and instead mentioned that they mostly read (35 percent) or wrote (25 percent)

when preparing for the evaluations (see Chapter 5, section 5.5.9). However, they also provided the highest percentage of answers describing that they did not attempt to learn the characters (55 percent) (see Chapter 5, section 5.5.10).

It appears that the method of DCI possibly created problems for participants in this group. Despite Packard (1990) suggesting the benefits of DCI in reducing anxiety in the short term, it may actually increase the anxiety of learners in the long term. The evaluation results show that the method was not comparatively useful in this study, and the general feedback shows that the DCI group found learning CFL to be most challenging. This seems to have affected their confidence and motivation, and even though the group had the highest percentage stating that participants did study for the evaluations, they could not compete with the other groups' evaluation results (see Table 5.5 in Chapter 5). A possible reason for these findings is the fact that the participants indicated that they had not attempted to learn the characters. Of course, this would have affected their learning outcomes most negatively as their focus was redirected to other aspects of the language such as pinyin. Even with this attention on pinyin, it is seen that there were still issues in providing the correct tones. The fact that they provided the highest percentage of answers describing that everything was difficult and that nothing was easy again indicates that this method was perhaps not beneficial in any aspect to the DCI group of the current study, apart from short-term listening dictation (see Table 6.1).

6.3. The method most effective for teaching CFL

The previous sections demonstrated that the methods of CCC, FM, and UC are potentially beneficial to different aspects of learning CFL, when both evaluation results and participant feedback are taken into consideration. It is worthwhile to note, comparatively speaking, that while CCC was the method most suitable for learning CFL in terms of short-term and long-term character composition, as well as long-term character use, the methods of the FM and UC groups also carried benefits (see Tables 6.1 and 6.2). Initially, this study set out to ascertain the most effective method out of four tested over one academic year, however it is now seen that a combination of the most effective methods is possibly more likely to allow for more successful learning.

A teaching method, as defined by Adamson (2004), is a "single set of practices and procedures, derived from theory or theorization of practice, that impinges upon the design of a curriculum plan, resources, and teaching and learning activities" (p.604). Liu and Shi (2007) note that this single set of practices and procedures is wholly focused on only one aspect of language learning (e.g. grammar-translation method focusing on teaching grammar through translation, or communicative method focusing on communication proficiency). In the current study, the methods of FM, DCI, and CCC had a clear focus on character learning; however, they each focused on different aspects. FM focused on the repeated writing of characters to aid memorisation, the DCI group delayed the introduction of a new writing system by firstly focusing on the pinyin of characters to decrease the cognitive workload in the initial weeks, and the CCC group

focused on using different colours to denote character tone. The UC group's method was unique in this study in that it had an equal focus on the four aspects of language learning: reading; writing; speaking; and listening, without specific focus on character learning, and therefore encompassed a unity curriculum.

In the current study, the data collected and analysed can be used to supply information for the development of a teaching methodology that is suitable for beginner learners of Chinese. Adamson (2004) and Liu and Shi (2007) have identified that there is a need to steer away from attempting to seek one 'best' method for language learning, and therefore avoid focusing wholly on teaching one aspect of the language. Instead, it is apparent that using a combination of teaching methods will allow for greater success in learning, rather than focusing solely on one particular item (e.g. Chen, 2019; Hughes, Lo, & Xu, 2019; Wang & McBride, 2016). As the nature of this study has allowed for analyses to be made on the effectiveness of each teaching method employed in each group, the researcher is in a position to make recommendations for a new CFL teaching methodology. A methodology differs from a method in the way that it does not focus solely on one aspect of language learning, but rather draws on a range of teaching methods (Adamson, 2004). Therefore, identifying effective aspects of the CCC, FM, and UC methods has allowed for recommendations to be made for the next steps in a new CFL teaching methodology.

6.4. Towards a new teaching methodology for CFL

In terms of learning character composition in the long term, the CCC and FM groups showed potential effectiveness in the current study. On the other hand, the CCC and UC groups are potentially suitable for learning character use and sentence structures in the long term. Therefore, elements of these methods, when developed into a teaching methodology, could allow for more success in students learning beginner-level CFL than when learning under one teaching method as in the current study. It is important to note, however, that as oral skills are not the focus of the current research, they have not been tested in the current study, and recommendations for the development of oral skills have not been included in the current research.

The next step is to identify how a combination of these methods could be implemented in the CFL classroom. The following sections will identify how this may be done under the headings of 1) methods suitable for character composition and 2) methods suitable for character use.

6.4.1. Methods suitable for character composition

The two main characteristics of CCC and FM are using colour when writing characters and the repeated writing of characters. Therefore, firstly, when learning Chinese characters, it seems apparent that using colours to write characters repeatedly could allow for more success in learning character composition. Previous literature has

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described a lack of creativity when using the method of FM (Kim, 2005; Tan, 2001), while the FM group showed a significant lack of interest in Chinese compared to other groups in the feedback questionnaires of the current study. The use of colour when conducting FM could therefore allow an element of creativity to occur during the learning process while reducing the monotonous nature of FM, as well as help develop a more positive attitude in learners as suggested in section 6.2.1.

The use of CCC with FM would be relatively straightforward to implement in the CFL classroom. The main issue of concern, as highlighted from the feedback questionnaires of the current study, could be a lack of effort from students as the FM and CCC participants provided the highest percentages of answers in stating that to improve their learning, they should have put in more effort (83 percent and 70 percent respectively) despite their positive learning outcomes. Yet, it is promising that should efforts of future students increase; the learning outcomes could improve under a combination of these methods that have already demonstrated to be relatively effective with reportedly low levels of effort. Another issue is that the students will need to be trained to conduct FM as in the current study. Although complaints arose from the FM group about the structure and repetitiveness of the class despite their positive evaluation results, it is possible that as a result of the introduction of colour in the proposed methodology, participants would not feel that the structure of the class is monotonous as was the case for the FM group. It is also possible that the use of colours could aid future students' concentration on the characters, which is a key component of focused memorisation (see Chapter 2, sections 2.4.1 and 2.4.3).

Firstly, students should become familiar with the colours to be used for each character

tone which in turn will also help them to practise the pronunciation of tones. In this way,

any confusion in remembering the specific colours could be avoided as they would have

already become familiar with the colours associated to each tone. It is perhaps most

convenient to allocate colours commonly found in pens such as green, black, blue, and

red, as well as a pencil for neutral tones, as in the current study. After this, they should

be taught how to conduct FM. This may be done by practising some simple characters

first such as 人 (rén – 'person'), 口 (kǒu – 'mouth'), and 中 (zhōng – 'middle').

Particularly for beginner learners, it will be necessary for the teacher to allocate class

time to practise FM throughout the course, while also testing their learning informally

on a regular basis as conducted in the current study. Once new characters in a given

lesson have been introduced, the participants should be shown the stroke order and be

allocated class time to practise under the CCC and FM methodology in order to

memorise the character composition.

6.4.2. Methods suitable for character use

While a combined method of CCC and FM is potentially suitable for learning character

composition according to the current study, students will also need to develop skills in

using the characters effectively. For this, a combination of the UC and CCC methods are

potentially suitable when the evaluation results of the current study are examined. While

the UC method appears to be most useful for understanding sentence structure, albeit

using pinyin, the group lacked the skills of being able to produce characters in various

contexts or when writing texts. Therefore, it is assumed that through learning character composition with CCC and FM, and in practising using these characters as per the UC method, it is possible that students will achieve greater success in both areas than if they were to learn under only one method as in the current study.

Instead of focusing on one methodical task as in the case of CCC and FM, the UC method comprises many tasks that the participants of the current study carried out throughout the year. Referring back to Table 3.2 in Chapter 3 (see also Table 3.3), the UC group's in-class activities included learning new words without specific focus on character composition technique, reading and translating dialogues, and conducting written, oral, and listening exercises. For homework, participants were required to learn the new characters that they had been introduced to in class; however, they were not given specific instruction as to how to do so. As a result, the UC participants spent more time in class practising the use of characters in various exercises compared to the other groups.

Some 78 percent of the UC group mentioned a lack of confidence when presented with the evaluations, with characters being one of the main causes for this (see Table R.6 in Appendix R). This may suggest that the lack of focus on character learning negatively affected their learning outcomes and also their attitudes to learning Chinese. In addition, the UC group had the highest percentage of answers stating that participants wished to try a different method for learning CFL out of all other groups, as well as the highest

rate of answer stating that the characters were the most difficult aspect of learning

Chinese. When learning characters in their own time, participants saw value in writing

the characters (32 percent of answers); however, the same percentage did not study (see

Chapter 5, section 5.5.10).

From this, it is clear that the problems faced by this group came down to the fact that the

participants did not have dedicated time to learn the characters, and that their teaching

methods did not focus specifically on Chinese characters. The evaluation results show

that the group had a better grasp of how sentences are formed in Chinese, yet

participants' lack of sufficient character composition skills let them down. Therefore, it

seems that a combination of CCC, FM, and UC may allow for success in not only

character composition, but also general language awareness and character use. The main

characteristic of the UC method that could allow for more success in using characters in

various contexts is the conducting of various written, oral, and listening exercises during

class time. It must be noted that this assumption is based on the findings from the

current study, and assumes that future students will have the opportunity to conduct at

least two hours per week learning character composition with the CCC and FM

methodology, with a further two hours per week learning how to use the characters in a

variety of contexts as per the UC method. This is further explained in section 6.5.1.

6.5. Recommendations for character introduction pedagogy

The current study originally set out to examine the effectiveness of individual teaching methods on beginner CFL learners, and therefore to make recommendations for character introduction pedagogy, which is a key component of a CFL programme. Upon completion of the data analysis, it was found that further possible recommendations could also be made for other aspects of future CFL programmes, such as the one in the planning stages in Ireland, in line with the proposed teaching methodology in the previous section. As the previous section discussed the development of this teaching methodology and therefore shed light onto the pedagogy and learning strategies of a proposed programme, in the following section, proposed content and tools of assessment are addressed in relation to these recommendations. It is also worthwhile, however, to firstly address an issue that arose from the feedback questionnaires and indeed throughout the study: the class time allocation for a beginner CFL programme.

