The Cross-linguistic Transfer of Inflectional Awareness from Chinese L1 to English L2

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Abstract

This study intends to raise Chinese native English learners' inflectional awareness in their L1 through instruction and investigates whether this awareness can be effectively transferred and support the learning of the grammatical aspect inflections in L2 English: the simple past and past progressive. Ninety-four native Chinese speakers in Grade 8 undertook either: (a) the cross-linguistic (CI) instruction that explicitly taught the inflections in both Chinese and English, (b) the monolingual (MI) instruction targeting only the English inflections, and (c) no instruction about inflections. The cloze tests uncovered that the control group underwent a deterioration on both inflections over the three weeks without instruction. Through instruction, the MI learners remained unchanged for either inflection, while the CI learners improved in the English simple-past. Together with interview results, this study suggests that raising learners' L1 inflectional awareness in CI class is more likely to strengthen their overall inflectional awareness and contribute to L2 inflectional learning than the effect of the MI instruction. In particular, the CI instruction yielded a prompt and long-term facilitating effect on the English simple-past, which is structurally similar to the Chinese past, but a weak effect on the English past-progressive, which reveals structural variation to the Chinese progressive. Moreover, the CI instruction improved the use of the simple-past with the verbs indicating inherent endpoint, which shares similar semantic boundaries with the Chinese inflection, but not with the stative verbs, which are semantically challenging and present cross-linguistic variation. Alternatively, the MI instruction revealed a delayed improvement in using both inflections with the stative verbs. It indicates that the effect of the CI instruction is moderated by the structural similarity and semantic complexity of the inflections in L1 and L2. This study discussed the mechanism and implementation of the CI instruction to better support L2 inflection learning via the transfer mechanism.

Keywords: cross-linguistic transfer; cross-linguistic instruction; inflectional awareness; Chinese L1; English L2

Résumé

Cette étude vise à sensibiliser la conscience désinentielle en L1 de locuteurs natifs chinois à travers une approche d'enseignement explicite et cherche à déterminer si cette conscience grammaticale peut être transférée efficacement vers leur L2 pour soutenir leur apprentissage des désinences du prétérit simple et progressif en anglais. Quatre-vingt-quatorze locuteurs natifs chinois de 8e année ont suivi soit : (a) une instruction interlinguistique (CI) qui explicitait les désinences d'aspect en chinois et en anglais, (b) une instruction monolingue (MI) qui ciblait les désinences d'aspect en anglais seulement ou (c) aucune instruction sur les désinences. Les résultats des tests de cloze du groupe témoin ont révélé une dégradation de l'apprentissage des deux désinences au cours des trois semaines sans instruction. En revanche, les apprenants de l'instruction MI sont restés inchangés dans leur apprentissage des deux désinences, tandis que les apprenants de l'instruction CI se sont améliorés dans l'utilisation de la désinence du prétérit simple. En plus des entrevues, les résultats de cette étude suggèrent que sensibiliser les apprenants aux désinences chinoises à travers une instruction CI est davantage susceptible de renforcer leur conscience linguistique globale et de contribuer à leur apprentissage des désinences anglaises, que l'instruction MI. Plus précisément, l'instruction CI a produit rapidement et de façon durable un effet de facilitation sur l'utilisation du prétérite simple anglais qui présente un degré élevé de similitude avec la désinence du passée en chinois, mais a produit peu d'effet sur l'utilisation prétérite progressif anglais qui présente une variation structurelle du prétérite progressif chinois. De plus, l'instruction CI a facilité l'utilisation du prétérite simple anglais avec des verbes indiquant une fin inhérente partageant une forme sémantique similaire au chinois, contrairement aux verbes statiques qui sont sémantiquement complexes présentant une variation inter-linguistique. L'instruction MI, quant à elle, a démontré une amélioration retardée

dans l'utilisation des deux désinences avec les verbes statiques. Cela indique que l'effet de l'instruction CI est affecté par la similitude structurelle et la complexité sémantique des désinences en L1 et L2. Cette étude traite des mécanismes et de l'implémentation de l'instruction CI pour mieux sensibiliser et soutenir les apprenants dans leur apprentissage des désinences en L2 à travers les dispositifs de transfert interlinguistique.

Mots-clés: transfert interlinguistique; instruction multilingue; conscience désinentielle; chinois L1; anglais L2

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Chapter 1 Introduction

Inflectional awareness, which refers to "the ability to reflect on and manipulate morphemes to mark syntactic or semantic relations in a language" (Carlisle, 1995; Kuo, & Anderson, 2006), plays an important role in acquiring a first language. Recent studies on second language (L2) acquisition have shown that it is possible to transfer the morphological awareness of learners' first language (L1) to their L2 (the transfer between Spanish and English: Ramirez, Chen, and Pasquarella, 2011, 2013; Mandarin and English: Chen, Xu, & Wang, 2010; Pasquarella, Chen, Lam, & Luo, 2011; Zhang, 2013; Zhang, & Koda, 2013; French and English: Deacon, 2007; Lyster, Quiroga, & Ballinger, 2013) and contribute to L2 acquisition (Carlisle, 2010; Koda, 2000; Ramirez, Chen, Geva, & Kiefer, 2010). Depending on their degree of pre-existing morphological awareness in their L1, L2 learners may find themselves in a better position to develop their L2 morphological awareness and, by extension, their L2 proficiency.

Bilingual education has not traditionally been structured in a way that facilitates linguistic transfer (Cummins, 2014). However, in recent years, there has been a trend towards the relaxation of the separation of learners' L1 and L2 in order to help learners make connections between their languages. Learners' L1 ability is viewed as a meaningful resource and cross-linguistic transfer is an effective way to facilitate L2 development (Lyster et al., 2013). Although cross-linguistic transfer has been shown to be effective for acquiring some formal linguistic features, many argue that cross-linguistic pedagogy cannot be applied to every aspect of L2 learning. For example, some believe that the linguistic features are less likely to be transferred between the typologically-unrelated languages (e.g., Jarvis, & Pavlenko, 2008). They contend that teachers need to consider the morphological features of learners' L1 and L2, and identify the aspects of language which could be effectively transferred.

Many languages rely on inflections to mark time-related features, such as grammatical aspect. Grammatical aspect, which deals with the temporal structure of a situation and its presentation (Smith, 1997), is regarded as the most challenging feature to be acquired in an L2 (Ellis, 2006). Though the acquisition of aspect inflections has received extensive attention in L2 literature, a very limited number of studies about the transfer of aspect inflections has been applied to cross-linguistic instructional contexts (Kupferberg, 1999; McManus & Marsden, 2017, 2019). In studies focusing on the learning of English Past Perfect among Hebrew speakers (Kupferberg, 1999) and the French *imparfait* among English speakers (McManus & Marsden, 2017, 2019), researchers have found that classroom instruction that connects and contrasts inflections across L1 and L2 facilitates learning of the target aspect inflections in comparison with instruction of L2 inflection that does not explicitly compare it to the L1. However, due to the limited number of aspect features and languages being investigated, the aspects of instruction that support aspect transfer and the mechanism of cross-linguistic instruction still remain unclear. Therefore, more research evidence about grammatical aspect instruction is needed, and the effect of CI instruction on learners from diverse language backgrounds should be considered.

Both English and Chinese use inflections to mark aspectual meanings, and the grammatical aspectual inflections in the two languages present structural and semantic similarities. Learning English tense and aspect is also reported to be challenging for Chinese L1 speakers (Duff & Li, 1999). Therefore, this study intends to raise Grade 8, Chinese L1 children's awareness of English grammatical-aspectual features through explicit instruction connecting Chinese and English aspectual inflections. As such, it seeks to determine whether young, Chinese L1 students will transfer their inflectional awareness from Chinese to English to support

L2 acquisition of aspect features. This study therefore seeks to add to our knowledge of cross-linguistic transfer to better support the development of cross-linguistic pedagogy.

Chapter 2 Literature Review

This chapter reviews the previous studies about the cross-linguistic transfer and L2 acquisition of the aspect inflections. It first reviews the dynamic interrelationship of a bilingual speaker's several languages and the mechanisms underlying the cross-linguistic transfer (2.1.1). As the cross-linguistic transfer is still highly constrained phenomena, this review summarized the previous findings about the effects of the formal factors (2.1.2), including the typological relatedness/ structural overlapping of a learner's two languages and the salience and productivity of a structure in L1 and L2, and as well the impact of linguistic awareness and its interaction with the cross-linguistic pedagogy in the process of transfer (2.1.3). Then, with a focus on the aspect inflections, the overall developmental challenges (2.2.1) and the constraints of the lexical semantics and L1 transfer effects (2.2.2) in L2 acquisition of aspect inflections are presented. The impacts of various types of instruction and pedagogy on L2 aspect learning in literature are also discussed (2.2.3). Regarding the influence of CI transfer and the challenges in L2 aspect acquisition, this chapter finally propose the research questions regarding the impact of CI transfer on Chinese L1 speakers' learning of the English aspect inflections (2.3).

2.1 Cross-linguistic Transfer and Pedagogy

2.1.1 Influence and Mechanism of Cross-linguistic Transfer

Recent studies find that there are multiple dynamic interrelationships between the languages of bilinguals, and bilinguals can access both languages simultaneously (Ballinger, Lyster, Sterzuk and Genesee, 2017; Jarvis & Pavlenko, 2008; Jessner, 2006). Durgunoğlu (2017) finds that exposure to different languages can increase learner's sensitivity to noticing the structural similarities across languages and, in turn, support learners to transfer their L1 knowledge to L2 to strengthen their comprehension of linguistic structures as well as the specific

linguistic features associated with it. In particular, learner' L1 resources are likely to be recruited and transferred when L2 exposure is limited (Durgunoğlu, 2017).

Studies also find that similarities between a learner's L1 and L2 affect the efficiency and accuracy of L2 learning and processing. For example, Koda (2000) compares adult Chinese and Korean L1 speakers' morphological awareness in English. Korean is more similar to English in that it includes a greater number of functional, intraword morphological structures than Chinese. The results show that Korean L1 English learners demonstrate higher degrees of sensitivity to intraword morphological elements and a higher efficiency in morphological analysis in English than Chinese L1 English learners. The contrast of English morphological sensitivity between Korean and Chinese learners is especially significant when the linguistic target was structurally complex. Koda concludes that L2 linguistic components that are more compatible with a learner's L1 are more successfully acquired and require less processing. Furthermore, this acquisition is less impacted by L2 experience. Similar results are reported in Tolentino and Tokowicz's (2014) study. They compare the acquisition of two types of morphosyntactic features (similar/dissimilar in L1 and L2) among the same group of learners—English L1 learners of Swedish L2. The results show that the acquisition of the more compatible feature is associated with higher accuracy than for the less compatible morphosyntactic feature.

Studies in neurolinguistics have also identified the interaction of neural mechanisms during L1 and L2 processing. Considering the acquisition of morphosyntactic features, Tolentino and Tokowicz (2011) review previous physiological studies and find that L2 processing exhibits an L1-like brain activation pattern when the linguistic structure is cross-linguistically similar. The evidence is consistent with and supports McWhinney's (2012) proposal: when an L2 linguistic structure is cross-linguistically similar, learners use the L1 processing mechanism.

McWhinney concludes that L2 processing is facilitated by exploiting the existing L1 processing routine. However, the feature associated with the dissimilar structure in L1 and L2 would lead to L1-L2 rule competition and a negative L1 transfer effect.

2.1.2 Constraints in Cross-linguistic Transfer

2.1.2.1 Typological relatedness and structural overlapping in cross-linguistic transfer

Cross-linguistic transfer, also known as cross-linguistic influence, refers to the influence of a person's knowledge of one language on that person's knowledge or use of another language (Jarvis, & Pavlenko, 2008). This is a phenomenon that has been of interest to scholars ever since language evolved. Since the 1970s, the researchers (Jordens, 1977; Kellerman, 1977, 1978; Ringbom, 1978a, 1978b) have gradually shifted their attention to theoretical explanations for transfer. They have investigated the causes and constraints that making a linguistic component to be frequently transferred in some circumstance and rarely in others.

Regarding the causes of and the constraints on transfer, a body of studies have examined the effects of language proximity on L2 language acquisition. Many investigate the transfer between the languages of similar typology and uncover a frequent interaction and occurrence of transfer between these two languages (e.g., Spanish L1 and English L2: Ramirez, Chen, Geva, & Kiefer, 2010; Ramirez, Chen, & Pasquarella, 2011, 2013; French L1 and English L2: Deacon, 2007; Lyster, et al., 2013; Spanish L1 and French L2: Izquierdo, & Collins, 2008; Izquierdo, & Kihlstedt, 2019; Swedish L1 and English L2: Jarvis, 2000; Tolentino & Tokowicz, 2014; Finnish L1 and English L2: Jarvis, 2000; Jarvis, & Odlin, 2000; Czech L1 and Russian L2: Selinker, & Lakshamanan, 1992; Korean L1 and Japanese L2: Jeong, Sugiura, Sassa, Haji, Usui, Taira, Horie, Sato, Kawashima, 2007). Studies show that when the source and received languages are lexically and morphosyntactically related, transfers are more likely to take place (Jarvis, & Pavlenko,

2008). For example, derivational morphology refers to a type of word formation that changes syntactic category or adds substantial new meaning to a free or bound base, often by adding a prefix or suffix, such as un- or –ness in English (Lieber, 2017). Spanish and English have many similarities in derivational morphologies, and they share many concrete lexical and structural morphemes inherited from Greek and Latin. Ramírez, Chen and Pasquarella's (2013) research examines grade 4-7 Spanish-speaking learners of English and determines that, due to the shared derivational rules across English and Spanish, learners can transfer the derivational awareness of Spanish to that of English. Moreover, the authors see L1 Spanish derivational awareness was related to L2 English cognate vocabulary, but not to non-cognate vocabulary. Researchers explain that this is because learners are more able to grasp the meaning of English derived words through morphological analysis after learning the root words and being easily able to identify them. These findings suggest that bilinguals may naturally begin cross-linguistic morphological transfer from a relatively early stage of L2 acquisition.

Similarly, in Hancin-Bhatt and Nagy's (1994) study on grade 4-8 Spanish-English bilingual students, a significant transfer effect on recognizing the individual cognates and the interaction of derivational awareness and cognate knowledge is observed. These results show that the learners can easily capture the cross-linguistic cognate similarities because they are concrete and transparent. However, the researchers find that these speakers demonstrate limited recognition of the systematic relation between English and Spanish derivational morphology. The students' knowledge about the relationship still remains very low and is not fully developed even in high school. The research evidence shows that cross-linguistic transfer of the shared abstract morphological rules is still a highly constrained phenomenon, even between two closely related languages which have high degrees of structural similarities. The presence of structural

similarities, namely the presence of structural overlapping regarding a specific feature, across L1 and L2 may be insufficient to determine transfer.

As languages of different typologies may share few lexical and structural properties, researchers predict that different typologies may place more significant constraints in terms of cross-linguistic transfer. A group of cross-linguistic studies has examined transfer effects among learners whose L1 and L2 differ typologically (e.g., Chinese L1 and English L2: Chen, Xu, & Wang, 2010; Pasquarella, Chen, Lam & Luo, 2011; Zhang, 2013; Zhang & Koda, 2013; Korean L1 and English L2: Kuo, 2000; Wang, Ko, & Choi, 2009; Japanese L1 and English L2: Hayashi, Murphy, 2012; Whong-Barr, & Schwartz, 2002) and the results remains controversial. For example, Yang, Cooc and Li (2017) meta-analyze nine studies regarding the cross-linguistic transfer between Chinese and English and only find a weak correlation between L1 and L2 vocabulary and morphological awareness. They conclude that this is due to the two languages' lack of cross-linguistic cognates and limited morphological similarities.

However, some other studies find that the abstract rules are still transferable between two typologically unrelated languages. For example, the transfer effects have been identified between L1 Korean, L1 Japanese and L2 English. The Korean (Wang, Ko, & Choi, 2009) and Japanese (Hayashi, & Murphy, 2012) learners' derivational awareness in their L1 and L2 English is examined. The researchers find that the Korean and Japanese learners effectively transferred their L1 derivational knowledge to support analyzing the complex derived words in L2 English. Therefore, the derivational awareness in learners' L1 functions as a significant predictor of L2 English morpheme production and comprehension. The researchers argue that this is because Korean, Japanese and English, though typologically unrelated, share a high degree of structural similarity in derivational words. In line with many other cross-linguistic studies, these studies

support the view that the shared feature combined with structural similarities in learners' L1 and L2 can be positively transferred, regardless of the typology of learners' L1 and L2. Interestingly, the evidence also indicates that the cross-linguistic transfer regarding the abstract rules can be realized beyond not only the constraints of linguistic typology but also the differences in orthographical systems.

The evidence above shows that the transfer occurs more readily across typologically related languages, such as Spanish and English, because they are more likely to share lexical and structural properties than typologically unrelated languages, such as English and Chinese. Meanwhile, the studies find that transfer is still possible between two languages of different typologies. It suggests that typological relatedness is neither a sufficient (for the typologically similar languages) nor necessary (for the typologically different languages) predictor of cross-linguistic similarity and transfer. Some suggest that typological relatedness may not be the most important element supporting transfer (Jarvis, & Pavlenko, 2008; Tolentino, & Tokowicz, 2011). Regarding the nature and the extent of cross-linguistic similarity, Tolentino and Tokowicz (2011) define cross-linguistic similarity as being based on the similarity instantiated in specific constructions across languages, rather than on typological similarities, which rely on the historical relatedness of the ancestors of the languages. The degree of structural similarities depends on word-by-word translation. Therefore, language transfer can be realized beyond the constraint of language typology and can possibly occur between typologically related and unrelated languages as long as the two languages present structural overlapping regarding specific features.

2.1.2.2 Properties of L1 and L2 structure in cross-linguistic transfer

The previous section shows that the presence of a shared linguistic structure across L1 and L2 appears to sensitize the L2 speaker to the target structure in the L2 and to facilitate its use. It is known that, even when both languages mark meaning with similar structures, the degrees of productivity and salience of the structure may vary across a learner's L1 and L2. Linguistic productivity has to do with how much (or, in the limiting case, whether) the structure is used in the creation of forms that are not listed in the lexicon (Bauer, 2001). The linguistic salience defines the relative prominence of a linguistic unit loaded into current working memory and become part of a person's center of attention. The salient entities would have a better chance of entering our focus of attention (Ellis, 2016; Schmidt, 2007). These factors may affect the L1 and L2 awareness in a learner's mind and in turn may affect the process of transfer. Existing studies have not compared these properties of a target linguistic structure in L1 and L2 or distinguished the contribution of the developed L1 awareness and the L2 awareness in need during the process of transfer. Therefore, the critical factor which determines the transferability of a target linguistic construction and the mechanism of cross-linguistic transfer is still controversial.