6.5.1. Class time allocation

When the UC group is examined, the main problem for participants of this group seems to relate to the lack of focus on learning characters in the classroom, as equal time was devoted to all four aspects of reading, writing, speaking, and listening (see Chapter 3, Table 3.3). For example, while the researcher observed a reliance on pinyin within the group after instructing the group to learn the characters in their own time, these participants also suggested either delaying the introduction of characters or spending

more time on characters in the feedback questionnaire (see Table R.18 in Appendix R). Their mention of two seemingly opposing methods suggests that the group struggled to find a suitable method of learning characters when instructed to do so outside the classroom. While the combined method of CCC and FM could allow for more time to be spent learning character composition, it should not take time away from participants' practice of using the characters as per the UC method. It is therefore apparent that the class contact hours need to be increased for a beginner CFL course.

As highlighted in Chapter 3 (section 3.3.3.3), participants studied Chinese in the classroom for two hours per week, meaning that their contact time with the researcher was limited. As the participants conducted 28 weeks of teaching, this meant that they conducted 56 hours of learning over the academic year. According to Curriculum Online (2018), it is recommended that modern foreign language syllabi on the Leaving Certificate course should have a minimum of 180 hours of in-class learning over two years. As the current study would only allow for approximately 112 hours over two years, this is significantly below the recommendation. Not only this, but students will also need extra time to learn CFL compared to other foreign languages on the school curriculum in order to master a new writing system, and to allow for dedicated CCC and FM time to be conducted in the classroom. Therefore, the time allocation for modern foreign languages in the Leaving Certificate programme (e.g. French, German, and Spanish) cannot be applied to a beginner CFL course and must be increased significantly to allow for success in both character composition and character use. Interestingly, a guideline for class time allocation is not mentioned for the Japanese Leaving Certificate course, which also challenges students with a new writing system.

If participants were to learn CFL under the proposed CCC, FM, and UC methodology, a more suitable hour allocation could be more than four hours of in-class learning per week with a very minimum of two hours focusing on CCC and FM, and two hours focusing on conducting various reading, writing, speaking, and listening exercises. When the participants of the FM and CCC groups of the current study learned CFL for two hours per week, they performed comparatively better in the evaluation sections dealing with character composition. On the other hand, the UC (and CCC) group(s) scored comparatively higher in using the characters in various contexts after learning under this method at a rate of two hours per week. However, as noted from Chapter 4 and Chapter 5, the results of the participants in general were quite low. Therefore, increasing class time in a combined CCC, FM, and UC methodology to provide more than four hours could potentially allow for more success in both character composition and character use in beginner CFL learners.

6.5.2. Content

The content used for the current study was based on the NPCR textbook as highlighted in Chapter 3 (section 3.3.3.3). This textbook adopts a communicative approach to learning CFL, which, in the case of Ireland, is also the approach set out in the curricula of modern foreign languages on the Leaving Certificate course (Curriculum Online, 2018). This textbook, aimed at English speakers learning Chinese, is in line with the first level of the Chinese proficiency test, the HSK (Liu et al., 2007), and so was appropriate for a beginner level. Despite the researcher using a textbook so apparently

suitable for the participants of the study, the feedback questionnaires and informal feedback gathered throughout the year showed that the participants actually had some criticisms with regard to the content as described in the following paragraphs.

As seen in the Appendix R, some participants stated that the volume of content led to their non-enjoyment of Chinese, finding Chinese challenging, not feeling confident or motivated to learn Chinese, and they even stated that the volume of content was unhelpful for their learning. In providing suggestions for improvement of the course, some participants again mentioned that there should be less content. Based on the results of the formative evaluations and the researcher's observations during the study, the lessons were adapted for the participants as the dialogues became overwhelming for them. From this feedback, it would seem that the content prescribed by the NPCR could have been too demanding for some of the participants. However, given the fact that the first textbook of the NPCR series is recommended for beginner learners, and is taught using the same communicative approach that the participants were envisioned to have mostly been accustomed to, it is probable that the volume of content was not the issue, but rather, the quantity of time allocated to cover the content. As mentioned in the previous section, the time allocated for the current study was significantly less than any other foreign language class in an Irish secondary school. Therefore, once the class time allocation is increased; it is possible that future students would not feel as if there was too much content to deal with, as it would be spread over a longer time period.

Due to the feedback received from the formative evaluations, particularly in the final

quarter of the study, the researcher shortened the dialogues of the NPCR as the length of

these seemed to be particularly challenging for the participants (see Chapter 4, section

4.5). Oral feedback also showed that after this alteration of dialogues, while still

including all key content, the participants could deal with learning the characters and

content better than when using lengthy dialogues from the textbook. Again, this issue

appears to be due to the limited class time allocated to teaching the participants. It also

highlights Adamson's (2004) belief that teachers have a responsibility to realise that

every class is unique, and therefore a 'one size fits all' approach must be discarded.

Instead, the needs of the learners must be considered, and the syllabus developed

accordingly, to allow for successful learning.

Additionally, as all participants in the current study were in possession of an iPad as per

the school policy, it is important to note the prevalence of using modern technologies in

the classroom (see Chapter 2, section 2.4.2). The current research has demonstrated the

need for writing Chinese characters to assist reading and writing skills, while the review

of the literature has demonstrated the unlikeliness of learning how to write characters

via typing alone (e.g. Longcamp et al., 2008; Tan et al., 2005). Yet it is also important to

note that future CFL learners will also need to be instructed on the methods used to type

Chinese characters (see Chapter 2, section 2.4.2) in order to allow for successful digital

literacy as technological advances persist. Some recent research into teaching and

learning CFL has demonstrated a focus on using technology in learning, such as blended

learning and using virtual realities (e.g. Hughes et al., 2019; Li & Tong, 2019; Xie,

Chen, & Ryder, 2019). This further demonstrates the popularity of using modern

technologies in the classroom, and the studies indeed suggest benefits to learning CFL

when using these in terms of oral abilities, despite the apparent lack of benefits to the

written aspect of the language. Therefore, future content may include teaching typing

skills to students, and teaching students how to use Chinese-specific communication

applications, so that they may have the freedom to practise writing characters in a

variety of ways, including via pinyin input method and fuzzy-matching techniques as

highlighted in Chapter 2 (section 2.4.2).

6.5.3. Assessment

For the current study, the researcher used recognition and recall tests to determine the

learning outcomes concerning character composition of each group, while the learning

outcomes concerning using the characters in various contexts were measured with

completing sentences exercises, reordering sentences exercises, and a text production

section. Findings from the four formative evaluations and two summative evaluations

were presented in Chapters 4 and 5 respectively.

The assessment covered the reading, writing, and listening abilities of the participants,

as the focus of the assessments was to test participants' skills of character composition

and character use. Therefore, the assessments adequately covered these areas of

learning. However, in a normal language classroom whereby the primary focus is not on

assessing the written aspect of the language in various ways, an oral assessment should

also be included. This would allow for students to be assessed in all four skills of reading, writing, speaking, and listening.

It is also usually seen that foreign languages are tested through a combination of some of the following exercises to assess overall language acquisition: 1) reading comprehensions with questions; 2) listening exercises whereby information is to be collected by the student; 3) grammar points that have been learned throughout the course; 4) a text production section describing an event or including prescribed words; 5) an oral conversation or presentation on a cultural or relevant topic; and 6) translation into English. Where the language does not use the Roman alphabet, the relevant writing script is also usually tested in specific sections of recall or recognition. Therefore, for a beginner CFL programme, the assessment should include recall and recognition exercises along with some of the example exercises as listed above, while oral skills should also be tested.

Specifically relating to the context of Ireland, some recommendations in relation to the assessment of foreign languages taught in secondary schools have been outlined in a strategy plan entitled *Languages Connect* compiled by the Department of Education and Skills (2017). In this plan, the implementation of CLIL (content and language integrated learning) is advocated to enhance and support foreign language learning in secondary schools. CLIL is an approach used in the classroom whereby the target language is the medium used to learn content, while the resources relating to specific content also aid

language learning (Dalton-Puffer, 2007; Ruiz de Zarobe, 2013). Dalton-Puffer (2007) also points out that as the students are engaged in communicating a variety of content through the target language, the target language becomes the medium of this knowledge transfer. Therefore, CLIL is seen as a marriage of a communicative teaching approach, whereby students communicate through the target language in the classroom, and task-based learning, whereby students carry out tasks while using the target language in the classroom (ibid.). As is evident in the case of Ireland, Ruiz de Zarobe (2013) highlights the fact that CLIL has been supported by language policymakers right through to parents and teachers in an effort to support language learning through communication.

While CLIL may be only deemed suitable for non-beginner classes due to the fact that the approach only advocates the use of the target language in the classroom, a more appropriate intervention for the proposed Leaving Certificate curriculum may involve task-based learning. This involves students being presented with a task to complete in the classroom, such as making a reservation in a restaurant, and utilising the target language to complete this (e.g. Ellis, 2003). Furthermore, Ellis (2018) describes that the aim of task-based language learning is to facilitate incidental language learning through performing tasks and does not necessarily rely only on the target language, meaning that it could be beneficial for beginner foreign language learners. Task-based learning at the beginner foreign language level is also further supported by Ellis (2018), Shintani (2018), and York and deHaan (2018), and it is seen to foster communicative skills and student engagement (York & deHaan, 2018). The tasks can be designed to incorporate specific vocabulary or grammar, and can be pedagogical or real-world based (Ellis,

2018). As a result, any number of tasks may be designed commensurate with the needs of a beginner foreign language classroom. In the CFL classroom, this may include real-world group-based tasks such as: creating a guide for various Chinese cities and destinations; presenting a 'how-to' guide for Chinese-specific apps such as *WeChat*; creating an advertisement for simple products; or cultural presentations. This would allow students to use the language both orally and in writing, while at the same time allow them to develop their Chinese cultural awareness and vocabulary. Table 6.3 outlines the programme guidelines for a CFL beginner course more clearly.