Researchers hold different views regarding how the properties of a target structure in the L1 may affect the transfer. Some propose that the productivity of a morphosyntactic feature in the L1 determines the effect of the cross-linguistic transfer (Zhang, 2013; Zhang et al. 2010). For example, in Chinese, compound words are highly productive as over 75% of Chinese words are formed through compounding (Kuo & Anderson, 2006). In contrast, derivational words are limited and there are few derivational affixes in Chinese. Zhang et al (2013) find that Chinese

EFL learners demonstrate higher compounding competence than derivational competence in both Chinese L1 and English L2. The researchers attribute learners' higher compounding competence to their greater amount of L1 lexical exposure and richer L1 compounding experience, which, in turn, enhanced learners' sensitivity to compounding rules.

Some researchers further propose that the salience of a linguistic structure in a language system affects learner's sensitivity to the target structure in L1 and, in turn, affects their ability to transfer L1 knowledge. The influence of linguistic salience is significant during the early stages of both L1 and L2 learning (McWhinney, 2005). The associations of form and the meaning are not always presented in a one-to-one manner in a language, which may result in the competition of multiple linguistic cues and makes it difficult for learners to acquire these form-meaning mappings. It is possible that the same meaning is expressed using different linguistic cues. A structural cue in the input might get ignored by a learner in the circumstances of the rest of the message, where there are many other cues (e.g., lexical and pragmatic cues) to express a similar meaning on their mind (Ellis, 2005). For example, Chinese relies on both contextual cues (e.g., temporal adverbials) and verbal inflections to express temporality, which, in turn, leads to Chinese speaker's relatively low sensitivity to verbal inflections in their L1 (Ellis, 2006). Low sensitivity to a structure in the L1 may then reduce learners' awareness of cross-linguistic similarities and pose challenges for cross-linguistic transfer.

However, such L1 constraints (productivity and salience of the structure) are not consistent across different stages of cognitive maturity. As research has shown, the complexity of the L1 system indeed plays a significant role for young learners. However, as learning progresses and age increases, for adults and older children (8-10 years old) (MacWhinney, 2005) who have reached end stages of L1 development, the constraints of L1 structural productivity

and salience on the acquirability and transferability of a target feature decrease (MacWhinney, 2005; Zhang, 2013). With regard to morphological acquisition, Zhang (2013) explains that, once learners have developed insights into the L1 morphological process, they often utilize these insights to analyze L2 morphological structures. For example, Zhang's study uncovers that, although derivation is very limited and the system is complex in Chinese L1, transferring derivational awareness from Chinese to English is still feasible to some extent and contributive to English learning.

Other researchers have turned their attention to L2 structure and argued that the L2 structure plays a critical role in terms of the cross-linguistic transferability (Pasquarella, Chen, Lam, Luo, & Ramirez, 2011). Pasquarella and his colleagues claim that the more significant a structure is in expressing the meanings in the target L2, the greater the need for cross-linguistic transfer and the more likely that transfer will facilitate L2 development. For example, given that Chinese has a larger number of compounds than English, Chinese is supposed to require more compound awareness than English. Pasquarella et al. (2011) compare the bi-directional transfer of compounding awareness in Chinese-English bilingual children and observe the learners transferring compounding from English to Chinese, but not from Chinese to English. It demonstrates that compounding awareness is being transferred to the language in which compounding plays a more preeminent role.

Regarding the contradictory accounts and the inconsistent findings mentioned above, the extent to which L1 and L2 structural properties shape and constrain cross-linguistic transfer still remains complicated. The existing studies that have examined the cross-linguistic transfer of these features focus only on identifying one determining factor impacting the acquirability and the transferability of structures. In order to identify what the determining factor is and how L1

and L2 structures interact in the transfer, a new linguistic structure which is presented in both L1 and L2 but varies in productivity and salience across L1 and L2 requires investigation. In this thesis, the aspect inflections in Chinese and English will help us to identify the critical factor in transfer and L1-L2 interaction in reference to the expression of temporality.

2.1.3 Linguistic Awareness, Cross-linguistic Pedagogy and Competence of Cross-linguistic Transfer

2.1.3.1 Linguistic awareness and competence of cross-linguistic transfer

Linguistic awareness is understood as explicit knowledge about language in language learning, language teaching, and language use (Ellis, 2005). Ellis (1996, 2005) claims that explicit linguistic awareness is the facilitator of implicit L2 knowledge. He explains that the explicit linguistic awareness involves in the initial pattern recognition for linguistic construction. Such awareness can be tuned and integrated into implicit learning during subsequent input processing to promote implicit learning and proceduralization, which in turn, strengthens a learner's L2 competence.

Morphological awareness refers to "the ability to reflect on and manipulate morphemes and employ word formation rules in one's language" (Carlisle, 1995, 2000; Carlisle, & Feldman, 1995; Kuo, & Anderson, 2006). Studies of monolingual speakers have confirmed that morphological awareness is a significant contributor to the development of language skills. There has been recent growing research interest in morphological awareness of bilingual speakers and second language acquisition. The studies have examined the within and cross-linguistic effect of morphological awareness and confirmed that morphological awareness is a strong predictor of reading comprehension (e.g., Ramirez, Chen, Geva, & Kiefer, 2009; Ramirez, Chen, & Pasquarella, 2013; Wang, Cheng, & Chen, 2006; McBridge–Chang, Wagner, Muse,

Chow, & Shu, 2005) and oral production (e.g., Carlisle 2000; Hayashi, & Murphy, 2011;), regardless of first or second language learning. These studies suggest that morphological awareness can support learners (a) discriminate the morphemes from semantic or phonological similar words, (b) provide correct interpretations of morphologically complex words and (c) produce appropriate word forms in certain contexts (see Wang, Cheng, & Chen, 2006 for review). For example, Ramirez, et. al (2009) examine the Spanish and English morphological awareness and word reading ability in 97 Spanish ESL children in the grade 4 and 7 and find that Spanish morphological awareness contributes unique variance to the word reading in Spanish, a language with a complex morphological system. They also suggest that morphological awareness developed in children's L1 is positively associated with word reading in their L2 English. The evidence indicates that morphological awareness positively contributes to language performance within the language and is transferable across the languages and contributes to the development of L2 language skills.

Whereas, linguistic awareness alone does not necessarily lead to transfer. For example, Horst, White and Bell (2010) examine cross-linguistic instruction and find that heightened cross-linguistic awareness does not go hand-in-hand with accurate language use. In their study, which was based in two Grade 4-5 intensive ESL classes, the French L1 children can clearly explain the differences in the rules for possessive determiners between English and French after the cross-linguistic instruction on English and French. However, such accurate linguistic awareness does not guarantee their appropriate use of determiners his and her in the English L2. Therefore, linguistic awareness may not be a determinant factor for cross-linguistic transfer. Other issues involved in the process of linguistic transfer and language use need consideration.

Learners' ability to be aware of linguistic components and to transfer the awareness

between a learner's L1 and L2 can be modified by the pedagogical intervention in classroom settings (Ellis, 2005; Jessner, 2006, 2017). For example, language awareness activities intend to encourage students from different linguistic backgrounds to draw on their language resources to think about the unknown languages. Dagenais et al. (2008) implement language awareness activities with French immersion students in Vancouver and students from Francophone schools in Montreal. The researchers find that through the directed discussion in class, the learners coming from various L1 backgrounds foster the new knowledge about relationships between languages based on the critical reflections about their L1 and L2 and form the critical views towards language status. Therefore, in order to take advantage of the cross-linguistic transfer, it is possible and, also, effective to draw on learners' existing language knowledge to activate and enhance learners' cross-linguistic awareness through pedagogical activities in classroom settings (Ballinger, et al., 2017; Horst, et. al, 2010).

2.1.3.2 Effect of cross-linguistic pedagogy on cross-linguistic transfer

In the field of second language education, bilingual education has not traditionally been structured in a way to facilitate the cross-linguistic transfer. However, in recent years, people (e.g., Cummins, 2014; Swain & Lapkin, 2013) have called for the relaxation of this separation of languages to facilitate the learning efficiency of L2. Cummins (2014) argues that although it is appropriate to largely maintain the separate space for each language, it is also important to teach for transfer across languages. He proposes that learners' L1 ability can function as meaningful cognitive and linguistic resources for meditating and collaboration to support the overall linguistic development, processing and communication. For example, within Canadian French immersion programs, some researchers explore the feasibility and potential benefit of using L1 English for English learners of French (e.g., Lyster, Collins & Ballinger, 2009; Lyster, Quiroga

& Ballinger, 2013; Swain, & Lapkin; 2000; Swain & Lapkin, 2013). In Swain and Lapkin's (2000) study, the learners who are guided to use L1 English for group work and report their work in L2 French back to class significantly outperform those who carry out all of their works in French. The researchers point out that making judicious use of learners' L1 in L2 class can enhance L2 performance in general.

Regarding learners' linguistic awareness within and across the languages, explicitly drawing learners' attention to similarities and differences across the languages is believed to be able to elicit learners' background linguistic knowledge, raise their overall awareness and support L2 acquisition (Cummins, 2014). Through the classroom-based contrastive analysis, the experienced learners are more aware of structural similarities and differences between languages and able to expand her or his repertoire of language-learning strategies (James, 1996). Researchers have implemented various cross-linguistic activities and methods in instructional contexts to examine the effect of the transfer on acquiring different types of linguistic components. They also intend to explain the underlying mechanism to better support the development of cross-linguistic pedagogy (Lyster et al., 2013; Harley, 1989; Kupferberg, 1999; Kupferberg and Olshtain, 1996; McManus, & Marsden, 2017, 2018, & 2019).

As mentioned before, structural or semantic similarities across learners' languages may contribute to positive transfer and support L2 learning, while cross-linguistic differences may lead to negative transfer. Studies find that learners can benefit from cross-linguistic pedagogy by facilitating the positive transfer of the similarities and moderating the negative influence that the cross-linguistic differences may cause.

The transfer of cross-linguistically similar properties can be facilitated through explicit instruction which associates similar structure in learners' languages. Lyster et al. (2013) conduct

a read-aloud program in biliteracy instruction with a linguistic focus on derivational morphology. The English- and French- subject teacher of the same class collaborated to use picture books in both French and English and to read the story respectively in their allotted class time. While reading, the teachers motivated learners to make the connection of both languages and elicit their derivational knowledge through comparison. The research result shows that these methods indeed increased learners' morphological awareness at sublexical levels and the effect can be transferred to lexical and supralexcial levels. Based on the shared morphological structure of French and English, learners acquire and deepen the derivational knowledge by comparing two languages. They can effectively identify new words and comprehend content with derivational knowledge.

When it comes to the properties exhibiting cross-linguistic variations, many researchers suggest that providing classroom learners with explicit information about and practice in contrasting L1/L2 differences could also support L2 acquisition (Harley, 1989; Kupferberg, 1999; Kupferberg and Olshtain, 1996; McManus, & Marsden, 2017, 2018, 2019). Kupferberg and Olshtain (1996) examine the effect of explicit contrastive instruction on learning the syntactic properties (the word orders in compound nouns) which are different in L1 Hebrew and L2 English. They find that, in the classroom setting, the learners who receive the contrastive input significantly outperform those who only received natural L2 input regarding their production and comprehension skills. The researchers explain that, during the explicit contrastive instruction, the contrastive linguistic input creates linguistic salience, directs learner's attention to the new form in L2 and activates the form in the short-term memory.

Similar facilitative effects of cross-linguistic pedagogy were observed in McManus and Marsden's (2019) study on L2 French grammatical aspect morphology in English speakers. The

group which received explicit instruction in both L1 and L2 shows the greatest improvement during the practice and the post-test in comparison with the groups which received L2-only instruction and no instruction. Moreover, for the L1+L2 treatment group only, the facilitative effect was retained in the delayed post-test one month after the instruction. The researchers specify the nature of learning trajectories after the L1 + L2 treatment. According to them, when receiving L1 explicit instruction and practice alongside the core L2 instruction, learners first restructure their existing L2 knowledge by adding a new processing routine and representation, which results in a temporarily unstable L2 system. Then, with accumulated practice, the L2 processing routine undergoes a qualitative change when automatization occurs. At this stage, learners eliminate the slow and inefficient processing procedures caused by the cross-linguistic variation and finally establish reliably accurate L2 knowledge. In contrast, this automatization effect was not observed in the group who were instructed in their L2 only. Since explicit L1 information is not provided during the L2-only instruction, the nature of cross-linguistic problems – processing variability, is not addressed. Therefore, the learners cannot eliminate the inefficient processing caused by L1 transfer with L2-only instruction and, the inappropriate L1-based processing routine continuously constraints learners' improvement on L2 aspect inflections.

In short, cross-linguistic pedagogy not only enhances the L1-L2 similarities and differences in the input to raise learner's awareness about the cross-linguistic association (Kupferberg, & Olshtain, 1996) but also qualitatively adjusts the processing routines and effectively solves the problems posed by cross-linguistic variation. In addition, Kupferberg and Olshtain (1996) mention that, though L2 learners may initiate such L1-L2 comparison on their own, the learner-initiated comparison may result in L2 errors. Therefore, in order to carry out a

successful cross-linguistic comparison to moderate negative transfer and to facilitate the positive transfer, manipulated contrastive input and teacher-directed instructions are in need.

Based on the existing understanding of cross-linguistic transfer and pedagogy and, with both grammatical and pedagogical focus, the current study sought to raise learners' sensitivity about L1 inflections through explicit instruction. It connected and compared learners' L1 and L2 through several pedagogical activities (highlighting the general L1/L2 formal and semantic similarities combined with explicit rule explanation and output practice) in classroom settings.

2.2 L2 Acquisition of Aspect Inflections

2.2.1 Overview of L2 Acquisition of Aspect Inflections

Inflectional morphology marks syntactic or semantic relations between different words in a language (Kuo & Anderson, 2006). Acquiring inflectional morphology crucially involves mapping the target abstract syntactic or semantic features onto their grammatical encodings (Slabakova, 2009). Based on the comparison of findings regarding the different L2 linguistic components, Slabakova (2009) summarizes that the acquisition of inflectional morphology is the "bottleneck" in SLA (pp. 280). She mentions that the L2 acquisition of inflectional morphology requires learners to figure out the assembly of L1 formal features and, then reassemble formal features as required by target L2. The precise reassembly of L2-like features and map them to appropriate L2 encodings is the core of L2 acquisition.

Many languages use inflectional morphology to mark temporal features, such as grammatical aspects. Aspect is a semantic domain that deals with the temporal structure of a situation and its presentation (Smith, 1997). For example, "*John talked*" and "*John was talking*" contrast in the grammatical aspect. The former, the perfective aspect, presents a situation inclusive of its endpoint, suggesting a completed situation: the event is completed. The later, the

imperfective aspect, presents a situation absent of boundaries, indicating an "on-going" or a "non-completed" event. These are the two main imperfective viewpoints. The general imperfective focuses intervals of all situation types, such as the French *imparfait*, while the progressivity focuses on the internal stages of non-stative events, such as the English *progressive* (Smith, 1997). The aspect concepts play a significant role in communication. Meanwhile, the great complexity of the temporal concepts and the significant cross-linguistic variance in form-meaning mappings of the features lead to difficulties for L2 learners. Regarded as one of the most difficult components of L2 grammar learning, the acquisition of aspect features has received intensive attention in the field of SLA (Ellis, 2013).

There are two research traditions in analyzing the development of the temporal inflections: morphological and functional approaches (Izquierdo, & Kihlstedt, 2019). The functional approach examines how L2 learners develop control over the form-meaning mappings for communicative demands in the L2. In contrast, the morphological approach investigates how learners' use of perfective and imperfective interacts with the semantics of different verb types. Descriptive (Howard, 2002; Izquierdo, 2009; McManus, 2015) and quasi-experimental (e.g., Ayoun, 2004; Izquierdo, 2014; Mikfa-Profozic, 2015; McManus, 2019) studies have examined the factors such as L1 influence and the verbal semantics. Some recent studies (e.g., Izquierdo, & Khilstedt, 2019) integrate morphological and functional methodologies to investigates the acquisition of L2 functional inflections. The current study focuses on inflectional awareness and examines whether and how the development of L2 inflections is affected by learners' L1 inflections awareness and universal verbal semantics. Therefore, this study explores the acquisition of aspect inflections within the morphological tradition. As English is the target L2 language in the current study, the L2 English studies are mainly reviewed. These studies

specifically reported the data relative to the simple past and perfective markings in connection with lexical aspect and L1 influence. Meanwhile, the research evidence from other languages is also included to provide a thorough picture of the L2 development of the aspect inflections.

2.2.2 Development of L2 Aspect Inflections

2.2.2.1 Morphological development of L2 aspect inflection

Based on the unplanned speech data from 46 instructed L2 learners of English and some earlier research evidence (e.g., Giacalone-Ramat, 1995), Housen (2002) summarizes three stages regarding the L2 morphological development of the tense-aspect inflections. During the first stage, the learners tend to miss the verbs in their utterance or use the verbs as the unanalyzed components in the rote-learned formulaic expression. When it moves to the second stage, learners' inflectional awareness raises and the verbal inflections are used in invariant forms. That is to say, the L2 learners use verbal inflections to mark the inherent properties of the verbal predicates, corresponding to the prototypical association predicted by the Aspect Hypothesis. Then, the learners gradually set grammatical learning until the third stage. During this stage, they use different inflections in response to variant contexts to express grammatical aspects.

The development of English simple past and past progressive inflections has received great attention in the L2 English literature. As for the emergence of the simple past and progressive inflections, Housen (2002) finds that the formal categories of progressive *-ing* emerges earlier than the regular simple past *–ed* (though the progressive *–ing* emerges later than the irregular past form). Researchers (e.g., Bardovi-Harlig, 1998, 2002; Robinson, 1995) further find that once the learners have acquired different inflections in L2 English, the simple past shows highest rate of use across all verbal types compared to other aspect inflections, and the rate of using the simple past increases with the increase of L2 proficiency, according to the

oral/written production of 37 ESL learners from various L1 backgrounds in Bardovi-Harlig (1998) and oral production of 26 Spanish speaking ESL learners in Robinson (1995).

2.2.2.2 Lexical influence on l2 aspect inflections

During the acquisition of the expression of L2 aspectuality, early studies (e.g. Bardovi-Harlig, 1992, 2002) find that, regardless of target and native languages, the acquisition of aspect initiates at a pragmatic level, then, move to a lexical stage and finally realizes through grammatical forms, if the target language marks aspect grammatically. In the pragmatic stage, beginners largely rely on discourse means, event contrasts and chronological narratives to indicate time reference. When it comes to the lexical stage, learners depend on lexical items, such as adverbials (e.g., "*already*" and "*yesterday*"), calendric reference (e.g., "*April 5*") and time expressions (e.g., "two months") to express temporality. After that, learners gradually move to a grammatical stage, where the inflections start to appear in the production. Researchers (e.g., Bardovi-Harlig, 1992) also point out that, although inflections may present in the beginner's L2 production to render temporality, learners use them in a non-target-like manner. The number and the frequency of inflections are extremely limited, and the learners may not assign the target-like interpretation for the aspect inflections. Even for the advanced learners who have made productive use of the aspect morphologies, researchers observe that their use of such forms is highly variable, alternating between forms in similar grammatical contexts (e.g., Bardovi-Harlig, 1992, 1998).

According to Smith's (1997) framework of aspect system, grammatical aspect and lexical aspect interact to encode aspectuality (Smith, 1997). Grammatical aspect, also called viewpoint aspect in Smith (1997), refers to the perspective or viewpoint on a situation that a speaker adopts. It is always marked explicitly by linguistic devices, usually auxiliaries and inflections, such as

the past morpheme "*-ed*" and the progressive morpheme "*-ing*" in English (Anderson, & Shirai, 1996; Comrie, 1985; Smith, 1997). Lexical aspect refers to three inherent properties ([±dynamic], [±durative], [±telic]) in verbal predicates that describe the situation. The distinction between static ([-dynamic]) and dynamic (([+dynamic]) is fundamental. Dynamic situation forms the natural class of events consisting of stages, involves agency, activity and change in the temporal scheme and requires energy, while the static situation is the simplest situation type and consists only of a period of undifferentiated stable moments without an endpoint. The distinction between telic ([+telic]) and atelic ([-telic]) is indicated by the presence of a potential internal endpoint in the temporal structure or not. The telic situation is directed to an intrinsic outcome, goal or change of state, while the atelic situation does not. The distinction between durative ([+durative]) and instantaneous ([-durative]) is signaled by the event occurring and extending for a period of time or not. The durative event includes internal stages in the temporal schema, while the instantaneous event does not include an internal process and includes simultaneous start and endpoint (Comrie, 1985; Smith, 1997).

The interaction between the [±dynamic], [±durative], [±telic] properties leads to four types of verbal predicates: a state, activity, accomplishment or achievement (see Table 1) (Cormire, 1985; Vendler, 1967). For example, the verbal phrase "*live in Paris*" presents a static and durative situation, which consists only of a time period without endpoints (state). The verb "*sing pop music*" describes a dynamic, durative and atelic event, which has no associated culmination or natural outcome/goal (activity), while the verbal phrase "*sing a pop song*" describes a dynamic, durative and telic event, which consists of a process and an outcome (accomplishment). The verbal phrase "*reach the top*" presents a dynamic, instantaneous and telic event presented with simultaneous initial and endpoint and results in a change of state.

Table 1

Four Types of Situation and Lexical Features

Situation type	[±dynamic]	[±telic]	[±durative]	Example
State	-	-	+	*Live in Paris*
Activity	+	-	+	*Sing pop music*
Accomplishment	+	+	+	*Sing a pop song*
Achievement	+	+	-	*Reach the top*

In the interlanguage of aspect, the semantic properties of verbal predicates significantly interact with the grammatical aspect and affect the emergence of the aspect markings across different developmental stages (Anderson, & Shirai, 1996; Bardovi-Harlig, 2002; Howard, 2002). Anderson and Shirai (1996) review early studies on aspect acquisition and propose an Aspect Hypothesis to generalize the interaction of lexical properties of the verbal predicates and the distribution of grammatical-aspectual inflections. The Aspect Hypothesis predicts that, in the development of aspect system, the aspect inflections are first used to mark the inherent semantic distinction of the verbs (lexical aspect) until learners at final stage put them to functional use to mark the viewpoint of a situation independently from the temporal properties inherent in the verbal predicate. To be specific, in the development of aspect system, learners make initial associations of the aspect markings with the prototypical semantic contexts for their use and, as the system developed, learners gradually expand the initial association to less prototypical contexts (Anderson, & Shirai, 1996; Collins, 2004; Howard, 2002). In the prototypical contexts, the semantic properties of verbal predicates and the functions of aspect markings align (Howard,

2002). The perfective markings emerge with telic verbs, as the telic predicates indicate an inherent endpoint that is consistent with the closed and the punctual nature of the perfective. Then, the perfective markings extend to a non-prototypical use when it applies to the atelic situations because the internal endpoints do not appear in these situations. As for the progressive markings, they initially emerge with atelic dynamic verbs, since the atelic dynamic events are consistent with the dynamic and open nature of the progressive viewpoint. It gradually appears in the non-prototypical contexts when combined with the instantaneous verbs, because the instantaneous situation does not include an interval stage. The progressive markings are least likely to appear with the stative verbs, because the situation contradicts the dynamic nature of progressive (Smith, 1997; Howard, 2002; Izquierdo, 2014).

Some studies find that the verbal semantics constraints the distribution of the aspect morphologies at a more advanced level and may form long-lasting influence on the distribution of the L2 aspect morphologies (Bergstrom, 1997; Cadierno, 2000; Howard, 2001, 2002). For example, Salaberry's (1999) study on English L1 learners of L2 Spanish finds that the effect of the lexical aspect is minimal in beginners, but it becomes stronger with increasing levels of proficiency. Furthermore, Cadierno (2000) examines the Danish speakers who are at the last stage of L2 Spanish and observes the effect of verbal semantic on the use of the aspect morphologies. She suggests that the influence of the verbal semantics may constitute the steady stage of L2 aspect system. A similar pattern has been identified on the Swedish advanced learners of French in Kihlstedt (2000, 2002). Regardless of the stages, the consistent developmental pattern regarding the interaction of the lexical aspect and the grammatical aspect has been observed in extensive tense-aspect studies on learners from various L1 and L2 backgrounds and the Aspect Hypothesis regarding the influence of verbal semantics on aspect

development is supported (e.g., Ayoun, & Salaberry, 2008; McMannus, 2013, 2015; Shirai, 2002; Shirai & Kurono, 1998; Thomas, 2014).

When the target language is English, this hypothesis predicts that (a) learners have a preference for using the simple past making with verbs of achievement, such as "*reach the top*", and verbs of accomplishment, such as "*sing a song*", and then such preference spreads verbs of activity, such as "sing", and, finally, to verbs of states, such as "*live in Paris*"; and (b) since English encodes progressive aspect, progressive markings begin with activity verbs, then extends to accomplishment or achievement verbs, but does not incorrectly overextend progressive markings to stative verbs (Collins, 2004).

According to a series of cross-sectional (Spanish L1: Robinson, 1990, 1995; Bardovi-Harlig & BergstrÖm, 1996; Bardovi-Harlig & Reynolds, 1995; French L1: Collins, 2002, 2004; Chinese L1: Qian, 2015) and longitudinal (Robinson, 1990; Italian L1: Rocca, 2002) studies on ESL learners from various L1 backgrounds, the distribution and the spread of the simple past and the past progressive across different verbal types in L2 English are generally consistent with the patterns predicted by the Aspect Hypothesis. The privileged prototypical association between the simple past and the telic verbs (accomplishment and achievement) has been observed and remains no significant difference across different L2 proficiency groups (Bardovi-Harlig, 2002). It suggests that the prototypical effect on the simple past inflection is always operative and remains no significant change throughout the L2 development. However, inconsistent results regarding the association between the two telic verb types with the rates of simple past have been reported. Some studies (Bardovi-Harlig, & Reynolds, 1995; Collins, 2002; Rocca, 2002) observe similar rates of using simple past with achievements/accomplishments, while other studies (Robison, 1990, 1995; Bardovi-Harlig & BergstrÖm, 1996; Bardovi-Harlig, 1998, 2002) find the

rates of connecting the simple past with achievements verbs are significantly higher than that with accomplishments across different proficiency groups.

The prototype effect in L2 English progressive markings is rather significant. The association between the activity and the progressive is stronger than the correlation between the telicity and simple past (Rocca, 2002), and becomes significant with the L2 proficiency (Bardovi-Harlig, 1998; Clachar, 2004; Robinson, 1995). Some other studies find that the English progressive is not necessary with activity predicates, but more closely related with durative verbs (including activity and accomplishment predicates) (various L1 backgrounds: Bardovi-Harlig, 1992; Catalan/Spanish L1: Munoz, & Cilabert, 2011; Robinson, 1990). Bardovi-Harlig and Bergstrom (1996) explain that the learners initially respond to the durativity of the events when using progressive inflections. Whereas, some counterevidence of the Aspect Hypothesis is found in the literature. For example, the German-speaking ESL learners in Rohde (1996) are observed not only highly supplying the progressive with activities, but also with achievement verbs in a relatively high proportion (33%). Moreover, overextending the progressive to the states has been observed in a few studies (Housen, 2002; Qian, 2015), which challenges the claim that the learners do not over generate the progressive to the states proposed by the Aspect Hypothesis.

2.2.2.3 L1 influence on L2 aspect inflections

Learners' prior linguistic knowledge and experience can affect the acquisition of inflections in their subsequent language (Salaberry, 2005), including the developmental trajectory and the ultimate learning outcome. In the aspect domain, previous studies have reported the L1 effect on the distribution of the verbal inflections and on the semantic interpretation that learners assigned to the L2 aspect markings. Based on earlier studies, McManus and Marsden (2018) summarize two ways that the L1 influences L2 aspect learning: a)

L1 knowledge and experience in expressing the temporal feature generally affect learner's attention and sensitivity to the linguistic cue in expressing the L2 feature (see the section below Convention of Aspect Encoding); b) the detailed cross-linguistic differences in how languages configure the elements of the temporal features and map the features to the target morphosyntax affects the acquisition of specific L2 form-meaning mappings (see the section below Form-meaning Mapping for Aspect Inflections).

The facilitative effects of aspect similarities between the L1 and L2 have been observed in a few studies (e.g., Amenós-Pons, Ahern, & Fuentes, 2017; Izquierdo, & Collins, 2008; Izquierdo, & Kihlstedt, 20019; McMannus, 2013, 2015, 2019), but the extent of the facilitative L1 effects is limited. Studies have also identified multiple types of negative L1 transfer on the development of L2 aspect (e.g., Collins, 2002, 2004 & 2005; McManus, 2015; Robert, & Liszka, 2013; Rocca, 2002). Since each language has specific ways to encode aspectual features, the cross-linguistic similarity/differences of aspect form-meaning pairings can present on multiple levels, including the conventions (e.g., lexical or grammatical) to express aspect features, the conceptual assembly and contrast of the aspectual features (e.g., the perfective/imperfective distinction in Spanish, the progressive/non-progressive distinction in English), the formal properties of aspect encodings (e.g., single inflections or compound forms). Certain cross-linguistic variation leads to rather complex pictures in L2 aspect acquisition.

Cconvention of aspect encoding

The convention of expressing aspect features in learners' languages affects the acquisition of L2 morphology (Housen, 2000; Kihlstedt, 2002; McManus, 2015). Languages, such as German, Dutch and Swedish, have no aspect inflections and rely on lexical items (e.g., verbal predicates, time phrase, and adverbials) and discourse context to implicitly convey the

viewpoint that a speaker takes on a situation. Languages such as French and English encode aspects explicitly through grammatical forms, such as auxiliary and inflections. Such L1-L2 differences in convention pose difficulties for L2 learners, especially for those who need to switch from an L1 lexical convention to an L2 grammatical convention. Studies find that even a highly advanced L2 learner for whom a viewpoint aspectual meaning is marked in his/her L2 but not L1 might be struggle with grammatical aspect markings (Housen, 2000; Kihlstedt, 2002). For example, in his longitudinal study of the L2 English production of a Dutch speaker, Housen observes that the learner does not overgeneralize the past tense morpheme *–ed* in non-past contexts because his L1 Dutch marks tense distinction (past/non-past). When it comes to the aspect inflections, the learner often overgeneralizes progressive marking –ing in non-progressive contexts because L1 Dutch does not mark aspect distinction (perfective/progressive). Moreover, learner's development of the past progressive/past simple contrast was in line with the inherent temporality of the verbs, indicates that the speaker was acquiring a new feature based on the semantic universal.

Kihlstedt (2002) further finds the L1 lexical convention in expressing aspect meanings constrains L2 grammatical aspect learning even for highly advanced L2 learners. She finds that a highly advanced L2 learner for whom an aspectual meaning is expressed grammatically in his/her L2 but not L1 might be reluctant to reconstruct the aspect system and elude the grammatical aspect marking. Her study on advanced Swedish learners of French finds that Swedish speakers differ from French native speakers in that they tend to use the French perfective marking with telic verbs and the imperfective with stative verbs, which suggests a pattern consistent with semantic universal. It indicates that, since Swedish expresses aspect lexically when learning a novel L2 feature, the advanced L12 learners still resort to the inherent

semantics of the verbs to assign the aspect inflections especially in challenging contexts.

Based on the research evidence, Housen (2002) proposes two ways to construct L2 grammar. In line with Slobin's (1991) transfer proposal inter alia, Housen predicts that, if a feature is overtly presented in the L1 and certain semantic similarity occurs in the L2, learners would use the L1 distinction to process L2 input and construct L2 grammar. If learners find no obvious counterparts between their L1 and L2, they would, then, resort to the semantic universal (lexical aspect) to construct an interlanguage.

By comparing the L1s with and without marked grammatical aspect, researchers (McManus, 2015; Robert, & Liszka, 2013) further find that, when both L1 and L2 encode the aspect meanings grammatically, the learners indeed benefit from their L1 grammatical knowledge to acquire the L2 aspect inflections. McManus (2015) compares German-speaking and English-speaking learners' oral production of L2 French and find that English and German speakers differ significantly. The differences are particularly significant between the low-proficient groups. German speakers did not correctly use *passé composé* (the perfective aspect form in French) and *imparfait* (the imperfective aspect form in French) morphology to contrast perfective and habitual aspects. Instead, they tended to use *passé composé* in both contexts. Regardless of the form and meaning differences between the French and English aspect inflections, English speakers can distinguish these two aspects morphologically, as they produce *passé composé* most often in perfective contexts and produce *imparfai* most often in habitual contexts, though low-proficient learners' use of the target form lacked consistency, indicating fragility in aspect form-meaning mappings.

The on-line and off-line evidence suggests that, when L1 and L2 encode the aspect

meanings grammatically, a learner's L1 knowledge and experience has a positive influence on learning L2 aspect inflections, especially during the early stages of learning. Robert and Liszka (2013) explain that a speaker whose L1 has marked aspects, such as Spanish and French, must pay attention to the aspect of the event in order to appropriately interpret and produce the aspect inflections. Certain L1 conventions and accumulated L1 experience contribute to the learner's sensitivity to the aspect of the events in the L2 as well as the overt aspect inflections in general. Learner' susceptibility to the aspect feature and markings can be transferred to the L2 if the L2 also marks aspects through grammatical morphology. Learners whose L1 and L2 both have marked aspects will benefit from the heightened L1 sensitivity during both on-line and off-line L2 processing of aspect features. The researchers also propose that learners are able to make cross-linguistic associations simply based on the shared convention in marking the aspect feature and there is no necessity for two languages presenting formal or semantic similarities in aspect markings (McManus, 2015; Robert, & Liszka, 2013).

Form-meaning mapping for aspect inflections

As for languages with grammatical aspects, languages may vary in how semantic features are assembled and encoded by the morphosyntax (form-meaning mappings). Certain cross-linguistic semantic and formal variation in feature configuration affects how L2 learners interpret the aspect distinction and acquire the form-meaning mappings in their L2. Previous studies have found that L2 learners can effectively identify and make use of the cross-linguistic similarities in the feature assembly to facilitate the acquisition of the aspect inflections. For example, Spanish and French morphologically mark perfective and imperfective (habitual) distinctions, while English conflates these semantic distinctions. Izquierdo and Collins (2008) compare the acquisition of French perfective/imperfective inflections by Hispanophone and Anglophone

learners and identify the facilitative effect of L1-L2 similarities on Spanish speakers. The results of a control production task showed that the Spanish-speaking participants use the French aspect markers successful in the obligatory contexts without the influence of verbal semantics. In other words, L1-L2 similarities in contrasting the aspect feature reduced the influence of lexical semantics, leading to a facilitative development. Congruent with the quantitative findings, the retrospective interview data point out that, the Spanish-speaking learners are aware of the similarities regarding the semantic distinction of grammatical aspects of Spanish and French, and they effectively make use of L1-L2 similarities to assign the grammatical markers. In contrast, the English native peers, whose L1 does not mark such distinction, show lower accuracy in using the French perfective/imperfective markings, as compared to the Spanish participants. They are also observed to be significantly influenced by verbal semantics in their L2 French aspect and had a preference for using perfective over imperfective marking.

Formal similarity between languages combined with functional overlapping across a learner's L1 and L2 may further strengthen the association of the aspect inflections and some lexical categories and, in turn, facilitate L2 development. By comparing the performance of French and Japanese L1 learners of English, Collins (2004) finds that, within the framework of the common developmental pattern, the Japanese learners, whose L1 demonstrated the greater degrees of formal similarity and functional overlapping regarding the past-tense marker (the Japanese past inflection "*–ta*" is similar to the English simple past inflection "*–ed*" in form) are more successful at marking telic achievements with the simple past of L2 English than French learners (the French past marked by the compound form is formally different from the English simple past marked by the inflection *-ed*). This research evidence shows that the combined structural and semantic similarity across the learner's L1 and L2 contributes to a facilitative L1

effect on learning the aspect inflections, while the effect is constrained to a limited verb type, not the full range of the verbs. In other words, the L1 transfer effect is effective in strengthening the prototypical association but has limited effects on the non-prototypical associations.