Table 6.3. Recommendations for a CFL programme

Pedagogy/learning strategies	*Class time allocation*	*Content*	*Assessment*
A combination of CCC, FM, and UC	More than four hours per week	Relating to HSK 1 for beginner level	Assessments testing character composition, character use, and language skills (reading, writing, speaking, and listening)

It is worth noting that while the results from the current study aided the recommendations for pedagogy and learning strategies, as well as the class time allocation, it is still necessary to conduct further research on the methodology of CCC,

FM, and UC to examine its effectiveness, while the same can also be said for analysing sufficient class time allocation and tools of assessment.

To sum up, in answering the main research questions and sub-questions, the researcher was led to the conclusion that there was not only one method most suitable for teaching CFL to beginner learners. Instead, a combined methodology of CCC, FM, and UC is potentially most suitable when teaching CFL for the development of skills of character composition, use, and knowledge of sentence structures. In terms of developing a programme for CFL at the beginner level, it is seen that class time must be increased significantly to allow future students to spend sufficient time learning character composition, use, and language use in general. In addition, textbooks following the HSK guidelines are suitable once sufficient time has been allocated to conduct a CFL course, and in terms of assessment, additional assessment exercises to test oral skills and other written skills (see example exercises in section 6.5.3) must be implemented to the current study's format in order to test reading, writing, speaking, and listening skills, as well as character composition and character use. Finally, it is apparent that future CFL learners must be motivated to allow for success in acquiring CFL. Therefore, to implement a beginner CFL course to an examined curriculum should cater to the motivational needs of future students.

Chapter 7: Conclusion

The current research set out to examine the effectiveness of various CFL teaching methods on beginner learners of CFL in an Irish secondary school. More specifically, the researcher wished to ascertain the effectiveness of FM, DCI, CCC, and UC in terms of short-term and long-term learning of character composition and skills in using characters in a variety of contexts. The research was conducted in light of a need for research to be conducted in the area of teaching CFL to native speakers of English, specifically in finding a balance between character learning and overall CFL learning (Shen, 2015; see also Chapter 1, section 1.2). In addition, in 2017 it was announced that a new CFL course would be introduced to the Irish education system within 10 years, despite the first formal CFL course having only been introduced to Irish secondary schools in 2014. Therefore, research such as that outlined in this study could be very useful in the development of this course.

Findings from the four formative evaluations as displayed in Chapter 4 (sections 4.2.7, 4.3.7, 4.4.7, and 4.5.7) revealed that in the short term (from the first formative evaluation to the second formative evaluation), the methods of FM and CCC showed potential benefits to learning character composition and some character use, while the UC method demonstrated potential benefits to learning character composition. In the long term (from the first formative evaluation to the fourth formative evaluation), the FM and CCC methods again demonstrated benefits, while the UC method seemed to be

useful for learning character use. The DCI group demonstrated a dependence on pinyin throughout the formative evaluations.

Findings from the summative evaluations as discussed in Chapter 6 (sections 6.1.1 and 6.1.2) demonstrated that in the short term (the first summative evaluation), the FM and CCC methods were potentially suitable for learning character composition, while the DCI method showed potential benefits in the listening dictation. The UC and FM methods, on the other hand, demonstrated potential benefits to learning character use in the short term. In the long term (the second summative evaluation), the FM and CCC methods appeared to be useful for learning character composition, while the UC and CCC methods demonstrated potential benefits to learning character use. From these findings, a new methodology of FM, CCC, and UC was proposed (see Chapter 6, section 6.3)

Findings from the feedback questionnaire displayed in Chapter 5 (section 5.5.17), showed that participants found Chinese challenging mainly because it was a difficult language to learn, while the majority of each group believed that they should have put in more effort to achieve better learning outcomes. The characters were the most difficult aspect of learning Chinese for the majority of participants in each group and they were also the least-enjoyable aspect for all groups. Writing characters was a popular method of study, while participants recommended learning more about Chinese culture, learning less content, conducting projects and group work, and having more in-class hours for

future CFL programmes.

Recommendations for a new CFL programme were also discussed in Chapter 6 (see Table 6.3) and included dedicating four hours for CFL classes per week at the very minimum, selecting content relating to HSK level one, and developing assessments to test both character composition, use, and overall language acquisition.

The current research has therefore contributed to the field of CFL pedagogy in providing these recommendations, and specifically responds to the call for more research to be conducted in relation to native speakers of English learning CFL (Shen, 2015; see also Chapter 1, section 1.2).

7.1. Limitations of the current study

In general terms, validity in research refers to the appropriate use of relevant tools, processes, and data to answer a research question (Leung, 2015). Reliability in research refers to the notion of being able to successfully replicate the processes and results of the research in question (ibid.). A research limitation is defined by Price and Murnan (2004: 66) as a systematic bias that is out of the researcher's control but may influence the results. These limitations pose a threat to the validity of the research (ibid.), and so the researcher of the current study ensured appropriate steps were taken in order to minimise the threat to validity from the research design perspective. However, some of

these factors could not be avoided. These include limitations surrounding a quasi-experimental study, potential limitations within the questionnaires, the participant profile, the motivation of the participants to study a non-examined subject for an academic year, special requirements of some participants, and other variables in the research. The following sections will discuss these factors, highlighting how they were dealt with by the researcher.

Firstly, it is worth noting that in order to ensure validity and reliability in a project, Sagor (2000) notes that relying on one single source of data is to be avoided. Instead, Sagor (2000) highlights that researchers should use a variety of sources to collect data. In the current research, this was ensured by not only recording the summative and formative evaluation results, but by also providing participants with the opportunity to supply feedback on the course in the feedback questionnaire. In addition to this, the researcher's in-class observations also formed part of the data.

In collecting data using these quantitative and qualitative tools, the researcher attempted to ensure both the validity and reliability in the research. For example, in focusing on beginner CFL learners with a variety of backgrounds, learning styles, and motivations, the real-life classroom situation is represented to a large extent. This means that the current research may be relatable to other CFL learners around the world. Although the researcher was heavily involved in the research by teaching the participants, the objectivity of the research was preserved through the nature of the data collection, particularly in reference to participants' evaluations and questionnaires. As these are

presented in Chapter 4 and Chapter 5, the researcher has displayed the facts and findings of the research before analysis in order to preserve objectivity.

7.1.1. Limitations surrounding quasi-experimental research

Before other limitations are discussed, it is important to note first the limitations of conducting a quasi-experiment study.

It was mentioned in Chapter 3 (section 3.1) that while the researcher could test various interventions among different groups in a quasi-experimental study, it would be difficult to pinpoint the exact variable causing a given change. Despite the researcher of the current study keeping all other variables consistent after each group's relevant teaching method, there were still other pre-existing factors that may have influenced the observed changes. The researcher thus attempted to decipher any other possible variables with the feedback questionnaire (results displayed in Chapter 5, section 5.5). An example of this feedback demonstrated that the CCC group showed more positivity towards learning CFL at the same time as performing comparatively better in the evaluations, while the DCI group demonstrated the opposite of this. While it is possible that these positive or negative feelings manifested as a result of the various teaching methods, it cannot be said for certain that this is the case, as other variables may have influenced the findings.

In addition to this, the research involved convenience sampling (see Chapter 3, section 3.1) as the groups were not randomised as per a true experiment design. This means that

the generalisability of the current research is limited. Generalisability is defined by Bean (2011) as a "powerful statistical tool that allows researchers to make predictions about patterns of behaviour in a population" (p. 175). Therefore, results of the current research cannot be generalised to the larger population of CFL learners worldwide, as one group may have been academically stronger compared to another (see Chapter 5, section 5.2.6). This also has implications in relation to the Chi-square tests reported throughout this dissertation, as the outcomes cannot be generalised to a larger population. Finally, it is worth mentioning that as a result of this method of convenience sampling, it was not possible to conduct a pilot test for the research. By conducting a pilot test, some participants would have been exposed to CFL and various teaching methods prior to the research, which would have led to an inaccurate reporting of the findings.

Despite these limitations, in order to investigate the effects of various teaching methods in a practical setting, i.e. a classroom, a quasi-experimental research design was the most suitable design for the current research. In addition, the researcher advises some future research recommendations as outlined in section 7.2, including further testing of the given methods, in order to assess the findings further.

7.1.2. Participant profile

The participants were students in their fourth year of an Irish secondary school. This fourth year in Irish secondary schools, as mentioned in Chapter 3 (section 3.3.2), is a year in which students are encouraged to broaden their horizons through learning new

subjects and life skills. The nature of this year-long programme means that students are

not preparing for any State examinations as in the case of all other students in different

years. Students may become involved in extra-curricular activities that can take place

during class time, and around Christmas-time students generally practise – both during

and after school hours – for a musical to be performed before the school closes for a

two-week break. Subjects and courses are usually completed in different block weeks,

depending on the school, before the curriculum changes for a new round of subjects and

courses. In the school of the current study, Chinese was the only subject whereby

students attended two one-hour classes for the entire academic year. It was also the only

subject whereby homework and assessments were given akin to all other years. The

participants were still assessed in other subjects during the year, however not to the

same intensity as they were with the CFL course. It became known to the researcher

through oral feedback that the participants were somewhat displeased that they had to

conduct this course in what they presumed would be a less demanding year. It is

possible, therefore, that their attitudes towards the course affected their learning

outcomes.

Another limitation was the fact that some participants missed many classes due to

participating in day trips or workshops, and because of this, they had to catch up in their

own time. These activities were mainly decided upon during the year by relevant

teachers, and so could not be factored into the timetable of lesson plans by the

researcher. A small number of students were absent for a significant time period due to

illness or conducting a semester abroad, along with usual instances of absenteeism as

seen in a school. Chapter 4 highlighted the circumstances of each group, that is, if a participant had withdrawn from the study, and the number of participants present for each evaluation, for example.