The extent of the facilitative L1 effect is also limited regarding the functional and morphological respects of the aspect inflections. Izquierdo and Kilstedt (2019) investigate the Spanish-speaking French learners' use of the French imperfective inflections through written narratives, as both French and Spanish encode the multiples imperfective meanings grammatically. The researchers observe the production of the various imperfective functions even in the least proficient L2 groups, indicating that the learners benefit from the existing L1 imperfective representations at an early stage of L2 acquisition. However, regarding the morphological respect of the inflections, the learners' use of the L2 imperfective still strongly adhere to prototypical forms even in advanced L2 learners and do not extend the markings to the non-prototypical contexts despite the potential benefit of L1 grammatical aspect markings. It indicates that the existing L1 representation cannot deal with the persistent learning challenge posed by the lexical aspect, especially for the lexical extremes (verbs of states and achievement).

Izquierdo (2014) also found that the facilitative L1 effect is significant for the early stages of development but not for the later stages of learning. In his quasi-experimental study on the learning of the French past forms in Spanish speaking learners, Izquierdo finds the low-proficient learners significantly benefit from the instruction that associating the cross-linguistic similarities regarding the past-tense markings, but those who are at late developmental stages show no significant improvement after the instruction.

The negative transfer effects caused by the inconsistency in the aspect form-meaning mappings also have been observed in previous studies. A body of studies focus on the L2

acquisition of English simple past and progressive inflections in learners from various L1 backgrounds (e.g., French L1: Collins, 2002, 2004 & 2005; Italian L1: Rocca, 2002; Bulgarian L1: Slabakova, 2003). For example, both Bulgarian and English have aspect inflections, but English differs from Bulgarian with respect to the semantics that configures for the present tense form. In Bulgarian, present simple form conflates habitual and ongoing aspects. In English, present simple marking has only present simple interpretation and, progressive marking is in need to mark ongoing events. Slabakova (2003) finds that all Bulgarian speaking learners can easily map the English present simple form to habitual meanings (around 80% accuracy rates), but are significantly less accurate in mapping the English progressive forms to ongoing events (around 65% accuracy rates). Instead, the learners tend to overuse past simple form in progressive contexts. These results show that how the idiosyncratic assembly of features in the in L1 constrains learners assign aspect features to a target form in L2.

Studies have also found that the similar inflectional forms which carry inequivalent functions across two languages resulted in negative transfer effects and pose challenges for L2 learners to identify the appropriate meanings encoded in the inflections (e.g. Collins, 2002, 2004 & 2005). For example, Collins' (2002) study of adult French-speaking learners of English found developmentally constrained L1 influence on L2 aspect morphology due to the differences in formal properties of the aspect morphology in learners' two languages. She observed that French speakers inappropriately overgenerated the English present perfect, which is similar in form (compound structure) but different in function from the French passé composé in simple past contexts. Whereas, certain inappropriate use does not appear with all types of verbs but frequently occurs with telic verbs only. This evidence shows that the cross-linguistic structural

similarities lead to L1 influence in acquiring the prototypical L2 aspect association, but such effect does not extend to the non-prototypical usage of the inflections.

In short, regarding the extent of the L1 transfer effect, the research evidence shows that the L1 effect is significant during the early stage of aspect development (e.g., Izquierdo, 2014; Izquierdo and Kilstedt, 2019), regardless of the positive or negative influence. The low-proficient learners are highly constrained by the cross-linguistic differences (e.g., Collins, 2002, 2004 & 2005; McManus, 2013; Rohde, 1996; Slabakova, 2003) and they greatly benefit from the similarities (Collins, 2004; Izquierdo, 2014; Izquierdo, & Collins, 2008; Izquierdo, & Kilstedt, 2019; Housen, 2000) in the aspect form-meaning mappings. Certain L1 influence is operative on learning the functions of the aspect inflections and the prototypical morphological association of the lexical aspect. Whereas, the learner's L1 knowledge regarding the non-prototypical usage of the aspect inflections cannot be transferred to the L2, regardless of the L2 developmental stages. In other words, the L1 effect occurs within the effect of verbal semantics and does not override the acquisitional universal (Collins, 2002, 2004). When it comes to the later stages of morphological development, the advanced learners are majorly constrained by effect of the lexical aspect on learning the non-prototypical use of the aspect inflections. The L1 transfer effect significantly reduces in advanced learners and cannot help learners to override the constraints posed by the verbal semantics. Therefore, the non-prototypical association between the aspect inflections and verbal predicates becomes the persistent challenge that remains in the development of the L2 aspect system. Such challenge cannot be easily overriden with the increase of L2 proficiency, even for high-proficient L2 learners (Kihlstedt, 2002). The imperfect using the aspect inflections in the non-prototypical context may constitute the steady state of L2 performance (Cadierno, 2000; Rocca, 2002).

2.2.3 Instructed L2 Aspect Acquisition

2.2.3.1 Effect of instruction to facilitate L2 aspect acquisition

L2 aspect tends to be one of the earliest features to be instructed in L2 classes. However, when it comes to the effectiveness of instruction on L2 aspect acquisition, the picture remains complicated (e.g., Slabakova, 2003; VanPatten, 2017). Some propose that instruction is not a significant variable in the acquisition of aspect features. For example, Slabakova (2003) compares the acquisition of instructed/uninstructed properties of English present aspect in Bulgarian speakers and find that for each proficiency level (low-intermediate, high-intermediate and advanced levels), the learners are equally accurate across instructed/uninstructed conditions. The researcher predicts that the aspect properties that are not presented in classroom input and are not transferable from the L1 are still acquirable. Instructed and uninstructed learners undergo the same developmental process and, for both, accuracy increases with proficiency.

Some studies find that instruction still plays a role during L2 aspect development. A few experimental studies have compared the performance between learners who were explicitly taught aspect features and those who were not (e.g., Bardovi-Harlig, 2002 for review). The researchers find that, regardless of the type of instruction (the explicit instruction or the traditional instruction; L2-only instruction or L1+L2 instruction), the adult classroom learners who are taught about L2 Spanish preterito (Cadierno, 1995) or L2 French imparfait (McManus, & Marsden, 2017) significantly outperformed their uninstructed peers in the production and comprehension of the target feature during the online and offline processing immediately after the instruction. With a functional focus, Bardovi-Harlig (1989) observed that the facilitative effect of experimental instruction contrasting the use of L2 French PC and IMP in contexts was significant in the immediate post-test, as compared to the effect of normal immersion input.

Interestingly, when it comes to the delayed post-test, the experimental group maintained the gains three months after the instruction, while the control group got better and caught up to the experimental group at this point.

In general, the results of these studies are consistent with Slabakova (2003): the instructed and uninstructed L2 learners showed no qualitative differences in aspect development. Instruction indeed affects the development of the aspect system quantitatively. Bardovi-Harlig and Cadierno detail when and how the influences of the instruction take place. The evidence showed that, compared to the uninstructed classroom learners, the instructed learner who has received specific instruction about the target aspect property not only shows greater improvement on accuracy in using the inflections, but also exhibits a speed-up effect at some point during the development of L2 aspect. Specifically, the facilitating effect of instruction is significant immediately after the instruction. According to the results of the experimental studies, the advancement of instruction may be attenuated regarding the in long-term influence. Because the uninstructed properties are still acquirable (Slabakova, 2003, 2008) and the uninstructed learners are able to make gradual and steady progress to mark aspect feature with L2 exposure (Bardovi-Harlig, 1989).

Whereas, other studies (e.g., Bardovi-Harlig, 1989, 1992; Montrul, & Slabakova, 2002) find that instruction indeed affects the ultimate attainment of L2 aspect. Provided with appropriate instruction, instructed learners are better than uninstructed learners at latter/end stages of L2 aspect development. The researchers find that the instructed learners are better than uninstructed learners in mapping morphology to the appropriate context, especially in non-prototypical contexts. Since the non-prototypical usage of aspect inflections is relatively limited in the natural input compared to the prototypical usage (Shirai 2010), the structured input and

practice of these aspects in class may effectively make up the limitation of insufficient language input and help classroom learners appropriately figure out the functional meanings assigned to the aspect inflections. As a result, researchers suggest the great need of pedagogical activities to that contrast the appropriate morphology for different contexts (Bardovi-Harlig, 1992). In this way, they will have more opportunities to process non-prototypical markings and to receive corrective feedback that draws their attention to the restricted semantic scope of aspect forms in their interlanguage (Izquierdo, & Collins, 2007).

2.2.3.2 Pedagogy to facilitate L2 aspect acquisition

Instruction on aspect inflections should not be seen as a one-size-fit-all fair. The effectiveness of different pedagogical methods (e.g., form-focused/meaning based; monolingual/cross-linguistic) varies in acquiring L2 aspect inflections. To maximize the benefit of instruction, the pedagogical methods should be adapted to fit the target aspect inflections (cross-linguistic similar/different form-meaning mappings) and the specific contexts (e.g., prototypical/non-prototypical usage; early/late stage of learning) that students are learning.

Previous studies have found that explicit form-focused instruction can effectively facilitate L2 aspect inflection learning. Leeman, Artegoitia, Fridman, and Doughty (1995) compare the effect of form-focused instruction with communicative instruction on learning L2 Spanish preterite and imperfect. In the immediate post-test, the form-focused learners, who had been exposed to the enhanced input of the aspect inflections in text, exhibited a significant improvement in accuracy, while the communicative group showed no significant change. Similarly, Cintron-Valentin and Ellis (2014) track learner's attention during online processing of the L2 aspect (lexical or grammatical means) after different types of form-focused instruction or with no instruction. The results show that the control group received no instruction spares more

fixation time to the adverbials than the verbal inflections. Because adverbial items are more salient and more meaningful in the natural input, while the functional morphologies are relatively less salient and redundant (Cintron-Valentin, & Ellis, 2015, 2016). In contrast, all form-focused instruction groups, who (a) received explanation about the form and the meanings of the inflections, (b) had the inflections enhanced during the exposure, or (c) were pertained on the verbal cues in the contexts paid more attention to the verb forms when being exposed to the L2 input. The findings indicate that the explicit form-focused instruction on L2 aspect inflections can effectively help learners switch their attention to the aspect inflections and focuses more time on the inflections than the lexical cues to extract the temporal meaning.

In contrast, research evidence (e.g., Izquierdo, 2004) reveals that the meaning-based instruction has limited effect on learning aspect inflections. Izquierdo (2004) delivers the instruction with rich meaning-oriented tasks targeting at the use of French perfective and imperfective over four weeks among Spanish speaking learners. The results of the cloze-test (production) and situational test (comprehension) show that the learners at early stages of development only improve in using the imperfective markings and the prototypical aspect association after the instruction regarding the comprehension and production. The advanced learners only receive gains in imperfective inflections but remain no significant change in either prototypical or non-prototypical use. As for the aural discrimination of the inflections, the meaning-based instruction had no effect on all participants. It suggests that the meaning-based instruction is only effective for acquiring the prototypical use of the inflections during early stages of development. It cannot support the acquisition of the more challenging components in the aspect system.

Researchers have suggested that connecting the L1 and L2 in classroom instruction could support L2 acquisition (Borg, 1998; Harley, 1989; Kupferberg, 1999; Kupferberg, & Olshtain, 1996). However, due to the significant cross-linguistic complexity and variations of aspect encodings, limited studies have addressed the effect of cross-linguistic pedagogy on learning L2 aspect inflections, except Kupferberg (1999) and McManus and Marsden (2017, 2018, & 2019). For example, Kupferberg (1999) examines the effect of contrasting L1 Hebrew and L2 English aspect morphology in the classroom setting and find that the contrastive metalinguistic instruction significantly increases the comprehension and production of the difficult aspect morphology.

Furthermore, the L1 + L2 treatment is especially effective in learning the aspect feature that is of low linguistic validity in L1. The low-validity feature refers to the feature not contrasted or marked in a language and/or marked by multiple linguistic devices. For example, in English, the past habituality is of low-validity, compared to the past on-going event marked by the salient inflection *-ing*. Because past habituality is conflated with the perfective aspect in English simple past form and is indexed by multiple linguistic devices, such as adverbials *used to* and inflections *ed*. These factors lead to English speakers' low sensitivity to the concept of the past habituality. McManus and Marsden (2018) find that explicit instruction on the L1 aspect raised learner's sensitivity to the multiple L1 linguistic cues. When it comes to L2 learning, the explicit L1 instruction alongside the core L2 instruction helps inhibit the transferred L1 knowledge on the linguistic cues, concretize learner's awareness of the functional concept which is not grammatically contrasted in L1 and remap the specific L2 linguistic cues to the target meanings. This evidence supports the view that associating learner' L1 and L2 in L2 class will not distract the acquisition of difficult L2 aspect morphology, but, instead, will help learners to

work out complex relations between L1-L2 form-meaning mappings, hypothesized to be a cause of L2 learning difficulty.

2.3 Chinese and English Aspect Inflections and Research Questions

Both Chinese and English mark aspect features and share a great deal of similarities in terms of their meanings and forms of aspect markings. As shown in Table 2, both languages rely on inflections to contrast completed and progressive meanings, and the Chinese and English inflections share structural similarities. The simple past inflection *-le (verb+le)* in Chinese and the inflection *-ed (verb+ed)* in English both locate at a verb-final position and share a high degree of structural consistency. The progressive inflection *–zai* in Chinese precedes the verb (*zai verb*), while the progressive *-ing* in English follows verbs and forms a compound form with an auxiliary (*was/were verb+ing*), which share less cross-linguistic similarities.

Table 2

Form-meaning Mappings and Semantic Boundaries of the Aspect Inflections in Chinese and English

Meanings	Chinese Inflections	English Inflections
Completed (simple past)	Form: *Verb + le* *e.g. Ta shuo(v.)-le tade maoxian jingli.*	Form: *Verb + ed* *e.g. He talk-ed about his adventure.*
On-going (past progressive)	Form: zai Verb *e.g. Ta zai shuo(v.) tade maoxian jingli.*	Form: *was/were Verb + ing* *e.g. He was talking about his adventure.*

Besides the structural similarities, the Chinese and English inflections reveal some differences in their association to lexical aspects. The semantic boundaries of the Chinese and

English inflections and the associational meanings (prototypical/non-prototypical) of the verb-inflection combination are listed in Table 3. The simple past inflection *–le* in Chinese cannot associate with the stative verbs, while the simple past *–ed* in English can associate with the stative verbs and expresses a non-prototypical reading. The Chinese progressive *–zai* cannot co-appear with the non-prototypical instantaneous or stative verbs, while the English progressive *-ing* can and encodes non-prototypical meanings.

Table 3

The associations of aspect inflections and lexical categories in Chinese and English

Lexical Category	Simple Past Inflections		Progressive Inflections	
	Chinese -le	*English -ed*	*Chinese -zai*	*English -ing*
States	/	Non-prototypical	/	Non-prototypical
Activity	Non-prototypical	Non-prototypical	Prototypical	Prototypical
Accomplishment	Prototypical	Prototypical	Prototypical	Prototypical
Achievement	Prototypical	Prototypical	/	Non-prototypical

Moreover, the linguistic status of the inflections varies cross-linguistically. Compared to the English system, the number and the use of Chinese inflectional morphologies are rather limited. In the aspect domain, Chinese speakers rely on both inflections as well as lexical cues, such as adverbials, to mark aspectual meanings. In contrast, English has a greater amount of inflections. The native English speakers rely on inflections exclusively to mark grammatical aspects. Therefore, the inflections are predicted to be less productive in Chinese and less salient to native Chinese speakers as compared to English inflections to native English speakers.

This study assumes that the positive cross-linguistic transfer of inflectional awareness is plausible across these two languages. By highlighting the general L1/L2 structural and semantic similarities of the aspect inflections in the prototypical contexts, the cross-linguistic aspect instruction may strengthen Chinese L1 English learners' inflectional awareness in English and support their comprehension of the aspectual feature. Therefore, the current study intends to manipulate the L1 awareness and control the transfer process in classroom settings and examine the impact of the raised L1 awareness on learning English simple past and past progressive inflections and its interaction with the lexical aspect. Two questions are focused on.

Question 1 *Can inflectional awareness that native Chinese children develop in L1 Chinese be effectively transferred to their L2 English to support L2 acquisition of aspect inflections?*

Question *2 How are Chinese native learners who have undergone cross-linguistic and monolingual instruction influenced by the lexical aspect in their use of simple past and past progressive inflections?*

Chapter 3 Methodology

This chapter first provides an overview of the methodology as well as the procedure of the study (3.1). Then, the target participants (3.2), the classroom intervention for the aspect inflections (3.3), the quantitative tests and the qualitative interview data elicitation methods (3.4), as well as the data encoding and analysis methods are elaborated in sequence.

3.1 Overview and Procedure

This study was conducted in three, Grade 8 classes in a public middle school in Southeast China. Two classes of instruction were delivered to explicitly raise learners' inflectional awareness. This study combined qualitative and quantitative data elicitation tools to obtain a thorough picture of learners' language performance and processing. Such combining analytical techniques are supported by many SLA researchers (e.g., Gass, & Mackey, 2016). As Brown (2004) mentioned, the shortcomings of one type of analysis may be addressed through the strengths of another: the quantitative data places more value on generalizability, reliability, and validity while the qualitative data emphasize dependability, credibility, and confirmability. Accordingly, this study used three cloze tests to quantitatively measure changes in learners' English inflectional learning over time and the evolution of the interaction of the grammatical aspect and the lexical aspect in the L2 system. This study used retrospective interviews to qualitative elicit learners' responses about the inflectional awareness in L1 and L2 instruction, their reflections about the cross-linguistic methods and strategies the inflectional learning, as well as their mental processing during the test.

First, a pretest was administered to participating students in all classes two days before the classroom intervention to measure subjects' pre-existing inflectional knowledge in English. After the pretest, all the classes took two English language arts lessons, which lasted for 40

minutes each day for a total of 80 minutes in two consecutive days over one week. Two intact classes took part in the study. One class (n=44), identified as the cross-linguistic instruction group (CI group), was taught English simple past and past progressive using cross-linguistic methods. Another class (n=45), identified as the monolingual instruction group (MI group), was taught the same structures but using monolingual methods. For each English language arts lesson during the intervention, both the CI group and the MI group first read an appropriately levelled English text which involved simple past and past progressive. While reading, the teachers drew learners' awareness to the aspectual markers and their corresponding interpretation through a series of activities following noticing-awareness-practice steps (Lyster, 2018). The third class (n=45) which served as the control group was taught about If-clauses, the structure irrelevant to the target of this study, using monolingual methods. At the end of the instruction, the participants in all three classes took a post-test to measure their inflectional awareness in English. After the class, 10 participants in the CI group were selected randomly and took a retrospective interview regarding their impressions of the intervention and their reflection during the test. All the participants took a delayed test one month after the intervention to measure the long-term effect of the instruction.

3.2 Participants

With the approval of the school director and the teacher, the participating students were recruited from three, Grade 8 classes which were taught be the same teacher—a Chinese L1, English subject teacher. The Teacher did her Bachelor's degree in English language and literature and has been teaching for two years. The participating students range from 12 to 13 years old. All of the participating students were raised in a monolingual Chinese family and had studied English since Grade 3. All of them were Chinese L1 speakers and had very limited

English exposure outside of the English classroom. At the time of the study, the students had already been exposed to and were instructed about the two target tenses in English class by their English teacher using monolingual methods. They had learned about the past simple tense one year before and the past progressive tense one month before the study. Hence, the students were supposed to have gained a basic understanding of the target aspect inflections and the corresponding meanings. This assumption was supported by learners' response in the pretest that all participants provided past progressive and simple past in their response.

3.3 Intervention

The teaching materials were designed and taught by the researcher. The intervention integrated language and content and followed a noticing-awareness-practice step (Lyster, 2017). During two English language arts lessons, the students in the CI class and the MI class read two short stories respectively and comprehended the general meanings and the specific details by class discussion and answering comprehension questions. The texts involved both simple past and past progressive. The written stories established a meaningful context in which the two different aspectual meanings (perfective/ progressive) were delivered and the target inflections were presented in a salient and frequent manner. The texts and procedures of teaching are listed in Appendix A.

Table 4

Procedures of CI and MI Instruction on the Form-meaning Mappings of the Inflections

Procedures	CI instruction	MI Instruction
Notice Stage	a. Discuss the English passage in Chinese b. Interpret the highlighted sentences and write down the Chinese translation	a. Discuss the English passage in English b. Read aloud the highlighted sentences and explain in English
Awareness Stage	a. Instruction explicitly connected the Chinese and English aspectual inflections	a. Brief instruction about the English aspectual inflections
Practice Stage	a. complete a "lie or truth" activity to judge the match/mismatch of the aspectual inflections and the contextual information	a. complete a "lie or truth" activity to judge the match/mismatch of the aspectual inflections and the contextual information

The first lesson focused on the form-meaning mappings of the simple past and past progressive inflections. The procedures of the first CI and MI class are presented in Table 4. After reading the whole passage, the CI class were asked to talk about the general idea of the English passage in Chinese, while the MI class talked about the passage in English. Then, in the noticing stage, the teacher drew all learners' attention to several pairs of highlighted sentences in the text which used simple past and past progressive and then she asked them to interpret the sentences. The teacher then asked all learners to draw a picture of the events in chronological order as well as the internal structure (e.g., start point, duration and endpoint) of the events. To complete the task, the learners needed to rely on the aspectual inflections in the sentences. While

interpreting the sentences, both groups were explicitly reminded to pay attention to the inflections attached to the verbs to decide when and how the activities or the event took place.

The CI class was asked to write down the Chinese translation below the English sentences and to identify the formal and semantic similarities across the two languages. In contrast, the MI class interpreted the sentences orally and simply focused on the form-meaning mappings of the English aspect inflections. At the awareness stage, the teacher encouraged the students to reflect on and manipulate the inflections in order to help them to be aware of the inflections highlighted in the noticing stage (Lyster, 2017). Then, the teacher gave a brief instruction about the English aspectual inflections. During the instruction, for the CI group only, the teacher explicitly connected the Chinese and English aspectual inflections. Finally, the practice stage provided an opportunity for learners to use the inflections in a meaningful and controlled context (Lyster, 2017). At this stage, the learners were required to cooperate with their partner and to complete a “lie or truth” activity to judge the match/mismatch of the aspectual inflections and the other contextual information in the sentences to consolidate their knowledge about English simple past and past progressive.

Table 5

Procedures of CI and MI Instruction on the Prototypical Associations of the Lexical Aspect and Aspectual Inflections

Procedures	CI instruction	MI Instruction
Notice Stage	a. Compare and interpret sentences which carry stative/dynamic verbs in the progressive contexts b. Connect the interpretation with their L1	a. Compare and interpret sentences which carry stative/dynamic verbs in the progressive contexts
Awareness Stage	a. instruct the English association of the lexical semantics and the aspectual inflections; b. Address the similarities and differences of the associations in Chinese and English	a. instruct the English association of the lexical semantics and the aspectual inflections /
Practice Stage	a. Write a story using simple past and past progressive	a. Write a story using simple past and past progressive

The second lesson concentrated on the association of lexical categories (statives, activities, accomplishments and achievements) and aspectual inflections (simple past and past progressive inflections) as well as their precise aspectual interpretations. The class began with a brief review about the English simple past and past progressive. In the noticing stage, the students were asked to compare two pairs of sentences which carry stative and dynamic verbs respectively in the progressive contexts and interpret the precise semantic differences regarding the event types: the static continuous events and the dynamic progressive events. In the

meantime, the CI group was asked to connect the interpretation with their L1 since Chinese distinguish these two types of events grammatically by using distinctive progressive marker –zhe and –zai. Then, based on the given verbs, which were equally distributed across all lexical categories, the learners discussed the association of the aspect inflections and different lexical categories. The teacher in the CI group also reminded the students to make reference to the Chinese interpretation to help them capture the precise aspectual meanings. Then, the teacher instructed the association of the lexical semantics and the aspectual inflections. Specifically, the teacher in the CI group addressed the similarities and differences between certain semantic and morphological associations in Chinese and English. At the practice stage, the students in both groups were given a topic ("*a robber's amazing experience*") relevant to the article and a series of questions to write a story using simple past and past progressive. Then, the students shared the story with their partner and then the rest of the class. In the meantime, the teacher gave students oral corrective feedback on their aspect errors.

3.4 Data Elicitation

3.4.1 Quantitative Data Elicitation Methods: Cloze Test

Learners' inflectional awareness and comprehension of English aspect were measured by a pre-test, a post-test and a delayed post-test. Following previous aspect studies (e.g., Bardovi-Harlig, 1992; Collins, 2002; Izquierdo, & Collins, 2008), a cloze passage test was developed for the current project. The purpose for cloze tests was to provide obligatory and meaningful contexts to elicit simple past and past progressive inflections. In the current study, the testing items were delivered through four short contextualized stories. Learners had to interpret tense and aspect in the sentences using the story's context and then modify the cue words with appropriate verbal marking to encode the interpretation (Bardovi-Harlig, 1992). Cloze testing

with cue words allowed the researcher to control the number and the type of verbal predicates that were tested. Accordingly, in this study, the testing verbs involved all 4 types of lexical categories (states, activities, accomplishments and achievements), and there were 4 items for each type equally distributed across the simple past and the past progressive contexts (32 blanks in total for each test). Each test also included 8 distractors in present or future tense to assess if students were actually paying attention to verbal morphology use.

Two versions of the test were designed (Test A & B, see Appendix D). Each test contained the same lexical items presented in different stories and in a different order but using similar contexts across the two versions. For each testing time, half of the class used Test A and the other half used Test B. For each participant, the version was switched at the following testing time. For example, if a participant takes Test A in the pretest, he or she will use Test B in the immediate post-test and Test A in the delayed post-test. Participants were asked to finish the test within 20 minutes and to provide the answer with their intuition in order to elicit spontaneous and implicit use of aspect markings. The accuracy of the responses was measured.

3.4.2 Qualitative Data Elicitation Method: Retrospective Interview

Researchers (e.g., Gass & Mackey, 2016) believe that learners have access to their internal thought processes at some level and can verbalize those thoughts. The retrospective interview, which requires the interviewee to look back on the past events, is an important elicitation tool in L2 research that provides insight into a learner's mind and a reflection of the cognitive processing that underpins their L2 acquisition. Retrospective data can shed light on the findings of quantitative analysis and help researchers to gain a more nuanced view of language acquisition (Bowles, 2018). In other words, a retrospective interview can help to understand how the knowledge come about through learners' introspective report. Gass and Mackey (2016)

mention that it is difficult and troublesome to recall past thoughts informing actions. However, they suggest that commentary and stimulated recall can make the data more reliable.

Therefore, in addition to the cloze tests to measure learners' performance, semi-structured retrospective interviews were conducted three hours after the immediate post-test (on the same day as the instruction and the immediate post-test) to explore learner's mental processing during the test. Nine participants agreed to be interviewed and were selected randomly from the CI class for a 10-15-minute, one-to-one interview with the researcher. The interview focused on learners' general reflections on the English inflectional learning and the cross-linguistic pedagogy used in the intervention. The interviews were conducted in Chinese and were recorded and later transcribed.

3.5 Data Coding and Analysis

3.5.1 Data Coding and Analysis Methods: Cloze Tests

Test data from students whose parents had signed the consent form were collected. The participants who had not completed all three tests or who provided no past tense morphology/all bare forms in all blanks were excluded from data analysis. Finally, the testing results of 27, 33, and 34 subjects were analyzed for CI, MI and control groups respectively.

This study focused on the morphological concern and conducted three analyses to examined the appropriate using of simple past/progressive inflections in the appropriate contexts, including (a) the overall appropriate use of the inflections; (b) the appropriate use of the simple past and past progressive inflections; (c) the appropriate use of the inflections with four lexical categories. If a learner provided an appropriate response to a target context, he/she would get 1 point for the target item. To be specific, in a simple past context, the presence of the verb-final inflection "*-ed*" was considered to be a correct attempt for simple past, regardless of the presence

of the auxiliary verb "be" or other linguistic components, such as prepositions. The response associated with progressive / simple present inflections or a bare verb was regarded as an incorrect answer for the simple past context and was given 0 points. As for the past progressive contexts, the accurate progressive form should be a compound form "*was/were + Verb-ing*". Instances regarding the absence of the past tense auxiliary verb was/were or the presence of the present tense auxiliary verb is/am/are were all considered as appropriate attempts for the progressive in this analysis as long as the verb-final morpheme "*-ing*" was provided. Therefore, responses, such as "*V+ing*" and "*is V+ing*", were all scored 1 point. However, the verb in simple past, simple present or bare form was considered to be an incorrect response for perfective meaning and was assigned 0 point. The score for each testing items was recorded and, for each individual participant, the scores for 32 testing items were accumulated.

To ensure coding reliability, each response was graded by two raters and was checked while recording. In cases where differences were found between two ratings (58 items out of the 17,280 target items that were rated), the differences were resolved through discussion. Since the data were not normally distributed, the non-parametric tests were employed for the current tests to compare the between-group and between-test performance.

3.5.2 Data Coding and Analysis Methods: Retrospective Interview

The interviews in Chinese were first transcribed by the researcher who is a Chinese L1 speaker. Then, based on the concerns of the current study: inflectional awareness and learning as well as CI instruction and CI strategies, eight categories were created to organize and analyze interviewees' comments: (a) inflectional awareness in Chinese prior to and following the CI instruction; (b) awareness of inflectional similarity across the languages prior to and following the CI instruction; (c) the awareness of other similarity across the languages (e.g.,

semantic/syntactic similarities); (d) self-initiated CI methods and strategies in daily learning; (e) general reflection of the cross-linguistic instruction; (f) effect of and attitudes towards CI discussion in class; (g) effect of and attitude towards the CI instruction on form-meaning mappings of the inflections; (h) effect of and attitude towards using Chinese interpretation to learn about English verb-inflection association.

Chapter 4 Results

Both the qualitative and quantitative methods were used to collect language data. The overall quantitative testing outcomes are first analyzed and presented (4.1.1). The changes of the overall use of the inflections (4.1.2) and the use of the inflections by verb types (4.1.3) were described, revealing the effects of the treatments on the development of grammatical aspects and lexical aspects. Then, the qualitative interview presents learners' responses about the aspect inflectional awareness (4.2.1), the cross-linguistic methods and strategies (4.2.2) and the current cross linguistic instruction (4.2.3).

4.1 Results: Cloze Test

4.1.1 Overall Appropriate Use of the Grammatical Aspects

This section presents the results of learners' appropriate use of the aspect inflections in obligatory contexts. The overall appropriate use and the appropriate use by four verb types were measured and reported. First, the results of the overall appropriate use are presented. The overall appropriate use focused on the global scores of appropriate uses of the inflections across all 32 tokens and the scores in 16 obligatory simple past/past progressive contexts. Then, the results of the appropriate use by verb types are reported. The scores of the simple past/past progressive inflections within the verb types of states, activities, accomplishments and achievements were calculated and analyzed respectively.

The normality of the data was examined for the global scores, the simple past scores and the past progressive scores at each testing points before the statistical tests. The normality tests showed that, except the global scores in the pretest, all other scores were not normally distributed. Therefore, non-parametric tests were used for statistical analysis.

The medians for the appropriate uses across all 32 contexts and 16 obligatory simple-past/past-progressive contexts are presented in Table 6.

Table 6

Descriptive Medians of the overall appropriate use of the grammatical aspect inflections

Class	Test	Global	Simple past	Past progressive
CI class	Pretest	13	7	5
N=27	Immediate post-test	15	8	7
	Delayed post-test	15	10	4
MI class	Pretest	15	11	6
N=32	Immediate post-test	14	8	7
	Delayed post-test	16	9	8
Control class	Pretest	17	12	6
N=33	Immediate post-test	18	11	6
	Delay post-test	18	9	8

The global scores of the appropriate use of the aspect inflections (simple past + past progressive) were first analyzed using the Kruskal-Wallis tests to check the between-group differences at each testing point. If a significance was found, then, the Mann-Whitney tests were conducted for the post hoc analysis to compare the scores between each two classes. During post hoc comparisons, the .05 alpha was adjusted using Bonferroni correction and became .017 (.05/3) when checking between-group differences at each testing point.

The Kruskal-Wallis tests identified statistically significant between-class differences in the pretest, p = .007, the immediate post-test, p=.039, and the delayed post-test, p=.027. The post

hoc results revealed that in the pre-test, the scores of the control class were significantly higher than those of the CI class, U=222.500, p=.001, but not than the scores of the MI class, U=448.000, p=.156. In the immediate post-test, the between-class differences disappeared according to the adjusted alpha, CI-control difference: U=302.500, p=.022; MI-control difference: U=395.000, p=.037; CI-MI difference: U=443.500, p=.976. In the delayed post-test, the score of the control class was only significantly higher than that of the CI class, U=271.500, p=.006, but not than that of the MI class: U=551.000, p=.900. No significant differences of the global scores were found between the CI and the MI classes throughout the tests.

Since the three classes were not identical at the onset of the study, the score evolution is only examined within groups; between-group comparisons will not be made. To check the effect of instruction on score evolution within each learning condition, the Friedman tests were used to test the differences across the three testing points for the global scores and the scores of the simple past/past progressive inflection respectively. If a significant effect was observed, then the Wilcoxon Signed Ranks test were conducted to further check the difference between the pre-immediate post-tests and between the pre-delayed post-tests within the class using the Bonferroni adjusted alpha .025 (.05/2).

*Global***.** As for the evolution of the global scores across three the testing points, the testing results yielded no significant change over time in any classes, CI: χ^2 (2) = 5.670, p =.059, MI: χ^2 (2) = 3.213, p = 0.201, Control: χ^2 (2) =1.821, p = .402.

*Simple past inflection***.** As for the appropriate use of the simple past inflection, the statistical results of the CI class revealed a significant change over time, χ^2 (2) = 9.340, p =.009. The post hoc tests elicited a significant increase in the CI class from the pretest to the immediate post-test, Z=-3.187, p =.001 and from the pretest to the delayed post-tests, Z=-3.234, p =.001.

The MI class demonstrated no significant changes over time. The control class yielded a significant change over time, χ^2 (2) = 14.896, p =.001. There was a significant score decrease in the control class from the pretest to the delayed post-test, Z=-3.260, p =.001.

*Past progressive inflection***.** According to the results of the Friedman tests of the past progressive inflection, the CI class and the control class yielded a significant change over time, CI: χ^2 (2) = 12.771, p =.002; control: χ^2 (2) = 6.016, p =.049, while the MI classes revealed no significant change, χ^2 (2) = 2.846, p =.241. Based on the post hoc results and the adjusted alpha .025, the CI class and the control class demonstrated a significantly decrease from the pretest to the delayed post-test, CI: Z=-2.625, p =.009; control: Z=-2.339, p =.019.

4.1.2 Appropriate Use of the Past-tense Inflections with Verb Types

To check the influence of the lexical aspect on the appropriate use of the simple past/past progressive inflections and the effect of different treatment condition on the effect of the lexical aspects, separate Friedman tests were conducted for each instructional condition to measure the differences across the three testing points within each lexical category. If there is a significant testing time effect, the Wilcoxon Signed Ranks test was used to compare the scores between the pretest and the immediate post-test and between the pretest and the delayed post-test. The alpha in the post doc tests was adjusted to .025 (.05/2). The results of simple past and the past progressive inflections within the CI, MI and control classes were analyzed and reported respectively.

4.1.2.1 Appropriate use of the simple past inflection with verb types

First, the evolution of the appropriate use of the simple past inflection within each lexical category were analyzed for each treatment condition. The p values of the Friedman test and the Wilcoxon Signed Ranks test have been listed in Table 7.

Table 7

Non-parametric Analysis Results for the Simple Past Score Evolution within Lexical Categories for Each Instructional Condition

Condition	Lexical Aspect	*p* for Main Effect Testing Time	*p* for Pairwise Comparison Time 1 – Time 2	*p* for Pairwise Comparison Time 1 – Time 3
CI	States	.019	.023	.157
	Activities	.603	/	/
	Accomplishments	.019	.072	.005
	Achievements	.080	/	/
MI	States	.001	.115	.001
	Activities	.416	/	/
	Accomplishments	.099	/	/
	Achievements	.016	.645	.045
Control	States	.365	/	/
	Activities	.001	.718	.005
	Accomplishments	.001	.323	.003
	Achievements	.001	.651	.001

Notes: only when Friedmann *p* for main effect testing time in Colum 3 is significant, the wilcoxon *p*s for pairwise comparison time 1- time 2 (pre-immediate post-tests) and time 1 - time 3 (pre-delayed post-tests) were reported in Colum 4 and 5. Otherwise, the wilcoxon p was not be presented.

CI class. Regarding the evolution across the three tests in the CI class, the scores of simple past inflections within the verb of states increased significantly from the pretest to the

immediate post-test, Z=-2.274, p=.023. The scores within the verbs of accomplishment, Z=-2.840, p=.005, increased from the pretest to the delayed post-test. The evidence indicated that with cross-linguistic instruction, the learners' use of the simple past inflection within the telic durative verbs (the verb of the accomplishments), the prototypical combination past-accomplishment improved significantly three weeks after the instruction. The CI instruction also has an significant facilitative effect on the appropriate of the simple past inflection within the non-prototypical stative contexts immediately after the instruction. However, the subjects did not maintain the gain, as the difference between the pre-delated immediate tests was not significant.