If the participants had been part of another year in secondary school, they would have perhaps dealt better with this structured programme as they would have been following a similar routine in other subjects. This raises the question as to why transition-year students were chosen, and the answer is relatively simple: if the researcher were to conduct a study such as this in any other year, then the hour allocation for other subjects would be affected. This would mean that students would have to take on an extra subject that would not be State-examined, and therefore they would lose hours in subjects that they would be examined on. Therefore, it made the most sense to conduct the research with students who were part of a curriculum that aimed to broaden horizons with subjects not widely taught in schools.

7.1.3. The questionnaires

The biographical questionnaire presented to the participants at the beginning of the year was used to build the participant profile. The participants were asked in one section to evaluate their other foreign languages studied in stating if their level was fluent, moderate, or poor. This question prompted both exaggeration and modesty among

participants, which the researcher found out in the initial stage of the research[11]. Indeed, previous research cautions the use of self-reporting in various studies (e.g. Razavi, 2001; Sallis & Saelens, 2000; Schoeller, 1995). Two main limitations of using self-reporting in research include: deliberate inaccurate reporting causing the subject to be presented in a more favourable light; and non-deliberate inaccurate reporting as a result of failing to remember specific items (ibid.). Despite the limitations, however, it is still used widely in research (ibid.), especially when it is not possible to access the information through other methods, thus its inclusion in the current research.

A further factor of the current study may have impacted the participants' feedback questionnaire answers. As demonstrated in Chapter 5, an overwhelming percentage of participants found that the characters were the most difficult aspect of learning Chinese. As seen in Appendix R, the characters appeared to be a constant problem for the participants as exemplified by the answers given to various questions, e.g. non-enjoyment of Chinese, finding Chinese challenging, and not feeling confident during evaluations or motivated to learn Chinese. At a surface level, it appears that the characters were the main source of problems for the participants of the current study. However, each group's method of learning CFL was concerned with the teaching of characters in some way, and prior to commencement of the study, all participants were also informed that the purpose of this study was to ascertain effective methods for

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[11] All language teachers of the secondary school, including the researcher, were sent each participant's foreign language result of their Junior Certificate exams once these became available during the first stage of the research. A cross-check of participants' self-reporting and their actual results made it clear to the researcher that the participants were mostly inaccurate in describing their foreign language levels. However, as the researcher mainly wished to examine whether or not the participants were learning another foreign language, this did not affect the results of the research.

teaching character composition and character use. For this reason, it may be the case that with such a focus on Chinese characters from the outset, the participants were influenced to believe that the characters were indeed their main issue when learning CFL.

While this is a possible reason for the high frequency of mentioning characters in their answers, previous research has also demonstrated that characters are deemed to be one of the most difficult aspects for learning Chinese (e.g. Hoenig, 2009; Shen, 2010; Xing, 2006). Therefore, while participants did have a focus on characters in some way in the current study, it is also possible that they would have answered that characters were a main difficulty to a similar frequency if they had not been specifically focusing on characters, as this appears to be a main difficulty of CFL learners in general.

The researcher made all efforts to avoid influencing the participants in any way when compiling questions for the feedback questionnaire. When asked, for example, why they did not enjoy learning Chinese, what the most difficult aspects of learning Chinese were, and why they did not feel confident or motivated when conducting the evaluations and learning Chinese respectively, the researcher did not supply options for the participants to choose from. Instead, they were able to freely write their true feelings in relation to these questions without parameters. This was the case for all questions in the questionnaire (bar the 'yes/no' questions), as the researcher did not wish to have an influence on any answers provided.

7.1.4. Motivation of participants

Motivation, as defined by Guerrero (2015), usually relates to the commitment, enthusiasm, and persistence of individuals in achieving goals. Motivation in second language learning is a phenomenon that has been widely researched in the field of education and social psychology (Dörnyei, 1998; Gardner, Lalonde, & Moorcroft, 1985; Noels, Pelletier, Clément, & Vallerand, 2000). Among this research, a significant correlation between motivation and success exists, suggesting that motivation plays a key role in language learning achievement. In the biographical questionnaire presented to participants in the current study, it was found that the students were mostly 1) extrinsically motivated or 2) both extrinsically and intrinsically motivated, as demonstrated by the 'extrinsic' and 'mix' labels of the relevant figures in Chapter 4 (Figures 4.4, 4.8, 4.12, and 4.16). In other words, their answers showed that in all groups, participants were motivated by items such as rewards, grades, or self-fulfilment.

The motivation of participants appears to go hand-in-hand with the nature of their year of study. As mentioned here and in previous chapters, in this year of school students do not prepare for any State examinations. Despite a grading system being in place for all transition-year students in the school of the current study, the participants began to feel unmotivated throughout the year. After observing this fact in the classroom and hearing this via verbal feedback from most of the participants in each group, the researcher implemented a rewards system around the time of the third formative evaluation to encourage participants to study more effectively as well as put in more effort both inside

and outside the classroom (see Chapter 4, sections 4.3.7 and 4.4). Furthermore, oral feedback from participants to the researcher demonstrated that the participants had a relaxed attitude to the school's aforementioned grading system. They relayed to the researcher that a poor grade would not affect their progression to the next year of study, and therefore a poor grade in any subject did not carry any significant consequence. Other teachers in the school also reported the participants' relaxed attitudes towards this grading system in their respective subjects which then led to the implementation of other rewards systems for a number of other classes.

From the feedback questionnaires, it was observed that the rewards implemented by the researcher motivated the participants to put in more effort, whereas a lack of rewards, or indeed a grading system with no real implications, had the opposite effect. As a rewards system appears to have motivated participants, it seems likely that a set goal to work towards is perhaps needed to ensure that participants put in sufficient effort when learning CFL, even when the biographical questionnaire showed that participants were mostly 1) extrinsically motivated or 2) both extrinsically and intrinsically motivated. Alternatively, it seems that if the course were a State-examined subject, the participants would have had a major goal to work towards and would probably not have had so many issues with motivation levels. The final exams in secondary schools in Ireland and around the world usually dictate the next step in students' education. Therefore, it is possible that motivation would be at an even higher level at this stage of education as a poor result would pose a much greater consequence. Indeed, an option to complete the HSK 1 or HSK 2 certificate could also act as an incentive to motivate participants,

though the participants would also need to pay a fee to sit the HSK exams (around €20-€30).

In addition to extrinsic motivation factors, it is also worth mentioning that the intrinsic motivation of future students of CFL could be important as demonstrated in the CCC group, whereby interest in CFL was at a rate higher than all other groups (see Chapter 6, section 6.2.1). Should a methodology of FM, CCC, and UC be incorporated into future CFL curricula, it is possible that intrinsic motivation would be catered for if an interest in the language were created via the use of colour as in the current study. In addition, many participants reported that learning about Chinese culture was the most enjoyable aspect of the course (see Chapter 5, section 5.5.11). Through the incorporation of culture-specific task-based learning (see Chapter 6, section 6.5.3), it is possible that this learning of Chinese culture through the language may also contribute to future students' motivation levels. In both cases, future research is needed to explore this further.

7.1.5. Additional needs of participants

Another factor worth noting is the additional educational needs of some of the participants. A small number of participants required, as per school policy, additional resources during class in the form of a special needs assistant, as well as permission to use notes during the evaluations. As the protection of the participants was (and is) of utmost importance to the researcher, these school rules for the small number of students

were meticulously followed. At the same time, a quasi-experimental study allows for the real-life classroom situation to be examined, thus the inclusion of these students' data.

7.1.6. Other variables

The purpose of this study was to investigate the effectiveness of various CFL teaching methods on participants' skills of character composition and character use through a quasi-experimental research design. While this enabled the researcher to work in real-life classroom scenario and was therefore deemed the most appropriate process for the current study, naturally it also came with other variables that may not have been met with in a more restricted study such as an experimental design.

The researcher made every effort to ensure that the variables that could be controlled were kept constant throughout the research. These included: using the same teaching material; each group of participants being taught by the same teacher; and each group having the same frequency and duration of lessons. As noted in Osborne at al. (2018), the complexity of each student and their background meant that it was extremely difficult to control all possible variables in the current study. Due to the limited previous research on the teaching methods used in the current study, it would be worthwhile to investigate other variables such as increased frequency or duration of lessons, for example, as mentioned in Chapter 6 (section 6.5).

Despite the presence of other variables as noted in this quasi-experimental study, it is still deemed an appropriate process to investigate the effectiveness of CFL teaching methods as it creates a real-life situation that can now be developed and investigated further.

7.2. Recommendations for future research

While the current research has demonstrated that implementing a methodology of FM, CCC, and UC is potentially effective for developing character composition skills as well as skills in using characters in a variety of contexts, research is now needed to test this new methodology in teaching CFL. As outlined in Chapter 6 (see section 6.5), while the FM and CCC methods showed more promise in developing character composition skills, the UC group primarily showed promise in constructing sentences, albeit using pinyin. According to the current research, it is envisioned that in teaching CFL for a minimum of two hours per week under FM and CCC, with a further minimum of two hours per week teaching under the UC method, future students could benefit in terms of learning both character composition and use. Yet, further examination is required to test this theory. The researcher recommends examining this methodology through a quasi-experiment study, as this enables a variety of quantitative and qualitative data to be collected in a real-life classroom situation. Indeed, both the new teaching methodology and recommendation on classroom hours should be examined in future research.

In addition, using a similar methodology in direct follow-on studies would allow for the testing of different variables as highlighted in the recommendations (Chapter 6, section 6.5), such as the effects of increased classroom hours, different content, or different assessment procedures. It would be useful to recruit a larger number of participants for these potential follow-on studies, and in this way interrogate the findings from the current research as highlighted here.

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Appendices

Appendix A: Letter to Schools Seeking Participants

Dear X,

I am writing in connection with a Ph.D. I am currently undertaking in DCU for which I require transition-year students for the data collection process, which I hope to be recruited in your school. The project involves seeking the most effective methods for teaching Chinese as a foreign language, and will require transition-year students to learn Chinese for the academic year under a variety of teaching methods, as well as being presented with two evaluations in December and in June, and two feedback questionnaires at the beginning of teaching and after the course has been completed.