MI class. According to the Friedman tests, the between-test change of the simple past use with the verb of states, X^2=-3.853, p<.001, and accomplishment, X^2=-2.337, p=.016, were revealed. In the post hoc test, only the simple past use with the verb of states demonstrated a significant increase from the pretest to the delayed post-test. According to the adjusted alpha, the significant change for the past-accomplishment combination disappeared, pre-immediate post-test difference: p=.645; pre-delayed post-test difference: p=.045. It suggested that the MI instruction had delayed facilitative effect on the simple past use within the most non-prototypical contexts, past-stative combination, three weeks after the instruction.

Control class. The scores of the simple past use within all dynamic verbs, including the verbs of activities, accomplishments and achievements, changed significantly from the pretest to the delayed post-test. However, different patterns were identified across different types of verbs. The scores of the verbs of accomplishments, Z=-2.979, p=.003, and achievements, Z=-2.563, p=.010, reduced significantly. The scores of the verb of activities increased significantly, Z=-2.790, p=.005. The results revealed that, without instruction on the aspect inflections, the

subjects' performance on the prototypical contexts decreased significantly in terms of the simple past inflection, but improved in the non-prototypical dynamic contexts.

4.2.1.2 Appropriate use of the past progressive inflection with verb types

The effect of the testing time on the use of the past progressive inflection with lexical category was analyzed. The *p* values for the past progressive have been listed in Table 8.

Table 8

Non-parametric analysis results for the simple past score evolution within lexical categories for each instructional condition

Condition	Lexical Aspect	*p* for Main Effect Testing Time	*p* for Pairwise Comparison Time 1 – Time 2	*p* for Pairwise Comparison Time 1 – Time 3
CI	States	.592	/	/
	Activities	.888	/	/
	Accomplishments	.387	/	/
	Achievements	.292	/	/
MI	States	.001	.572	.001
	Activities	.745	/	/
	Accomplishments	.487	/	/
	Achievements	.347	/	/
Control	States	.087	/	/
	Activities	.003	.617	.026
	Accomplishments	.006	.118	.002
	Achievements	.002	.565	.001

Notes: only when Friedman *p* for main effect testing time in Colum 3 is significant, the wilcoxon *p*s for pairwise comparison time 1- time 2 (pre-immediate post-tests) and time 1 - time 3 (pre-delayed post-tests) were reported in Colum 4 and 5. Otherwise, the wilcoxon *p* was not be presented.

CI class. The non-parametric statistics demonstrated that the scores of the past progressive use within the verb types demonstrated no significant change over time. It indicated that the CI instruction had no significant effect on the association of the past progressive use and the verb types.

MI class. The results revealed a significant increase of the past progressive scores within the verb of states among the MI subjects from the pretest to the delayed post-test, Z=-4.103, $p<.001$. It suggested that MI had a delayed facilitative effect on the non-prototypical stative contexts.

Control class. Across the pretest and the delayed post-test, the control class yielded a significant increase of the past progressive scores within the verbs of accomplishment, which imply duration, Z=-3.034, p=.002, but a decrease within the verbs of achievement, which do not imply duration, Z=-3.35, p=.001. The results suggested that, without instruction, the effect of the lexical aspects strengthened within the prototypical telic contexts but reduced within the most non-prototypical atelic contexts over the three weeks.

4.2 Results: Retrospective Interview

According to the main concerns on the inflectional awareness and learning as well as the cross-linguistic instruction and strategies, the retrospective interview responses are categorized into three parts: a) the aspect inflectional awareness within and across Chinese and English, b)

the cross-linguistic methods and strategies in L2 inflectional learning and c) the effect of and the attitudes to the cross linguistic instruction. The key responses are presented and explained.

4.2.1 Aspectual Inflectional Awareness in Chinese and English

This study has a primary focus on the inflectional awareness on the aspectual feature. Learners' awareness about the perfective/imperfective semantic contrast and the aspect inflections/grammatical rules within Chinese/English and the across the two languages were elicited. Learners' awareness about aspect inflections and semantics before the treatment are summarized in Table 9.

Table 9

Distribution of responses about aspectual awareness within and across Chinese and English

	Aware of Chinese Aspectual Inflections	Aware of Cross-linguistic Aspectual Inflections	Aware of Cross-linguistic Aspectual Semantics	Rely on Multiple Aspectual Linguistic Cues
Instance/ participants	0/9	1/8	3/8	3/3
Instance Distribution	0%	12.5%	37.5%	100%

4.2.1.1 Aspectual inflectional awareness within Chinese and English

When asked about the overall inflectional awareness in Chinese before the instruction, none of the subjects reported explicit awareness about the Chinese inflections in their daily life. One subject explained that "*I don't notice the Chinese rules in daily life, because we don't speak English often"*, indicating that the limited exposure to or use of English constrained their ability

to explicitly identified the cross-linguistically similar structure in their L1 Chinese when learning L2.

Different from the awareness of the structures, in the semantic domain, three subjects mentioned that they indeed noticed semantics contrasts of the simple past and past progressive in Chinese when using cross-linguistic methods (e.g., Chinese translation) to support English oral or written production in daily life, as shown in Example 1 and 2.

Example 1

Grace: *Yes. I notice it (Chinese distinguishes different tenses) when I am writing English essays."*

Harry: *I do notice that Chinese distinguishes different tenses (aspects) as English. For example, Wo zai ganma ("I am doing something") and wo zuo-le shenme ("I did something") are different in Chinese."*

Iain, who strongly replied on Chinese translation to learn English, revealed an explicit awareness of aspectual inflections and semantics across Chinese and English. During the interview, he presented a piece of paper with Chinese translation and showed the interviewer how he usually recited an English passage by translating word by word.

Example 2

Iain*: As long as I use a "le" in my Chinese translation, I immediately understand if the sentence is in simple past tense and know how to express it orally in English. I do notice the tenses in both Chinese and English in my daily life!*

The data indicates that while the structural features in aspect remains implicit in Chinese or cross-linguistically, the semantic similarities across learners' L1 and L2 appear to more salient to the learners. In particular, the learners who frequently rely on cross-linguistic methods to

support L2 English learning are more likely to identify the semantic aspectual distinction in their L1 when exposing to L2 English and figure out the cross-linguistic similarities when processing written or oral production in their L2.

After the CI instruction, based on the inflections taught in Class, one subject further identified the similarities of the future-tense inflections in Chinese and English on her own. It suggests that, for some learners, the CI instruction raised their inflectional awareness in Chinese and across the languages, which motivated them to identify a wider range of inflections, structurally and semantically.

Example 3

Fanny*: (after the instruction) I realized that Chinese requires a jiangyao (the future tense inflection in Chinese) preceding the verb to express the future tense, while English also requires something about the future (will) before the verb.*

Regarding variant linguistic components related to aspects, the subjects mentioned that they relied on structural, lexical cues and contextual cues (e.g., verb type, inflections, time-related adverbials, etc.) to interpret the aspect meanings in English texts. In Example 4, Alice focused on the lexical semantics of the verb to interpret the viewpoint of the situation. David relied on lexical information like adverbial in English, to figure out the meanings. Harry had a primary focus on the aspect inflections and auxiliaries within English and also relied contextual information in Chinese to check the aspect meanings. Subjects' reliance on multiple aspectual cues indicates a Chinese-like convention to encode grammatical aspect, as Chinese speakers express aspectual meanings through multiple linguistic cues in Chinese, rather than inflections only.

Example 4

Interviewer: *Given an English text, how do you figure out whether the events are in progress or completed?*

Alice: *(point to a verb in the test) is the verb "reach the phone" is a process or a completed action? … oh, it's completed.*

David: *I would read the text following the verb. If there are phrases like "last week" in context, I can tell the tenses.*

Harry: *Basically, I rely on the key words, like is and was, the verbs and the formal changes of the verbs. I also translate the sentences into Chinese and see if the verb and the tense fit into the Chinese context … When translating, I concentrate on general meanings of the sentences, rather than any specific words.*

4.2.2 Learner-initiated Cross-linguistic Methods for Daily English Learning

4.2.2.1 Methods and strategies of using Chinese for daily English learning

Subjects' actual use and their preference for using Chinese for overall English learning and English grammar learning are listed in Table 2. All subjects mentioned that they made use of Chinese to support daily English learning. When it comes to English grammar learning, how Chinese is being used and subjects' attitudes of CI methods vary across linguistic domains.

Table 10

Distribution of responses about learner-initiated CI methods in English learning

	Use Chinese when learning English	Use Chinese for English Grammar Learning	Preference for CI Methods for English Grammar Learning	Preference for MI Methods for English Grammar Learning
Instance/ participants	9/9	8/9	2/6	4/6
Instance Distribution	100%	88.9%	33.3%	66.7%

When it comes to English grammar learning, except one subject (*I never connect to Chinese*), all other subjects reported that they usually used Chinese to learn English grammar through different strategies, such as writing down English rules in Chinese ("*When learning English grammar, I write down the rules in Chinese"*) and translating the sentences between English and Chinese (*I translate a lot; I first rely on Chinese and then translate the sentences into English*)

When implementing CI strategies in daily learning, the priority of using Chinese or English varied across the subjects. Some tended to access the contexts through Chinese translation to check the meaning before turning to English (Chinese before English). In contrast, some initiated their learning within the English contexts. If it fails, they would turn to Chinese for help (English before Chinese).

Example 5

a. Chinese before English

Calvin*: I tend to first translate the sentences into Chinese and then check it in the Chinese context. If not feasible, I will use it in the English context.*

Harry*: I often turn to Chinese translation before translating the sentences into English.*

b. English before Chinese

David*: given the English sentences, I prefer to read them in English. If English does work, then I would try it in Chinese.*

4.2.2.2 Effects of using Chinese for daily English learning

The subjects mentioned that using Chinese supported better comprehension of the lexical meanings (*I will understand the words and sentences*), the functions of the rules (*I will learn about the functions of the rules*) and contextual information encoded in the sentences (*I use Chinese when interpreting the contextual meaning*). Moreover, Chinese is used for medication (*I also think in Chinese when writing English articles*) and memorization (*it helps me remember the rules and meanings*) purposes. It suggested that Chinese functions as linguistic and cognitive tools for Chinese L1 learners to access and to identify the target form-meaning mappings in English (Ellis, 2006).

One subject pointed out that the effectiveness of the cross-linguistic methods depended on learning stages. Connecting to L1 inflection was supportive only during the initial stage of L2 inflectional learning.

Example 6

Betty*: I will try to use Chinese for English learning. But It depends. If I don't know the rules and the corresponding meanings, I will be very supportive for comprehension. If already know the rules very well, there is no need to make comparisons.*

4.2.2.3 Attitude towards CI Methods for Daily English Learning

When it comes to the attitudes of using Chinese for daily English grammar rules, subjects' attitudes vary. Two had a negative view for CI methods for English grammar learning. Fanny believed that Chinese rules would not provide her any linguistic cues about English grammar (*It feels like making a wild guess*). Instead, she had a preference for the linguistic cues within English (*I usually try to find key words in English*). Calvin had a more radical view rejecting the CI methods in grammar learning and believed that the structures in two languages were incomparable.

Example 7

Calvin*: I only focus on the English rules (when learning grammar). I think Chinese is Chinese and, English is English. I sometimes use Chinese to translate English text, but never compare the English rules with what I know in Chinese.*

In contrast, five subjects favored using Chinese for daily English grammar learning. As for the reasons of using Chinese, learners' views appear to be relatively passive. They said that, due to their limited resources and abilities in English (*if only using English, I will understand nothing and get confused)*, L1 Chinese is the only language that the learners are familiar with and could resort to (*Using Chinese is the only method for me; I am only able to use the language, Chinese, that I am familiar with; without Chinese, you are unable to comprehend if the event is completed or not*) when they failed to access L2 English. It indicates that though frequently using Chinese in English learning, Chinese was not implemented as an active way.

After the CI instruction, the learners had a more positive view about referring to Chinese rules for future English learning. Three subjects said that they would make use of Chinese to recall the aspect inflections in English because Chinese is frequently used in their daily life (*I*

will think about Chinese because I use it every day. If I forget the rule, I will recall that I translated English into Chinese in this class and will figure out the rules quickly). Two were inspired to expand the strategies to figure out a wider range of similarities across the languages for further study (*I will replace English with Chinese and try to summarize Chinese rules; I will try to find out more similarities across Chinese and English*).

4.2.3 Cross-linguistic Instruction and Teaching Strategies

During the current intervention, Learners' L1 Chinese were used for three purposes: 1) using Chinese for class discussion over the English passage, 2) using Chinese aspect inflections to learn about the form and the meaning of the English aspect inflections and 3) using Chinese interpretation to comprehend the meanings of verb-inflection associations in English. Learners' reflections and attitudes on these three parts were summarized.

Table 11

Distribution of responses about the effectiveness of and preference for CI instruction

	Effective Discussing in Chinese in Class	Preference for CI Discussion in Class	Effects of CI Comparison Learning Aspect Infections	Preference for CI Instruction Learning Infections	Effects of CI Interpreta-tion Learning Verb-inflection Association	Preference for CI Instruction Learning Aspect Association
Instance/ Participants	9/9	2/3	4/6	2/6	9/9	9/9
Instance Distribution	100%	66.7%	66.7%	33.3%	100%	100%

4.2.3.1 CI instruction for class communication and cooperation

Effects of the discussion in Chinese

All the subjects had a positive view of the discussion in Chinese after reading the English article (*the discussion in both Chinese and English was in need; the discussion in Chinese was better than that in English only; I enjoyed the discussion in Chinese*).

The subjects proposed that their low-proficiency in English pronunciation (*There might also be something in English that we understand but couldn't pronounce*) and their limited English vocabulary (*We need to think about the words when talking in English*) and low English proficiency (*I can't understand most things if the teacher speaks English only; I can't understand anything if only discussing in English"*) may pose difficulties for their English oral production and comprehension. Therefore, the discussion in their native language can guarantee the fluency and comprehensibility of the discussion. The discussion with peers and the explanation from the teacher in Chinese also strengthened their comprehension of English contents *(The discussion in Chinese intensified our understanding of the text; the teacher's explanation in Chinese help me understand what was said in English before; it helped us comprehend the content of the story)*.

Interestingly, the discussion in Chinese over the English content raised the cross-linguistic awareness in terms of the lexical association (*When other students are talking in Chinese, I also reviewed the English words in mind*) and the association in general (*we could find the similarities across Chinese and English in the process of discussion*).

Moreover, the subjects reported that the challenging English contents constrained their cognitive abilities, like the focused attention (I *would easily lose concentration if only discussing in English*). Using their native language, the subjects were more likely to sustain their attention

on the discussion, strengthen their memory (*Replacing them with Chinese words supported … memorizing*) and organize complex information in the texts (*After the discussion in Chinese, I knew how to summarize the article*"; *The discussion in Chinese could get my thoughts straight*).

Therefore, discussing the English content using Chinese, learners' L1 functioned as effective linguistic and cognitive tools for successful comprehension, communication and collaboration. The discussion alternating between the two languages required students to access to two languages simultaneously and in turn, may strengthen their cross-linguistic awareness.

Attitude towards CI/MI discussion

All subjects mentioned that providing Chinese interpretation during discussion or instruction was necessary to guarantee the comprehension of the new words (*I need Chinese prompt for word learning; For the new words, it will be easier to communicate if I know the meanings in Chinese*), as one subject mentioned that comprehensibility was an important motivation for L2 English learning (*The English-only class is very boring and incomprehensible. Some students might lose their interests in English*).

When it comes to class communication, Subject D proposed a preference for English monolingual discussion if all words are comprehensible (*If all words were comprehensible, Chinese should be used as less as possible*), while Subject E and G have a preference for using Chinese to achieve fast comprehension and solid memorization (*Chinese is more comprehensible and we can understand quickly and remember firmly; if using English only, I can't follow because I have to figure out what the teacher and other students are talking about*).

4.2.3.2 CI instruction on form-meaning mappings of the aspect inflections

Effects of CI instruction on aspect infections

The students were guided to structural and semantic similarities of the simple past and past progressive across Chinese and English in class. Four subjects found that the form-meaning mappings of the Chinese aspect inflections presented explicit in class supports them memorizing the forms (*The Chinese rules helped us memorize the English rules; the systematic comparison of the rules made it easier for memorization*) and comprehending the meanings (*the Chinese rules made the English rules more comprehensible; it strengthened my understanding of the two tenses.*) of the aspect inflections in English. The instruction indeed explicitly raised her inflectional awareness about the Chinese aspects (*now I would easily figure out if the event was happening or happened based on "-le"; I just realized the –le has the completed meaning after using Chinese for years*). Based on the raised L1 aspect inflectional awareness in class, the concepts of completeness and on-goingness were clearly clarified and distinguished.

Example 8

Grace: *The comparison of the Chinese and the English rules clearly demonstrates the completeness of the event: a person was doing at some point in the past. It strengthened my understanding of the two tenses. Before the instruction, I used –ed for all past-tense conditions without differentiating the completed and on-going events*).

In contrast, two subjects found that the effect of the explicit instruction on the Chinese aspect inflections was limited (*There is a little but not much help*). Two believed the effect of CI on rule-based English learning cannot be retained for a long-term (*the Chinese rules will be soon forgotten after the class*; *I still need to memorize the (Chinese and English) rules after the instruction).* Though learnt about the inflection in both Chinese and English in class, Subject F still have a preference for general Chinese interpretation in rather than specific Chinese

inflections to support English aspect learning (*If I forget the English rules, I will try to figure it out through Chinese translation (of the whole sentence*)).

Attitude towards CI/MI instruction on aspect inflections

Learners' attitudes for the explicit instruction about the Chinese inflections varied. Two had a relatively positive attitude and favored the CI methods learning the inflections in both languages. They believed that the concepts of aspects were too profound to comprehend within English. The consistency in the Chinese and English aspectual semantics and structures raised their inflectional awareness and will help them memorize the rules and interpret the precise meaning in a meaningful Chinese context.