Firstly, I will tell you my background in the area. I began learning Chinese myself upon entering DCU where I studied Applied Languages and Translation Studies with Spanish and Chinese. Having spent a year abroad in Hong Kong studying translation and teaching English to local children, I became interested in looking at effective methods for teaching foreign languages. After I graduated I completed an MA in Translation Studies with Spanish and Chinese. It was during this year that my now supervisor, Dr Qi Zhang, approached me with some of her research that would require the work of a Ph.D. student. As this research mainly focused on looking at how students learn Chinese characters, I began to think about the effect of time spent learning characters on the development of other aspects of the language, such as communication strategies and language functions. It was then I noticed a major gap in the literature, and thus my Ph.D. research was born.

I am currently in my first year of my Ph.D. where I am working on my literature review, refining my research design, taking graduate training modules, and teaching. In 2015 I taught Chinese Economic Translation to undergraduate and master's students, and this year I am teaching grinds in Chinese Literature and Film and Chinese Translation at undergraduate level. I have completed a Research Design module and am currently taking modules in: Academic Writing; Tutoring; Quantitative Methods; and Research Integrity.

So, why the need for such research? Chinese is undoubtedly growing in popularity and demand in the business world, and currently Ireland is playing catch-up with other countries who teach Chinese as a foreign language in schools abroad. While there are some pilot programmes being tested in various secondary schools here, Chinese is still not an exam subject in Ireland. In order for Ireland to catch up and surpass other countries, effective teaching methods need to be implemented to allow for competency and skill among students learning Chinese. It is hoped that the results of this experiment will influence the curriculum and policy planning of teaching Chinese as a foreign language in Irish secondary schools, and in turn prove Ireland to be a leader in innovative teaching methods for Chinese as a foreign language.

The experimentation process of the Ph.D. is due to take place from September 2016 - June 2017. During this time, I hope to teach three groups of 30-40 transition-year students (90-120 students) separately for two hours a week (3x40 minute classes), meaning I would require 6 hours of the transition-year timetable per week. The students will be taught using three different, but easily comparable methods of teaching: rote

memorisation[12]; delayed character introduction; and character colour-coding. Each group of participants will be taught the same content and will be presented with the same evaluation test in December and June, as is the norm for regular school Christmas exams.

The proposed course will have numerous advantages for each student. As well as reaching a level one of six in HSK (Chinese proficiency test), students will also be exposed to other key factors associated with transition year. These include the opportunity to learn a new language without the pressure of an exam, to develop academic skills, and to be exposed to and adapt to a new method of teaching which may, in turn, benefit subjects taken in the senior cycle.

The proposed course will also have a list of benefits for the school. They will receive a teacher with experience of teaching Chinese at a university level and in teaching a foreign language to children. The lessons and evaluations will be conducted at no charge to the school or to the participants. Currently, a private introductory course in Mandarin would cost an average of approximately €200pp for only 12 weeks. The school as a whole will greatly benefit the advance of deciphering effective teaching methods for Chinese as a foreign language in beginner learners.

I would be obliged if you would consider taking part in this project and providing a unique opportunity to your students. My contact details are listed below; please do not hesitate to contact me should you require more information.

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[12] This is referring to the FM method that was renamed at a later stage.

I look forward to hearing from you and to arrange a meeting to discuss this further.

Kindest regards,

Caitríona Osborne

Appendix B: Plain Language Statement, Consent Form, and Assent Form

Plain Language Statement

The project

What are the methods for teaching Chinese (Mandarin) as a foreign language proven to be most effective in CFL (Chinese as a foreign language) beginners?

The project will be conducted by Ph.D. Candidate Caitríona Osborne, funded by the School of Applied Language and Intercultural Studies (SALIS) in DCU, under the supervision of Dr Qi Zhang.

It will recruit approximately 100 transition-year students split into four groups, who will be taught Chinese characters using a different method (rote memorisation, delayed character introduction, character colour-coding, and a unity curriculum approach). The researcher wishes to investigate which methods of teaching Chinese characters has the best effect on basic Chinese communication, which previous studies appear to lack.

Why is it being conducted?

The EBCL (European Benchmarking Chinese Language) project states China's now important role in Europe having become the primary trading partner EACEA (Education, Audiovisual and Culture Executive Agency). The research will contribute to

deciphering the effectiveness of learning Chinese through various methods, in the hope that such will contribute to existing literature and in forming curricula in the future. Effective teaching methods that have the potential to equip students with necessary communication skills are vital to catch up with current global trends, where Chinese is already taught in schools around the world.

Agreement to participate

Upon agreeing to participate, students will agree to attend 2 hours of Chinese language class a week, complete minor homework tasks, sit two evaluations in December and June along with four continuous assessment evaluations, and complete a simple questionnaire prior to the course as well as a feedback questionnaire upon completion of the course.

Protection of participants

The participants will complete the evaluations anonymously. All data will be stored in a locked cabinet on DCU campus whereby only Caitríona Osborne will have access. The data will be destroyed after five years, by running the exams through a shredder. The involvement/non-involvement in the project will not affect participants' relationship with DCU and they may withdraw from the research study at any point. Participants must be aware that confidentiality of information provided cannot always be guaranteed by researchers and can only be protected within the limitations of the law - i.e., it is

possible for data to be subject to subpoena, freedom of information claim or mandated reporting by some professions. In all cases, participants and the school will remain anonymous.

There is no risk present greater than that encountered in everyday life. The research carries many benefits, in that each participant will have gained a new skill of relatively good communication in basic Chinese.

Informed consent

The researcher will seek signatures of informed consent by all parents/guardians and children at the beginning of the course and will be freely available to discuss any matters which may arise.

Results of the study

Participants and parents/guardians of participants may contact the researcher if they wish to know the outcome of the study using the contact details below for Caitríona Osborne.

Contact

The researcher may be contacted at: Desk 44, CA126, Henry Grattan Extension, Dublin City University, Glasnevin, Dublin 9; email: caitriona.osborne3@mail.dcu.ie; tel: 0857446747. Participants will be welcome to contact the researcher in the future to know the results.

If participants have concerns about this study and wish to contact an independent person, please contact: The Secretary, Dublin City University Research Ethics Committee, c/o Research and Innovation Support, Dublin City University, Dublin 9. Tel 01-7008000 Email: rec@dcu.ie

Informed Consent

What are the methods for teaching Chinese (Mandarin) as a foreign language proven to be most effective in CFL (Chinese as a foreign language) beginners?

The project will be conducted by Ph.D. Candidate Caitríona Osborne, funded by the School of Applied Language and Intercultural Studies (SALIS) in DCU, under the supervision of Dr Qi Zhang.

With China's prominent role in Europe, and no compulsory Chinese language classes in Irish secondary schools, the researcher wishes to test which methods of teaching Chinese characters is most effective for achieving relatively good Chinese communication.

Upon agreeing to participate, your child will attend 2 hours of Chinese language class a week, conduct minor homework tasks, sit two evaluations in December and June along with four continuous assessment evaluations, and complete a simple questionnaire prior to the course as well as a simple feedback questionnaire upon completion of the course.

Participant guardian – please complete the following (Circle Yes or No for each question)

I have read the Plain Language Statement (or had it read to me)

    Yes/No

I understand the information provided

    Yes/No

I have had an opportunity to ask questions about this study to the researcher

    Yes/No

I have received satisfactory answers to all my questions

    Yes/No

I am aware that the evaluation results of each group will be used in the research

    Yes/No

I am aware that my child will remain anonymous in the study

    Yes/No

I am aware of what is required of my child as per in the plain language statement

    Yes/No

Your child may withdraw from the Research Study at any point.

Your child will complete the evaluations and questionnaire anonymously as the researcher will use a numerical system. All data will be stored in a locked cabinet on DCU campus whereby only Caitríona Osborne will have access. The data will be destroyed after five years, by running the evaluations and questionnaires through a shredder. The involvement/non-involvement in the project will not affect your child's

relationship with DCU. Your child must be aware that confidentiality of information provided cannot always be guaranteed by researchers and can only be protected within the limitations of the law - i.e., it is possible for data to be subject to subpoena, freedom of information claim or mandated reporting by some professions.

There is no risk present greater than that encountered in everyday life. The research carries many benefits, in that your child will have gained a new skill of relatively good communication in basic Chinese.

The researcher has experience of teaching Chinese at university level and teaching a foreign language to children. Therefore, the researcher is aware that all participants are to be treated with the utmost respect, and that the privacy and protection of your child is at the fore at all times during the teaching process.

Your child's evaluation results will not affect their progression to fifth year.

I have read and understood the information in this form. My questions and concerns have been answered by the researchers, and I have a copy of this consent form. Therefore, I consent for my child to take part in this research project

Guardians Signature: _____

Name in Block Capitals: _____

Witness: _____

Date: _____

Assent Form

What are the methods for teaching Chinese (Mandarin) as a foreign language proven to be most effective in CFL (Chinese as a foreign language) beginners?

The project will be conducted by Ph.D. Candidate Caitríona Osborne, funded by the School of Applied Language and Intercultural Studies (SALIS) in DCU, under the supervision of Dr Qi Zhang.

While China continues to play an important role for businesses in Europe, it is surprising that Chinese has not been introduced as a compulsory school subject. This study will test which method of teaching Chinese characters is more effective for learning basic Chinese communication.

Upon agreeing to participate, I agree to attend 2 hours of Chinese language class a week, conduct minor homework tasks, sit two evaluations in December and June along with four continuous assessment evaluations, and complete a simple questionnaire prior to the course as well as a simple feedback questionnaire upon completion of the course.

Participant – please complete the following (Circle Yes or No for each question)

I have read the Plain Language Statement (or had it read to me)

   Yes/No

I understand the information provided

   Yes/No

I have had an opportunity to ask questions about this study to the researcher

   Yes/No

I have received satisfactory answers to all my questions

   Yes/No

I am aware that the evaluation results of each group will be used in the research

   Yes/No

I am aware that I will remain anonymous in the study

   Yes/No

I am aware of what is required of me as per in the plain language statement

   Yes/No

You may withdraw from the Research Study at any point.

Evaluations and questionnaires will be completed anonymously as the researcher will use a numerical system. All data will be stored in a locked cabinet on DCU campus whereby only Caitríona Osborne will have access. The data will be destroyed after five years, by running the evaluations and questionnaires through a shredder. The involvement/non-involvement in the project will not affect your relationship with DCU. You must be aware that confidentiality of information provided cannot always be

guaranteed by researchers and can only be protected within the limitations of the law -
i.e., it is possible for data to be subject to subpoena, freedom of information claim or
mandated reporting by some professions.

There is no risk present greater than that encountered in everyday life. The research
carries many benefits, in that you will have gained a new skill of relatively good
communication in basic Chinese.

The researcher has experience of teaching Chinese at university level and teaching a
foreign language to children. Therefore, the researcher is aware that all participants are
to be treated with the utmost respect, and that your privacy and protection is at the fore
at all times during the teaching process.

Your evaluation results will not affect their progression to fifth year.

I have read and understood the information in this form. My questions and concerns
have been answered by the researchers, and I have a copy of this consent form.
Therefore, I consent for my child to take part in this research project

Participant Signature: _____

Name in Block Capitals: _____

Witness: _____

Date: _____

Appendix C: Biographical Questionnaire

Section I – to be completed by the researcher

Group:

Section II

Circle one

Male   Female

Age: _____

My first language is_____

I am studying another foreign language   Y/N

How many? _____

Please fill in your foreign language(s) below and state your proficiency on the scales provided

1.   _____

Fluent   Moderate   Poor

2.   _____

Fluent   Moderate   Poor

3.   _____

Fluent   Moderate   Poor

4.   _____

Fluent   Moderate   Poor

Section III

I am in possession of an iPad provided by the school   Y/N

How many hours per day are spent conducting schoolwork (in the classroom) on the iPad?

Less than 1 hour   1-2 hours   2-3 hours   3-4 hours   more than 4 hours

How many hours per day are spent conducting homework on the iPad?

Less than 1 hour   1-2 hours   2-3 hours   3-4 hours   more than 4 hours

I use the iPad with my other foreign language class   Y/N

Please list the activities conducted with your foreign language class in school:

Please list the activities conducted with your foreign language class at home, circling the ones you have discovered in your own time:[13]

Section IV

---

[13] The participants were verbally instructed to make a list of various resources they used to aid homework or studying for their other foreign language classes. Of these, they were instructed to put a circle around the ones they discovered on their own, i.e. without their foreign-language teacher's specific instruction.

According to the VARK Questionnaire, I am a _____ learner.

My scores were:

Visual:

Aural:

Read/Write:

Kinaesthetic:

Section V

Imagine you have an important test coming up. Please make a list of any factors that influence how much you study. It can be anything from rewards from parents/teachers to a feeling of self-accomplishment, the prospect of getting good grades or just finding the subject to be interesting.

Appendix D: Characters/Pinyin Learned until First Formative Evaluation

<u>FM, CCC, and UC:</u>

你	忙	咖啡
好	爸爸	弟弟
陆雨平	妈妈	我们
力波	他们	喝
吗	都	丁
我	不	
很	男	
呢	朋友	
也	哥哥	
林娜	要	

DCI:

nǐ	máng	kāfēi
hǎo	bàba	dìdì
Lù Yǔpíng	māmā	wǒmen
Lìbō	tāmen	hē
ma	dōu	Dīng
wǒ	bù	tā
hěn	nán	shì
ne	péngyǒu	guó
yě	gēge	rén
Lín Nà	yào	nà
shéi	nǎ	wàiyǔ
lǎoshī	yīshēng	
Zhōngguó	nǎinai	
nín	wàipó	
zhè	chén	

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Appendix E: First Formative Evaluation

<u>FM, CCC, and UC:</u>

(Listening dictation words called out by the researcher: 朋友；咖啡；林娜；忙；

要)[14]

Character recognition: Translate the following and supply the Pinyin

我们   爸爸   都   咖啡

_____   _____   _____   _____

_____   _____   _____   _____

很

_____

_____

Recalling characters: Provide the Chinese characters for the following

you   also   to drink   to want   mother

_____   _____   _____   _____   _____

---

[14] This section was not listed on the evaluation papers given to participants but has been added here (and on all other evaluation papers in the appendix) for guidance. In addition, labels of each section have been added here for guidance while participants were solely given instructions as to how to answer each section.

Completing sentences: Complete the following sentences with the correct character(s)

A. 你＿＿＿＿＿＿ 吗？

B. 他们都很＿＿＿＿＿＿＿。

C. 我们都＿＿＿＿＿＿＿咖啡。

D. 你爸爸忙＿＿＿＿＿＿？

E. 我＿＿＿＿＿很忙。

Reordering sentences: Put the following sentences in the correct order

i) a) 你好吗？   ＿＿＿＿

   b) 很好，你呢？   ＿＿＿＿

ii) a) 哥哥也很忙。   ＿＿＿＿

   b) 我爸爸很忙。   ＿＿＿＿

iii) a) 我们都要咖啡。 _____

b) 我要咖啡。 _____

Text production: Using as many characters as you can, please describe the following picture

(An example of the image used in FE1, adopted from: publicdomainvectors.org)

Listening dictation words called out by the researcher: Péngyǒu; tāmen; lǎoshī; máng;

yào

Recognition: Translate the following

wǒmen   nán   yīshēng   kāfēi

_____   _____   _____   _____

hěn

_____

Recall: Provide the Pinyin for the following

you   also   to drink   China   to be

_____   _____   _____   _____   _____

Completing sentences: Complete the following sentences with the correct character(s)

A. Nǐ_____ ma?

B. Tāmen dōu hěn _____.

C. Tā shì nǎ _____ rén?

D. Nǐ bàba máng _____?

E. _____ shì wǒ péngyǒu.

Reordering sentences: Put the following sentences in the correct order

i) a) Nǐ hǎo ma?   _____

    b) hěn hǎo, nǐ ne?   _____

ii) a) Wǒ shì lǎoshī.   _____

    b) Nǐ gēge ne?   _____

iii) a) wǒ yě yào kāfēi.   _____

   b) wǒ yào kāfēi.   _____

Text production: Using as many words as you can, please describe the following picture

(An example of the image used in FE1, adopted from: publicdomainvectors.org)

Appendix F: Characters Learned between First and Second Formative Evaluation

<u>FM, CCC, and UC:</u>

她	这	请
是	外语	记者
哪	医生	请问
国	奶奶	贵姓
人	外婆	叫
那	陈	先生
谁	认识	杨
老师	高兴	语言
中国	可以	学院
您	进来	的

学生

什么

学习

汉语

英国

马大为

加拿大

美国

DCI:

你	忙	咖啡
好	爸爸	弟弟
陆雨平	妈妈	我们
力波	他们	喝
吗	都	丁
我	不	

很 男

呢 朋友

也 哥哥

林娜 要

她 这 请

是 外语 记者

哪 医生 请问

国 奶奶 贵姓

人 外婆 叫

那 陈 先生

谁 认识 杨

老师 高兴 语言

中国 可以 学院

您

学生

什么

学习

汉语

英国

马大为

加拿大

美国

进来

的

Appendix G: Second Formative Evaluation

Listening dictation words called out by the researcher: 认识；中国；那；是；学习

Character recognition: Translate the following and supply the Pinyin

老师   语言   学习   高兴

_____   _____   _____   _____

_____   _____   _____   _____

国

_____

_____

Recalling characters: Provide the Chinese characters for the following

doctor   who   person   college   Chinese (language)

_____   _____   _____   _____   _____

Completing sentences: Complete the following sentences with the correct character(s)

A. _____进来吗？

B. 请问，您_____？

C. 他是哪_____人？

D. 我_____是老师。

E. 我学习_____。

Reordering sentences: Put the following sentences in the correct order

i) a) 你也是医生吗？   _____

b) 这是我朋友。   _____

ii) a) 我也是中国人。   _____

   b) 我是中国人，你呢？   _____

iii) a) 我学习汉语，你呢？ _____

    b) 我是记者。 _____

Text production: Using as many characters as you can, please describe the following picture

(An example of the image used in FE2, adapted from: publicdomainvectors.org)

Appendix H: Characters Learned between First Summative Evaluation and Third Formative Evaluation

开学	中文	姐姐
看	专业	两
问	美术	还
一下	文学	一共
名片	系	妹妹
呵	家	小
教授	几	狗
张	口	当然
介绍	照片	真
名字	和	可爱

做

工作

王小云

贝贝

大

多少

喜欢

外国

个

百

Appendix I: Third Formative Evaluation

Listening dictation words called out by the researcher: 高兴；开学；专业；一共；小

Character recognition: Translate the following and supply the Pinyin

姐姐 可爱 系 名字

_____ _____ _____ _____

_____ _____ _____ _____

外国

_____

_____

Recalling characters: Provide the Chinese characters for the following

big of course two business card younger sister

_____ _____ _____ _____ _____

Completing sentences: Complete the following sentences with the correct character(s)

A.你们 _____ 有几口人？

B. 你们学院有_____学生？

C. 我很喜欢_____。

D. 我学习_____专业。

E. 你_____不认识张教授？

Reordering sentences: Put the following sentences in the correct order

i) a) 我在语言学院学习汉语。

　　_____

 b) 这个语言学院很大。   _____

 c) 你在哪儿学习汉语？   _____

ii) a) 你看，你认识他吗？   _____

 b) 我来介绍一下。   _____

  c) 我不认识他。 他是谁？   _____

iii) a) 是，他工作。他是老师。你姐姐呢？ _____

   b) 你哥哥工作吗？ _____

   c) 她不工作。她是学生。你弟弟呢？ _____

Text production: Using as many characters as you can, please describe the following picture