While admitting the benefits of connecting to Chinese in the current instruction (*it's okay; it is of some help*), four subjects believed that teaching Chinese inflections in class was unnecessary and helpless for inflectional learning because a) it took up the class time allotted to English learning (*I think it is better to devote more class time on English learning*), b) the MI instruction and English-only input were sufficient to learn about the English inflections (*We are able to learn the English rules (in the MI class)*), c) there is no need for explicit inflectional awareness to support L1 use (*presenting the Chinese rules is redundant in class because we don't rely on rules using Chinese in our daily life*) and d) connecting English rules with Chinese made the grammar learning more complicated and confusing (*the rules about the -le and -ed are complicated and confusing*). Two further mentioned he was not used to the CI methods learning English grammar in class (*presenting the Chinese grammar is very different from the way how I learnt English. I am not used to it. I never thought talking about Chinese in English class*).

4.2.3.3 CI Instruction on Aspectual Verb-inflection Association

Effects of CI instruction on verb-inflection associations

The associations of verbs and inflections were difficult to learn. One subject mentioned that due to the limited English exposure (*we have limited exposure to English*), he was unable to concretize the meanings (*English is abstract for us*) for the lexical-inflections association and the effect of MI instruction was limited for it *(I was fuzzy before the instruction … I used to rely on the English reference book).*

All of the subjects agreed that the CI instruction connecting the English and Chinese interpretation helpful due to their familiarity with Chinese (compared to English, we are more familiar with Chinese; *because Chinese is our mother tongue*) and the raised awareness about the semantic consistency of the verbs *(I realized that the words in Chinese and English are consistent)* and prototypical associations (*the sentences sound similar in Chinese and English)* across the two languages. As a result, the Chinese interpretation in class helped them not only clearly comprehend and produce the various types of action and viewpoints through appropriate verbs and inflections, but also figure out the reasons and the logic on their own, as in Example 9.

Example 9

Alice: *connecting to Chinese helped me clearly understand the reason why some verbs can or cannot co-occur with the past progressive under certain contexts. Because according to the Chinese translation, some sentences are not logical.*

David: *we have limited exposure to English. Replacing English meaning with Chinese interpretation, we vividly understand the function (of the association) and know the reason.*

Edie: *I can judge the types of action based on the temporal or other detailed information in the words in Chinese.*

Furthermore, two subjects indicated that the effect of the cross-linguistic awareness on learning the prototypical associations can be expanded and strengthened outside of class through their daily Chinese use (*I will notice the association in my daily Chinese using and review it anytime*; *with Chinese, we can make use of it in our daily life).* More importantly, different from the external English resource, the knowledge that the learners developed in their L1 Chinese can function as an internal, reliable resource and support learners initiating a semantic analysis on their own when learning L2 aspects (*Now I can analysis on my own! It will be more flexible if I refer to Chinese interpretation).*

In short, the retrospective interview revealed that, though presenting some explicit awareness about aspectual semantic distinctions cross-linguistically, Chinese L1 subjects demonstrated weak awareness of the aspect inflections within L1 Chinese and cross-linguistically prior to the CI instruction, partly due to their low English proficiency and limited English exposure in daily life. The subjects did use various cross-linguistic methods and strategies to support daily English learning, such as relying on Chinese translation to access English contents and contexts or using Chinese to help memorization, but their attitudes towards using Chinese appeared to be passive. Interestingly, the data uncovered an interaction of using Chinese during L2 learning with the development of the cross-linguistic awareness. The subjects were more likely to be aware of the cross-linguistic connections when using Chinese translation to help English production, indicating that the cross-linguistic awareness was strengthened when learners were alternating between L1 and L2 simultaneously.

The current CI instruction effectively raised learners' inflectional awareness, as they were able to verbalize the inflections in both languages and some even identified other similar inflections across Chinese and English based on the inflections taught in class. The instruction

altered subjects' attitude to CI methods to some extent, as some were more inclined to make use of their Chinese knowledge to support daily English learning after instruction. Whereas, some were still unwilling to connect English and Chinese and had a preference for MI methods for English learning after instruction. As for the CI pedagogy used in the current study, the discussion in Chinese for the English texts and the translation between Chinese and English for the complicated sentences effectively facilitated class communication and cooperation and supported comprehension and memorization as well. Comparing the form-meaning mappings of the Chinese and English inflections in class, some believed that it helped them memorize and comprehend the forms and functions of the inflections. However, only a few favored this CI method for learning the aspectual form-meaning mappings. Others felt it redundant or even getting inflection learning more confusing.

Chapter 5 Discussion

This section discusses a) Chinese learners' awareness and learning of the English aspect inflections over time as well as b) their responses to and attitudes towards cross-linguistic instruction. The discussion is presented in two sections: a) the effect of CI and MI instruction on learner's inflectional awareness within and across Chinese and English as well as their impacts on learning the simple past and past progressive inflections; b) the interaction of CI and MI instruction effect with lexical aspects in the learning of the English aspect inflections in prototypical and non-prototypical contexts.

Each section begins with a summary of the relevant testing and interview results. Then, regarding the within and between group differences, the language-specific factors are considered to explain learners' performance and developmental trajectories on the learning of the aspect inflections, namely, the linguistic properties of English and Chinese and the universal semantics of the verbal predicates. Finally, with a focus on the instructional setting, the effects of the two instruction methods (CI and MI, no instruction) on learning of the aspect inflections are discussed to explain the impact of instruction.

5.1 Inflectional Awareness, Inflectional Learning and the Effect of Instruction

5.1.1 Summary of the Results

Question 1 *Can inflectional awareness that native Chinese children develop in L1 Chinese be effectively transferred to their L2 English to support L2 acquisition of aspect inflections?*

As for the testing results, the three classes significantly differed in their use of the two inflections over time. The control class demonstrated deteriorations on both inflections from pretest to the delayed post-test without instruction. In contrast, the CI class demonstrated a

significant improvement on the simple past use from the pretest to the immediate post-test and maintained that improvement in the delayed post-test. However, they demonstrated a deterioration on the past progressive use from the pretest to the delayed post-test. The MI class revealed no significant change over time for the simple past or past progressive use. The differences of the evolution between the CI and the MI classes indicated that the CI instruction generated a long-term gain for the learning of the simple past inflection but had a weak effect on the learning of the past progressive inflection. The change in the learners' inflectional production under the three treatment conditions (CI, MI and no treatment) were in line with the changes observed in McManus and Marsden (2017) which targeted English speakers' comprehension of L2 French *imparfait*. Together, the two studies support the view that the instruction can help improve or retain learners' performance on aspect inflections, as compared to the condition where subjects received no instruction. CI instruction has a facilitative effect on production and comprehension for some L2 aspect inflections, to a greater extent than the MI instruction.

As for the interview data, the retrospective data among the CI subjects demonstrated that learners relied on multiple linguistic cues to interpret the aspect meanings in English, a convention similar to the Chinese aspect. It indicates a self-initiated transfer of multiple linguistic cues in the Chinese aspect system to support English aspect learning. None of the subjects reported explicit awareness of the Chinese aspect inflections before receiving instruction. After the CI instruction, the learners were able to accurately verbalize the rules of the Chinese aspect inflections as well as the cross-linguistic inflectional connection across Chinese and English. It indicated that the CI instruction, which explicitly connected the Chinese and English inflections in class, successfully raised learners' inflectional awareness within Chinese and strengthened the cross-linguistic connections about the aspect inflections. It is in line with

findings in the previous studies (e.g., Horst, et. al., 2010; Kupferberg, & Olshtain, 1996; Lyster, et. al. 2015) that CI instruction / contrastive instruction, which explicitly connects and compares the linguistic properties across languages, can effectively raise learner's linguistic awareness in L1 and L2.

In short, the testing results and the interview results support the view that, through the CI instruction, inflectional awareness developed in L1 Chinese can be effectively raised and appropriately transferred to English, a typologically-unrelated language to Chinese, which is consistent with the previous findings (Ellis, 2005; Jessner, 2006, 2017). The raised Chinese inflectional awareness positively contributes to learners' learning on the simple past in L2 English, but has limited effect on the past progressive.

5.1.2 Aspect Inflectional Awareness and Effects of Instruction

This section intends to explain a) learners' low inflectional awareness within Chinese and across the languages, b) the L1 transfer effects on learning English aspect inflections and semantics as well as c) the instructional effect on the development of learners' aspectual awareness and learning.

The learners' overall inflectional awareness within Chinese and English and across the two languages was relatively low before the instruction. The testing results showed that learners were only able to appropriately use 12-17 out of 32 tokens in the pretest. Though being fluent Chinese speakers, none of the subjects said they were explicitly aware of the Chinese aspect or identified any structural similarities between the Chinese and English inflections. Learners' overall low inflectional awareness in the L1 and L2 might be explained by a) the separate home-based learning environment for L1 Chinese aspects and school-based learning environment for

L2 English aspects; b) the limited number of Chinese inflections, and the lack of salience of the Chinese inflections.

The participants in the study were raised in Chinese-speaking families. Chinese aspect was acquired at a home-based environment and was not instructed at school, which determined their L1 inflectional knowledge to be implicit rather than explicit. The limited number of the Chinese inflections may have further constrained learner's sensitivity to the inflectional structures in Chinese (Thompson, & Li, 1985; Duff & Li, 2002). In addition to aspect inflections, Chinese relies on lexical and contextual cues, such as adverbials, to encode aspectual meaning, which reduce Chinese speakers' ability to detect inflections in the aspectual expressions. As for English learning, the subjects learn English at school exclusively and have limited exposure to L2 English outside of the classroom. The separation of the L1 and L2 learning and using environments might make it difficult for the learners to independently notice the similarity between their two languages. In the interview, some subjects believed that there was no similarity between Chinse and English and were unwilling to connect the two languages for their daily English learning, especially in the inflectional domain, e.g., "*I think Chinese is Chinese and English is English*", "*I never compare the grammar (tense and aspect) rules in Chinese and English"*.

Moreover, earlier studies proposed that exposure to different languages can increase learner's sensitivity to notice the structural similarities across languages (Durgunoğlu, 2017). In the current study, even though participants were learning English, a language with rich inflections, the learners still demonstrated a low sensitivity to the similarities of the aspect inflections in Chinese and English. Learners' low cross-linguistic sensitivity about the aspect inflection may also be attributed to their limited daily English use and the low English

proficiency. For example, one subject reported *"I don't notice it (the aspect inflection) in Chinese because I don't often use English in my daily life",* suggesting that the insufficient L2 exposure constrained the development of the cross-linguistic awareness in terms of aspect inflections.

Though presenting low cross-linguistic inflectional awareness in the aspect domain, the learners indeed initiated cross-linguistic transfer on their own learning of English aspect semantics, supporting the view that aspect-related knowledge is transferable between Chinese and English. Three subjects reported that they did identify the contrasts of the simple past and the past progressive semantics in Chinese and the cross-linguistic semantic similarity when using Chinese translation to support English passage writing or oral recitation. These responses indicate that, compared to the limited cross-linguistic awareness about aspect inflections, the learners were more likely to identify the cross-linguistic similarities in terms of aspect semantics. Specifically, instances of self-initiated cross-linguistic awareness were likely to be strengthened in the process of using L1 Chinese (e.g., Chinese translation) to satisfy L2 English production needs when they switched between the two languages frequently to express meanings.

In addition to the aspect inflections, the subjects mentioned in the interview that they usually relied on time-related adverbials, conjunctions (e.g., while, when) and other contextual information to interpret and express aspect meanings. Their reliance on multiple linguistic cues may have further reduced the salience of the aspect inflections and led to the low inflectional awareness. There may be two reasons to account for this phenomenon: a) the developmental stages of the aspect inflections; or b) the self-initiated transfer from Chinese aspect system.

L2 development of aspect inflection, regardless of learner's L1 and L2, undergoes three stages: a pragmatic stage, a lexical stage and finally a grammatical stage (Bardovi-Harlig, 1992,

2002). During the lexical stage, learners depend on lexical items, such as adverbials, calendric reference and time expressions to express temporality, before they finally use different inflections in response to variant contexts to express grammatical aspect. Regarding the fact that the current subjects employed both lexical and grammatical linguistic cues to encode English aspect meanings, it is possible that they were at a stage moving to the final grammatical stage but not fully getting rid of their reliance on lexical items as they did during the earlier lexical stage.

Meanwhile, learners' reliance on the lexical items to express the grammatical aspect in English can be explained by the transfer effect of the Chinese aspect system. Different from native English speakers, who tend to rely exclusively on inflections to encode grammatical aspects, Chinese speakers rely on multiple linguistic cues to encode semantics (Smith, 1997). Chinese speakers have to integrate lexical, grammatical and contextual information to process the Chinese aspect, which leads to the low saliency of the Chinese aspect inflections in the L1 system. They may have therefore transferred certain L1 conventions to comprehend or produce the viewpoint meaning in L2 English, which resulted in their low ability to recognize the aspect inflections in English. Moreover, the universal aspect development and L1 transfer may lead to an interactive effect, the L1 transfer may extend the duration of the lexical stage and postpone learners' inflectional development moving into a grammatical stage of the English aspects. Whether the learners are able to get rid of certain L1 transfer effect and reached a grammatical stage in L2 English require future study.

In the post-instruction interview with the CI group, some participants were able to appropriately verbalize both inflections and the corresponding rules for both languages, indicating the CI instruction strengthened learners' linguistic awareness in L1 and L2. Kupferberg and Olshtain (1996) explain that CI instruction can create linguistic salience, direct

learner's attention to an L2 form, and activate the form in the short-term memory. Together with learners' response about the effect of CI instruction, the current CI instruction increased the salience of the inflections in L1 and L2, concretized the aspect meanings and functions and helped learners explicitly remapped the meaning to the new forms and memorize the new form-meaning mappings. With the raised inflectional awareness, the learners were at a better position to create cross-linguistic connections and support transfer.

However, linguistic awareness alone does not necessarily lead to transfer (Izquierdo & Collins, 2008). Though learners may have been able to verbalize the rules about the past progressive in Chinese and English in the interview, the CI learners did not use the past progressive more accurately after the instruction. Similarly, Horst, White and Bell (2010) study also found that French ESL learners were able to talk about the rules for French and English possessive determiner after CI instruction, but they demonstrated no improvement in their testing outcome. Variables other than linguistic awareness may therefore constrain the learning of the aspect inflection.

5.1.3 Learning of Aspect Inflections and Effects of CI and MI Instruction

This section a) explores the developmental trajectories of the learning of the two inflections under CI and MI conditions and b) intends to uncover the underlying learning mechanisms in relation to CI and MI instruction.

Comparing the two treatment classes, the CI instruction generated a great extent of change than the MI instruction, and the change was retained on the delayed post-test (three weeks). The CI class improved in appropriate usage of the simple past immediately after the instruction and maintained that improvement in three weeks later. Nevertheless, they performed worse in the past progressive use three weeks after the instruction. The MI class remained no

change for both inflections throughout the study. Based on McManus and Marsden's (2017) proposal about the mechanism of CI instruction on learning, this study intends to predict the potential learning mechanism for the CI instruction that took place. First, providing explicit instruction about the L1 raised learner's awareness of Chinese aspect inflections, which had been previously overlooked due to their low salience in the Chinese aspect system. Then, the interpretation practice between Chinese and English helped to concretize the conceptual representations of aspects based on learners' Chinese knowledge. This helped them initiate one-to-one mappings of the inflections across the two languages. Then, the L2 instruction and practice further consolidated the form-meaning mappings of L2 aspect inflections and helped learners identify contextual meanings in their L2. The CI group in the current study established cross-linguistic connections for the simple past in their interlanguage. This study predicted that the cross-linguistic awareness and the cross-linguistic transfer established in the CI class would play a key role in facilitating the learning of the cross-linguistic similar inflection.

Prior to the study, all the learners had learnt about the two aspect inflections in English. In the current study, the MI instruction also included this information, but it did not link it to aspect inflection in Chinese. Therefore, the MI subjects' inflectional awareness within Chinese and across the two languages remained relatively low, which constrained the self-initiated cross-linguistic transfer of the aspect inflections. The explicit L2 instruction and practice delivered in the MI class did not provide new/additional resources that the subjects could rely on to concretize the aspectual concepts or to qualitatively change and restructure the form-meaning mapping in the L2 aspect system. As a result, MI instruction had a much more limited effect, and the improvement revealed after the instruction was not robust. In fact, it declined over the three weeks after the instruction.

Marsden (2017, 2019) observed the evolution of learning of a cross-linguistically complex feature within three weeks of CI instruction and specified the steps of a restructuring processing routine after CI instruction. They predicted that the L1 explicit instruction and practice alongside a core L2 instruction adds a new processing routine and restructures the existing system of L2 knowledge. Then, with accumulated L2 practice, automatization (Cornillie et al., 2017; DeKeyser, 1997) or procedualization (McManus, & Marsden, 2017, 2019) may occur. The CI learners, at this stage, get rid of the slow and inefficient processing procedures and establish a robust and reliably accurate L2 processing mechanism, which is qualitatively different from the previous one.

Comparing to McManus and Marsden's treatment design, the time and the strength of the current CI treatment was rather limited, as it was only composed of instruction and practice within two days in a total of 80 minutes. The two-day training might be insufficient for learners to establish and consolidate an automatized L2 processing routine. The CI subjects in the current study still revealed a similar and robust learning outcome compared to those in McManus and Marsden's study. The testing evidence suggested that the restructuring of the processing mechanism for cross-linguistically similar inflections might be simpler but more robust than that for the cross-linguistic dissimilar inflection revealed in McManus and Marsden's study. This study predicts that, in addition to a direct one-to-one transfer of the conceptual representations for the inflections across the two languages, the Chinese L1 learners also transferred or utilized the L1 processing mechanism and system to appropriately process the new inflections in L2 after they have established a cross-linguistic connection of inflections (MacWhinney, 2005; Tolentino, & Tokowicz, 2014). Given the cross-linguistic consistency of the aspectual form-meaning mappings, the direct L1 transfer of the existing system resulted in target-like representation and

relatively automatic processing of the L2 aspect inflections with no extra need to restructure the L2 system.

The direct transfer of the processing mechanism across Chinese and English might help to explain the immediate and long-term gain in using the simple past inflection after the CI instruction. Though lacking sufficient L2 practice, presenting the consistent form-meaning mappings of the aspect inflections in Chinese and English explicitly raised learners' inflectional awareness in Chinese and created a cross-linguistic connection regarding the representation and the processing in their interlanguage. The strengthened cross-linguistic awareness supported the learners' ability to make use of the existing L1 representation and processing mechanism to process L2 aspect inflections in an appropriate and automatized way. In other words, learners' L1 ability was employed and functioned as a meaningful cognitive and linguistic resource to support the inflectional development and processing after the instruction (Cummins, 2014). Over the three weeks after the instruction, the CI learners were still able to rely on the L1 resources to process the English aspectual information and retained the long-term gain.