(An example of the image used in FE3, adopted from: publicdomainvectors.org)

Appendix J: Sample of Adapted Lessons
(Sample taken from CCC group)

Lesson 9

今年	jīnnián	this year
岁	suì	years (old)
星期	xīngqī	week
上午	shàngwǔ	morning
星期日	xīngqīrì	Sunday
多大	duōdà	how old
买	mǎi	to buy
北京	Běijīng	Beijing
漂亮	piàoliang	pretty; beautiful
要	yào	to want
生日	shēngrì	birthday

宋华：王小云, 你怎么样？

王小云：你好，宋华！我很好，你呢？

宋华：也很好。你忙吗？

王小云：不太忙。星期二上午我要去北京。

宋华：太好了！ 北京很漂亮。你星期日有时间吗？是我的生日。

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王小云：啊，很好！当然有时间。你今年多大？

宋华：我今年十六岁。好，我们现在买咖啡，可以吗？

王小云：可以！

王小云：啊，很好！当然有时间。你今年多大？

宋华：我今年十六岁。好，我们现在买咖啡，可以吗？

Appendix K: Characters Learned between Third and Fourth Formative Evaluation

今年	被子	书
岁	本	水
星期	茶	水果
上午	菜	些
星期日	东西	吃
多大	饭店	不客气
买	里	出租车
北京	米饭	打电话
漂亮	苹果	一点儿
生日	商场	电脑
电视	快	
电影	冷	
读	下雨	

儿子   回

飞机

分钟

后面

会

Appendix L: Fourth Formative Evaluation

Listening dictation words called out by the researcher: 电脑；回；饭店；水；菜

Character recognition: Translate the following and supply the Pinyin

飞机   电脑   下雨   星期三

_____   _____   _____   _____

_____   _____   _____   _____

商场

_____

_____

Recalling characters: Provide the Chinese characters for the following

rice   morning   to eat   can/be able to   water

_____   _____   _____   _____   _____

Completing sentences: Complete the following sentences with the correct character(s)

A. 他很喜欢_____ 书。

B. 昨天我去商场_____ 东西。

C. 她喝了一杯_____。

D. 我_____说汉语。

E. 北京很_____。

Reordering sentences: Put the following sentences in the correct order

i) a) 今天是我的生日。   _____

　 b) 我今年十六岁。   _____

　 c) 很好！你今年多大？   _____

ii) a) 我买了一个苹果，你呢？ _____

b) 我买了两本书。 _____

c) 你买了什么？ _____

iii) a) 你会说汉语吗？ _____

b) 不，我说得不太好。 _____

c) 我会说一点儿汉语。你说得很好。 _____

Text production: Using as many characters as you can, please describe the following picture

(An example of the image used in FE4, adapted from: publicdomainvectors.org)

Appendix M: Characters Learned between Second Formative Evaluation and First Summative Evaluation

餐厅	再见	了
在	小姐	宋华
哪儿	二	去
宿舍	层	游泳
女	O	昨天
坐	四	京剧
谢谢	号	怎么样
对不起	不用	有意思
知道	这儿	今天
没关系	晚	天气

太

时候

现在

明天

有

说

编

打球

恐怕

行

抱歉

Appendix N: First Summative Evaluation

Listening dictation phrases called out by the researcher: 你好；没关系； 对不起；很

有意思；我要咖啡

Character recognition: Translate the following and supply the Pinyin

宿舍   记者   朋友   老师

————   ————   ————   ————

————   ————   ————   ————

学院   天气   今天   时候

————   ————   ————   ————

————   ————   ————   ————

医生   谢谢

————   ————

————   ————

Recalling characters: Provide the Chinese characters for the following

language   who   to be   interesting   now

_____   _____   _____   _____   _____

to go   good-bye   happy   may I ask   father's mother (granny)

_____   _____   _____   _____   _____

Completing sentences: Complete the following sentences with the correct character(s)

A. 请问，宿舍_____哪儿？

B. 昨天我_____游泳。

C. 对不起，请再_____一遍。

D. 我是学院_____学生。

E. 他是_____ 人。

F. 明天我们去打球，_____ 吗？

G. 对不起，我 _____ 晚了。

H. _____ 你很高兴。

I. 我很好，_____ ?

J. 我 _____汉语。

Reordering sentences: Put the following sentences in the correct order

i) a) 也很好。   _____

    b) 你好吗？   _____

    c) 很好，你呢？   _____

ii) a) 我们去游泳，好吗？   _____

    b) 我们现在去。   _____

    c) 什么时候？   _____

iii) a) 他是我朋友。他是老师。　　　　　_____

　　 b) 那是你的朋友吗？　　　　　　　_____

　　 c) 您好，老师！　　　　　　　　　_____

iv) a) 对不起，我很忙。　　　　　　　_____

　　 b) 明天我们喝咖啡吗？　　　　　　_____

　　 c) 没关系。　　　　　　　　　　　_____

v) a) 对不起，我不知道。　　　　　　_____

　　 b) 没关系，我问林娜。　　　　　　_____

　　 c) 这个医生是中国人吗？　　　　　_____

vi) a) 请进。　　　　　　　　　　　　_____

　　 b) 可以进来吗？　　　　　　　　　_____

　　 c) 这是马大为的宿舍。　　　　　　_____

Text production: Using as many characters as you can, please describe the following picture

(An example of the image used in SE1, adapted from: publicdomainvectors.org)

Appendix O: Characters learned between Fourth Formative Evaluation and Second Summative Evaluation

猫	想	桌子
能	写	字
女儿	学校	
前门	下午	
钱	医院	
热	衣服	
睡觉	椅子	
听	月	
同学	中午	
喂	住	

Appendix P: Second Summative Evaluation

Listening dictation phrases called out by the researcher: 我是学生；他的生日； 我要

咖啡；妈妈很忙；今天下雨

Character recognition: Translate the following and supply the Pinyin

后面   会   水果   医院

—————   —————   —————   —————

—————   —————   —————   —————

学习   出租车   忙   先生

—————   —————   —————   —————

—————   —————   —————   —————

弟弟   衣服

—————   —————

—————   —————

Recalling characters: Provide the Chinese characters for the following

book   make a phone call   to like   to go   to sit

_____   _____   _____   _____   _____

China   tea   apple   table   cat

_____   _____   _____   _____   _____

Completing sentences: Complete the following sentences with the correct character(s)

A. 你们家大 _____ 大？有几口人？

B. 对不起，我 _____ 有时间，我很忙。

C. 我姓丁，_____ 丁力波。

D. 认识你很_____！

E. A: 那是谁？ B: 那是_____。

F. A: 可以进来吗？ B: 请_____！

G. 一个苹果是多少_____？

H. 我今年十三岁，你今年_____？

I.我们现在在飞机去_____。

J.爸爸妈妈都_____了一杯咖啡。

Reordering sentences: Put the following sentences in the correct order

i)   a) 今天天气很好。   _____

    b) 好啊！我们现在去，可以吗？   _____

    c) 我们去游泳，好吗？   _____

ii)   a) 你的宿舍真大！   _____

    b) 在二层，三号。   _____

    c) 谢谢你！你住在哪儿？   _____

iii) a) 你也有小狗吗？   _____

    b) 这是我的小狗。   _____

    c) 他真可爱！   _____

iv) a) 很好！您是学生吗？　　　　　　　　　　————

　　 b) 这是我女朋友。　　　　　　　　　　　————

　　 c) 不是，我是老师。　　　　　　　　　　————

v) a) 我去商场买东西。你呢？　　　　　　　————

　 b) 我学习汉语。　　　　　　　　　　　　————

　 c) 你今天做了什么?　　　　　　　　　　————

vi) a) 当然有电视机[15]!　　　　　　　　　　————

　 b) 我们可以看一个电影?　　　　　　　　————

　 c) 你有电视吗?　　　　　　　　　　　　————

---

[15] Typo noticed after the evaluation (should include 机), yet participants were at the beginner level and so this sentence still made sense to them (evidenced by correct answers in the evaluations).

Text production: Using as many characters as you can, please describe the following picture

(An example of the image used in SE2, adapted from: publicdomainvectors.org)

Appendix Q: Feedback Questionnaire

Group: **Name:**

I enjoyed the course

Y/N

Why?/Why not?

I found the course challenging

Y/N

Why?/Why not?

I felt confident during the tests and quizzes[16]

Y/N

Why?/Why not?

---

[16] These refer to the evaluations (both formative and summative) that were conducted throughout the study.

I was motivated to learn Chinese throughout the course

Y/N

Give details:

What could you have done to improve your learning?

What was the most difficult part about learning Chinese?

And the easiest?

Please list the activities conducted with your iPad at home when learning Chinese:

Please state how you studied for the tests and quizzes:

Please write down and describe the method you found most helpful in learning the characters:

Please write down the aspect of the course you enjoyed the most:

Please write down the aspect of the course you enjoyed the least:

Please write down the aspect of the course you found most helpful:

Please write down the aspect of the course you found least helpful:

Please write down any suggestions you may have for improvement of the course:

Any other comments?

Appendix R: Breakdown of Feedback Categories (Key Points)

Table R.1. Expanded reasons for enjoyment of learning Chinese

	FM	*DCI*	*CCC*	*UC*
Broadening horizons	New language, something different, something new	New language, something different, something new	New language, learning about different culture, something new	New language, something new
Interesting	Interesting	Interesting	Interesting	Interesting
Fun	/	Fun	/	Fun

Table R.2. Expanded reasons for non-enjoyment of learning Chinese

	FM	*DCI*	*CCC*	*UC*
No interest	Boring, don't like languages, not interesting, no interest, lost interest	Boring, unmotivated, no use for it	Boring, no use for it	Boring, unmotivated, no use for it
Difficult language	Difficult	Difficult, characters difficult, confusing, too much content	Difficult, too much content, stressful, tedious	Difficult, characters difficult, too much content
Structure of class	Repetitive, didn't feel structured, teaching method	Teaching method	Teaching method, not having a choice to learn it	Not enough culture, repetitive
Issues within class	Too many languages, hard to concentrate	TY too busy, hard to concentrate, English not first language, behaviour of class	Not good at languages, absences	/

Table R.3. Expanded reasons for finding Chinese challenging

	FM	*DCI*	*CCC*	*UC*
Difficult language	Difficult, complicated, characters, new language, confusing	Difficult, writing system, characters, confusing, different to other languages	Difficult, characters, confusing, complicated	Writing system, difficult, characters, new language
Lack of study	Didn't study	No interest	/	No motivation
Issues within class	Absences	Not good at languages, not a visual person	Too many languages	Not good at languages, English not first language, too many languages
Structure of class	Teaching method, too much content	Too much content	Fast-paced, teaching method, too much content	Teaching method, repetitive, too much content
Don't know	Don't know	/	/	/
No comment	/	/	No comment	/

Table R.4. Expanded reasons for not finding Chinese challenging

	FM	*DCI*	*CCC*	*UC*
Structure of class	/	/	/	Repetition
Self-confidence	/	/	Handled well	/
No interest	Didn't care	/	/	/

Table R.5. Expanded reasons for feeling confident during evaluations

	FM	*DCI*	*CCC*	*UC*
Put in effort	Studied	/	Studied, did best, kept calm	Studied
Similar layout	/	/	/	Layout the same for all
No comment	/	/	/	No comment

Table R.6. Expanded reasons for not feeling confident during evaluations

	FM	*DCI*	*CCC*	*UC*
Difficult	Difficult, characters, struggle with languages, confusing	Difficult, didn't understand, couldn't answer questions, too much content, characters	Difficult, couldn't remember	Confusing, difficult, characters, didn't understand
Unprepared	Didn't know anything, didn't study, didn't know much	Didn't study, didn't know anything, didn't try, didn't prepare enough, didn't listen enough in class	Didn't study, didn't know anything	Didn't study, didn't know anything
No interest	Didn't care, no motivation	/	Didn't care, no interest	Unmotivated
Emotions	Panicked, stress	Panicked, not good at Chinese	Didn't think could do well	Panicked, overwhelmed, not good at Chinese

Table R.7. Expanded reasons for feeling motivated to learn Chinese

	FM	*DCI*	*CCC*	*UC*
Interest	Wanted to learn basics of Chinese, interesting language, wanted to learn more about Chinese	New experience, beneficial to hobby (Kung Fu)	Interesting, new language, learning about culture and language, class and activities	Interesting
Made effort	/	Slightly motivated	Tried best, motivated more at beginning	Worked hard
Despite difficulty	/	But didn't understand, but difficult	/	/
Rewards	/	/	/	Rewards
No comment	/	/	No comment	/

Table R.8. Expanded reasons for not feeling motivated to learn Chinese

	FM	*DCI*	*CCC*	*UC*
No interest	Not pushed, no interest, lost motivation, bored, couldn't see benefits, no use, no choice in taking class	No use, no interest	No interest, no use, didn't care, boring	No use, no interest, boring, lost motivation, no motivation
Difficulty	Fell too far behind (absences), confusing, difficult	Preconceptions difficult, difficult, too much work, struggle with languages	Difficult, too much content, too much work, characters	Characters, memorization, confusing, difficult,
Structure of class	Repetitive, teaching method	/	/	Teaching method, not enough culture
Lack of incentive	Not enough rewards	Not an exam subject	/	/

Table R.9. Expanded categories for what participants could have done to improve their learning outcomes

	FM	DCI	CCC	UC
More effort	Study, pay attention, study consistently (not just before evaluations), participate more in class	Try harder, pay attention, attend more classes, study,	Study, study (but don't usually in transition year), clearer notes, learn characters, pay attention, everything	Study
Nothing	/	Nothing	/	Nothing
Different methods	Less content	Ignore characters, write more, try to find connections in characters	Try different methods, slower pace, make more fun, slower pace	Try different methods, make more fun
Personal issues	Take more seriously, more motivation, be smarter	Be better at languages, have interest	Have interest	Have interest
Don't know	/	Don't know	Don't know	Don't know

Table R.10. Expanded answers for most difficult aspect of learning Chinese

	FM	*DCI*	*CCC*	*UC*
Everything	Everything	Everything	Everything	Everything
Characters	Characters	Characters, stroke order	Characters	Characters
Pinyin	/	Pronunciation	/	/
Written exercises	Translation, sentence structure	/	Evaluations, translation	/
Structure of class	Keeping focused	/	/	Too much content

Table R.11. Expanded answers for easiest aspect of learning Chinese

	FM	*DCI*	*CCC*	*UC*
Nothing	Nothing	Nothing	Nothing	Nothing
Pinyin	Pinyin	Pinyin	Pinyin	Pinyin
Initial weeks	Beginning, learning numbers	Beginning	Learning numbers	Beginning
Don't know	Don't know	/	/	/
Written exercises	Copying characters, fill in blanks	Copying characters	Copying characters, colours for characters, notes for evaluations, sentence structure	Copying characters, translating sentences
Oral exercises	Pronunciation, speaking	Pronunciation	Repeating sentences, tones, pronunciation, speaking	Speaking, pronunciation
Listening	Listening	Listening	/	/
Online games	Online games	/	Online games	/

Table R.12. Expanded answers for methods of studying for evaluations

	FM	*DCI*	*CCC*	*UC*
Reading	Reading over notes	Reading over notes	Reading over notes	Reading over notes
Writing	Writing out notes	Writing out notes, trying to find connections	Writing out notes	Writing out notes
Oral	/	Oral	Oral	Oral
Interactive	Quizlet, online games	/	/	
Sometimes	/	Sometimes	/	/
Didn't study	Didn't study, used class as study, used homework as study	Didn't study	Didn't study, used class as study	Didn't study, used class as study

Table R.13. Expanded answers for methods of learning characters

	FM	DCI	CCC	UC
Reading	/	/	Reading	Reading
Writing	Writing, writing (but drains motivation)	Writing	Writing, colours, stroke order	Writing, stroke order
Interactive	Online games	/	Online games	Kahoot, online games, modified lessons on iPad
Oral	Oral	Pinyin	/	/
Different methods	Try to remember uniqueness	Rote learning, trying to make connections with English words	/	/
Organisation	Organised notes	/	/	/
Didn't study	Too difficult, none	Didn't study, none, too difficult, used class as study	Didn't study, none	Too difficult, none, used class as study

Table R.14. Expanded answers for what participants enjoyed most

	FM	*DCI*	*CCC*	*UC*
Characters	Characters	Characters, translation	Reading, repetition	/
Beginning of course	Beginning of course	Beginning of course, learning numbers	Learning numbers	/
Everything	Learning the language	Learning a new language, most of course, classes	Learning new language, everything	Learning a new language
Nothing	Nothing, didn't	Nothing	Nothing	/
Unsure	/	/	Unsure	/
Pronunciation	Speaking	Speaking, pinyin	Speaking	Speaking, pinyin
Evaluations	Evaluations	Evaluations	/	/
Online games	Online games	Online games	Online games	Online games
Culture	Culture	Culture	Culture	Culture

Table R.15. Expanded answers for what participants enjoyed least

	FM	*DCI*	*CCC*	*UC*
Characters	Characters, translation	Characters, writing	Characters, colours, writing	Characters, translating
Class structure	Majority, repetition, lessons on iPad	Repetition	/	Repetition
Everything	Everything	Everything, learning, difficult	Everything, difficult	Everything, learning
Nothing	/	/	Nothing	Nothing
Pronunciation	/	Pronunciation	/	Pinyin
Evaluations	Evaluations	Evaluations	Evaluations	Evaluations
Issues within class	/	Class behaviour	/	/

Table R.16. Expanded answers for most helpful aspect when learning Chinese

	FM	*DCI*	*CCC*	*UC*
Characters	Writing characters, repetition, stroke order	Characters, writing, stroke order, numbers, reading	Reading, colours, stroke order	Characters, writing
Online resources	Online resources	Online resources, online games	Online resources, online games	Online resources, online games
Nothing	Nothing, no comment	Nothing	Nothing, no comment	Nothing, no comment
Revision	Class revision	/	/	Own revision, class revision
Pronunciation	Oral, pinyin, listening	Pinyin, dialogues	Speaking, dialogues	Speaking
Written exercises	Written exercises	Written exercises, translating	/	Translation
Class	/	Repetitiveness, learning pinyin first, being told how to study	/	New Practical Chinese Reader

Table R.17. Expanded answers for least helpful aspect when learning Chinese

	FM	*DCI*	*CCC*	*UC*
Characters	Characters, repetition, translating	Characters, stroke order	Characters, colours, not using colours, copybook, translation	Reading, translation, characters, copybook
Structure of class	Repetition, too much content, using iPad, dialogues	Not taught like other foreign languages, repetition, too much content	Repetition	Textbook, dialogues, repetition
Unsure	Unsure	Unsure	Unsure	/
Everything	Everything	Learning, everything	Everything	/
Nothing	Nothing, no comment	Nothing	Nothing, no comment	Nothing, no comment
Online resources	Online resources	/	Online games	Online games
Not writing	Only reading over notes	/	/	/
Evaluations	Evaluations	/	/	Evaluations

Table R.18. Expanded suggestions for improvement of course

	FM	*DCI*	*CCC*	*UC*
Different methods	More interactive, different methods, teach like other foreign languages, less writing, more fun, more oral	Different methods, teach like other foreign languages	More interactive, no colour, more time on characters, delay characters, more fun	Delay characters, less repetition, more time on characters, more oral, more interactive, more listening, more fun
Structure of class	Not whole year, variety, group work, more culture, individual feedback, slower pace, more evaluations, should be choice, fewer evaluations, projects	More culture, variety, slower pace, choice, exchange, culture, no evaluations, Chinese visitor, offer certificate, less content	Variety, more culture, projects, oral evaluations, slower pace, more games, no evaluations, less content, not in transition year, more time	More games, variety, choice, more culture, projects, variety, more revision
No suggestions	/	None	None	None