In contrast, the MI class remained no change on either simple past and past progressive inflections after the instruction, suggesting that MI instruction was unable to add a new routine to the existing L2 aspect system or get rid of the slow and inefficient processing procedures to establish a target-like L2 processing mechanism. Because of the learners' limited English exposure outside of class, they could not receive sufficient English input to further modify the processing mechanism after instruction.

The predicted learning mechanism of CI instruction and the processing routine after CI instruction is supported by CI learners' retrospective data to some extent. As for the learning mechanism of CI instruction, the CI subjects' responses supported the view that the explicit L1

instruction raised their awareness about Chinese inflections. The Chinese interpretation of English sentences concretized the aspectual concepts which was too abstract to comprehend in English or with English instruction. Meanwhile, comparing the Chinese and the English rules helped them create a cross-linguistic association and distinguish the inflections and the related meanings. As for the potential L1 transfer to yield target-like performance and processing mechanism, one subject proposed that the knowledge that they developed in their L1 Chinese could function as an internal resource. In addition to external English resources (e.g., English reference books), the raised awareness of the Chinese inflections helped them to initiate a semantic analysis on their own after the instruction. It suggests that the CI instruction shifted learners' strategies for aspectual processing so CI learners were inclined to rely on the existing Chinese system to analyze the English aspect meanings.

5.1.3 Interaction of CI Instruction and Degrees of Cross-linguistic Similarity

In contrast with previous CI-instruction related studies which targeted one specific inflection (e.g., Kupferberg, 1999; McManus, & Marsden, 2017, 2019), the current study instructed simple past and past progressive inflections simultaneously and compared the instructional effects on the two inflections. Though the CI instruction yielded an extensive effect on learning the English aspect inflections, the effects of CI instruction vary significantly for the learning of the simple past and past progressive inflections.

The testing results showed that CI instruction led to distinct learning trajectories for the simple past and past progressive inflections. The CI instruction had a facilitating effect on the use of simple past immediately after the instruction but a negative effect on the use of past progressive three weeks after the instruction. The immediate/delayed and positive/negative effects of the CI instruction on the two inflections may be explained by the varied degrees of the

structural similarity of the inflections across Chinese and English. The simple past inflection *-le (verb+le)* in Chinese and the inflection *-ed (verb+ed)* in English both locate at a verb-final position and share a high degree of structural consistency. The progressive inflection *–zai* in Chinese and *-ing* in English demonstrate less structural overlapping, as *-zai* precedes the verb (*zai verb*), and *-ing* follows verbs and forms a compound form with an auxiliary (*was/were verb+ing*).

The degree of structural similarity may have affected the promptness of instructional effects on the two inflections. Though CI raised learner's awareness for both Chinese inflections, the cross-linguistic awareness for the pairs of inflection (simple past pairs: *le* and *–ed*; past progressive pairs: *-zai* and *-ing*) may vary due to different degrees of structural similarity. The pairs of inflections with higher degrees of overlapping, the simple past inflections *-le* and *–ed*, appear to be more salient and easier to connect cross-linguistically than the less overlapped pair, the progressive inflections *-zai* and *-ing*. As a result, the L1 knowledge about the form-meaning mapping of *–le* were more likely to be transferred to support learning and yielded an immediate change on the use of simple past -ed. Since the structures of the past inflections are more sophisticated and overlap less across the languages, more time and efforts were needed to create cross-linguistic connection so that the change was not revealed until three weeks after the CI instruction.

By adjusting the transfer effect, the degree of structural similarity may have further influenced the direction of the CI effect and led to opposite instructional effects on the two inflections. The higher degrees of structural similarity of the simple past pair contribute to a stronger L1 transfer of the Chinese simple past and resulted in a higher degree of simple past awareness in L2, comparing to the past progressive inflection and awareness. It is possible to

predict that, with highly raised simple past awareness and relatively limited past progressive awareness in the L2, while learners improved in their use of the inflection *–ed* in the appropriate simple past contexts, they may have also over-generated *–ed* in the previously accepted past progressive contexts which led to a decrease in the appropriate use of progressive inflection.

To check this hypothesis, the detailed distribution of the alternative forms (e.g., simple past, bare/present forms, etc.) in the past progressive contexts across the three tests need to be further analyzed. If the supply of the English simple past inflection continued to rise over the three weeks, this hypothesis would be supported. Investigation is also in need to check if accumulated CI instruction can further restructure the English aspect system and help CI learners get rid of the blocking effect posed by the simple past. This would help figure out the appropriate form-meaning mappings of L2 past progressive and supply *-ing* inflection in a wider range of past progressive contexts at a later stage, as predicted by the U-shape model (Lightbown, 1983; Shirai, 1990).

5.2 Effect of Lexical Aspect and the Interaction with CI and MI Instruction

5.2.1 Summary of the Results

Question *2 How are Chinese native learners who have undergone cross-linguistic and monolingual instruction influenced by lexical aspect in their use of simple past and past progressive inflections?*

The use of the simple past inflection with four lexical categories revealed changes after the CI instruction, while the use of the past progressive inflection with four lexical categories showed no significant change throughout the study. This indicates that CI instruction only impacted the effect of the lexical aspect posed on the simple past inflection. The CI instruction reduced the influence of lexical aspect on the simple past use in a short-term, as the CI learners

improved in the appropriate use of the simple past inflection within stative verbs, the least prototypical contexts, immediately after the instruction but the instructional gain relapsed three weeks later. In the long-term, the instruction targeting the prototypical use of the inflections appeared to have strengthened the effect of the lexical aspect over the three weeks after the instruction, as the improvement were only observed on the prototypical association. In other words, the appropriate use of the simple past inflection improved only with the telic, durative verbs (the verbs of accomplishment) from the pretest to the delayed post-test. It is in line with previous finding that the learner's L1 knowledge regarding the non-prototypical usage of the aspect inflections cannot be transferred to the L2. The L1 effect occurs within the effect of verbal semantics and does not override the acquisitional universal (Collins, 2002, 2004).

In contrast, the MI instruction appears to have moderated the influence of the lexical aspect on both simple past and past progressive inflections. Certain instructional effects appeared only three weeks after the instruction. The testing results showed that three weeks after the instruction, the MI subjects improved in the appropriately use of the simple past and the past progressive inflections with the non-prototypical stative verbs. Improving the inflection use in the most non-prototypical context, suggests a tendency to use the inflections based on the viewpoint aspect of the situations rather than the lexical aspect among the MI learners after three weeks, a moderation of the effect of the lexical aspect. Whereas, the effect of MI instruction was limited only to the stative verbs. Therefore, the effect of MI instruction was a constrained phenomenon, and the evolution over the three weeks may be unstable and incomplete. Further testing was required to check if the improvements will be backslid or extended to a wider range of lexical categories.

The control learners also revealed changes on the use of the inflections over the three weeks, which may indicate the evolution of the English aspect system in regular classroom which did not address the inflections. The results point to a strengthened effect of lexical aspect in the use of past progressive inflection. The participants in the control group improved in their use of the progressive with the telic durative verb (the verb of accomplishment) and reduced it with the instantaneous verb (the verb of achievement) over the three weeks, suggesting they may respond to the property of durativity for the progressives and increased tendency to use it with durative verbs. The distributional bias for progressive is in line with other studies (Bardovi-Harlig, 1992; Munoz, & Cilabert, 2011; Robinson, 1990) which have found that the English progressive is not necessary with activity predicates, but it is more closely related to durative verbs. The evolution pattern regarding the simple past use with verb types indicates a moderation of the effect lexical aspect. The control group decreased in the association of the simple past and the prototypical telic verbs but improved in the association of the simple past inflection and the non-prototypical atelic durative verbs.

5.2.2 Learning of Prototypical Associations and Effect of CI/MI Instruction

This section compares the developmental trajectories of the learners in the three treatment conditions and tries to identify the factors that led to the developmental differences among the subjects.

With respect to the prototypical associations, the focus of the instruction, the instructed CI/MI groups and the control group demonstrated opposite developmental trajectories over the three weeks. As for the simple past, the MI classes improved it with telic verbs, while the control group revealed a decreased in the past-telic combination. In terms of the past progressive, both MI and CI classes remained no change within the prototypical contexts, but the control group

increased the scores with accomplishments. The evidence suggests that the CI/MI instructed learners may undergo developmental trajectories and reach learning outcomes that are different from the control peers. Therefore, this study predicts that for the Chinese L1 English learners who had reached an initiate developmental stage of aspect inflections, the prototypical simple past use is more likely to be improved with CI instruction targeting at the aspect inflections in L1 and L2, while the prototypical past progressive use can be facilitated without instruction. This finding seems to contrast with previous findings that instruction on aspect inflections may facilitate the rate of development but does not qualitatively change learners' development trajectory (Bardovi-Harlig, 1989; Cadierno, 1995; Slabakova, 2003).

It is also possible that the all learners undergo the same trajectory. The different trajectories uncovered in the current study may be caused by the different developmental stages of the treatment and control learners. The control group in the current study demonstrated a higher proficiency regarding the L2 aspect inflections than the two treatment classes in the pretest, indicating that the control class may have reached a more advanced level of L2 aspect. It is possible to predict that, the two treatment classes in this study were at a stage in which they were positively constructing the system about the prototypical use of the inflections and therefore the instruction yieled improvements (for the CI class) or retained the existing performance (for the MI class). In contrast, the control class had passed this stage and moved to a new stage of restructuring their existing system. The instruction, irrelevant to the aspect features, might interfere with the existing aspect system and therefore lead to a decrease in learners' use of the aspect inflections over time. To check this prediction, more examination is needed to further track the development trajectories of the instructed/control learners after the three weeks.

Comparing the CI and MI classes, the two treatment groups demonstrated no significant differences for L2 aspect proficiency at the beginning of the study. With the same instructional focus on the prototypical use of the inflections, the CI instruction had a more extensive impact on prototypical use than the MI instruction. The CI instruction group improved the prototypical use of the simple past with telic durative verbs while the MI instruction revealed no change.

The cross-linguistic similarities regarding the association of the simple past inflection and the telic verbs may play a role. The prototypical verb-inflection association in Chinese and English share a similar structure as well as the associational meanings. The CI instruction helped the learners to establish a direct connection of the association about the structure and the meanings across Chinese and English. The interview suggested that when learners must decide which aspect inflection to use, they strongly rely on Chinese translation to interpret contexts in English. With the transferred knowledge about the structural and semantic properties for the prototypical associations in Chinese, the CI learners may be in a better position to identify the appropriate contexts for simple past and assign the English inflection based on the appearance of the inflections in the Chinese translation. In contrast, the MI group did not improve in the prototypical use of the inflection. It indicated that without a reliance on the Chinese prototypical association, including structure and meanings, the MI learners demonstrated limited improvements in identifying the appropriate contexts and choosing the appropriate inflection.

5.2.3 Learning of Non-Prototypical Associations and Effect of CI /MI instruction

The non-prototypical use of the inflections was not taught in class, but still improved with instruction. Whereas, for both classes, the change occurred only with the least prototypical stative verbs, but not the other lexical categories. I predict that the distributional bias towards the use of base/simple present with statives might be significant during the pretest but may be

moderated in the posttest. There are two reasons for this prediction: a) the acquisitional universal and b) L1 transfer effect.

A body of studies (e.g., for review: Bardovi-Harlig, 2002; Collins, 2002, 2004) have uncovered that the learners from various L1 and L2 backgrounds would demonstrate a preference for supplying the bare/present form with stative predicates, due to the consistency of the internal aspectual properties, and certain bias would remain with the increase of L2 proficiency.

The alternative explanation can be related to the cross-linguistic differences of the non-prototypical associations in Chinese and English and the negative L1 transfer effect. Though Chinese relies on the verb-final inflection *–le* to express the perfective meaning, the inflection *–le* cannot be associated with stative verbs in Chinese. Instead, Chinese uses bare verbs and other lexical items, like adverbials, to indicate the non-prototypical stative simple past meaning. In contrast, English allows the association of the simple past and the statives for non-prototypical readings. Certain associational differences may lead to negative L1 transfer and strengthen Chinese learners' preference for using the base/simple present with statives and presented the onset of this study.

Previous studies find that the distributional bias posed by the universal lexical semantics (e.g., Izquierdo, 2014) and cross-linguistic complexity (e.g., McManus, & Marsden, 2019) can be moderated by CI and MI instruction. This conclusion is supported by the current results to some extent, as CI and MI classes improved in the use of the inflections with stative verbs at some point after instruction. It is possible to predict that the instruction targeting at the form-meaning mappings of the aspect inflections raised learners' inflectional awareness in general, which can help learners better identify the viewpoint of the non-prototypical situations and

increase the supply of *-ed* in stative simple past contexts. To check the predicted effects of the universal distributional bias and its interaction with the CI/MI instruction, the distribution of the inflectional forms (e.g., bare/present forms, simple past inflection, progressive inflection) in simple past contexts across different lexical categories in the three tests needs to be analyzed. If the subjects supplied significantly greater amount of bare/present forms with stative predicates than with other lexical categories in the pretest, and reduced the number of bare/present forms within stative verbs in the post-tests, the effect of distributional bias shaped the universal lexical semantics or L1 transfer effect prior to the instruction and the effect of instruction moderating the distributional bias on stative verbs can be supported.

Though both facilitated non-prototypical use of the inflections at some point, the effects of CI and MI instruction differed in the extent of usage and the time when the effect took place.

The CI instruction generated immediate facilitating effect on the simple past use with stative verbs, but the improvement was not retained three weeks later. In other words, the raised inflectional awareness though the CI instruction cannot contribute to the non-prototypical use of the inflections in a long-term and was moderated by other factors over the three weeks after the instruction. It may be explained by two factors. First, McManus and Marsden (2019) propose that CI instruction can add a new processing routine to the existing one and, with accumulated practice, the learners are able to eliminate the slow and inefficient processing procedures and establish reliably accurate L2 knowledge. The current study did not provide L1/L2 practice following the two-day instruction. Though the CI instruction restructured the L2 system immediately after the instruction, the learners might be unable to consolidate their inflectional knowledge and establish a reliable and accurate L2 aspect system, especially for the challenging non-prototypical contexts which was not instructed in class. Therefore, the improvement

relapsed over the three weeks. Alternatively, it is possible that the cross-linguistic awareness in CI class of the Chinese and English inflections was further strengthened over the three weeks after instruction. The CI learners were motivated to use of Chinese aspectual representation and mechanism to process a wide range of aspectual information in English. Without instruction clarifying the cross-linguistic variations in the non-prototypical contexts, the CI learners may over-generate L1-like structure in the non-prototypical contexts. As a result, they mistakenly transferred the semantic boundary of *-le* to *-ed* on their own and limited the appearance of *-ed* in the stative contexts where *-le* cannot appear. The improvement relapsed due negative transfer.

In contrast, the MI instruction did not address the cross-linguistic variation and exclusively focused on the English inflections in the prototypical contexts. The use of inflections in the non-prototypical associations remained no change immediately after the instruction. It is possible that the learners may still struggle with the negative effect of lexical semantics or L1 transfer on learning the non-prototypical associations immediately. It may take MI learners a greater amount of time to get rid of the inappropriate representation, form a new processing routine and generalize the inflection into the non-prototypical contexts. Three weeks after instruction, the MI class revealed improvements in using the simple past and past progressive inflections with stative verbs, indicating a raised understanding of the viewpoint function of the aspect inflections and a reduction of the effect of lexical aspect. Since the changes appear in the delayed post-test test, whether the MI class will be able to retain the improvement in the non-prototypical stative contexts requires further examination.

As for the teaching of the challenging English grammatical features to Chinese native speakers, this study suggests that the cross-linguistic properties of the target feature and the specific contexts need to be considered when deciding the appropriate pedagogies. This study

revealed that, based on the L1 inflectional knowledge, the CI instruction are more likely to raise learners' overall inflectional awareness, to a greater extent and more prompt than the MI instruction. Whereas, the effect of raised inflectional awareness is mediated by other issues, such as the cross-linguistic structural and semantic properties in L1 and L2, and can lead to variant learning outcomes for different inflections and in different contexts. The CI instruction are more beneficial for the properties presenting high degrees of structural and semantic consistency. Since the prototypical form-meaning mappings of the simple past inflections are highly consistent in Chinese and English, raising learners' cross-linguistic awareness through the CI instruction can immediately facilitate the overall use of the simple past inflection and resulted in a long-term gain. However, the non-prototypical use of the English inflections is challenging for Chinese native speaker, due to a) the inconsistency of the lexical and inflectional semantics and b) the structural variation of the Chinese and English non-prototypical associations. Thus, raising the inflectional awareness in L1 and L2 through CI instruction may constrain learners to use the English inflections in the non-prototypical contexts in a long-term and strengthened the effect of lexical aspect. More instruction is in need to learn about the non-prototypical use of the inflections, and the pedagogy should be implemented with caution (Izquierdo & Collins, 2008).

The current study did not include the instruction about the non-prototypical use of inflections, which present cross-linguistic variation in structures and meanings. The effect of instruction targeting at certain complicated properties of aspect inflections remained unknown, especially for the CI instruction. Providing the instruction clarifying the differences in the non-prototypical association between Chinese and English, whether the CI learners are able to get rid of the negative L1 transfer and receive a long-term gain in the non-prototypical use of the aspect inflections requires further investigation.

Chapter 6 Conclusion and Limitations

6.1 Conclusion

This study demonstrated that, given the low inflectional awareness in L1 Chinese, instruction targeting the form-meaning mappings of the English aspect inflections effectively raised Chinese L1 English learners' overall inflectional awareness. The CI instruction elicited a greater effect on the development of inflectional awareness than the MI instruction. This study supports the view that inflectional awareness of aspect is transferable between Chinese and English, two typologically unrelated languages. Raising the inflectional awareness in L1 through CI instruction, the learners are more likely to elicit their background linguistic knowledge and transfer the existing L1 representation and processing mechanism to support L2 inflectional learning (Cummins, 2014; Lyster et al., 2013; McManus & Marsden, 2017, 2019). However, the CI instruction does not necessarily lead to a change in the linguistic awareness or learning. The degrees of cross-linguistic similarity of the linguistic targets mediate the inflectional awareness to be raised by CI instruction and mitigate the effect of CI instruction on different aspect inflections. CI instruction is more likely to raise the cross-linguistic awareness of the inflection that presents a high degree of structural similarity across L1 and L2 and contributes to a more significant and robust L2 system, as compared to the inflections presenting structural variation cross-linguistically.

This study further proposes that the inflections in a learner's two languages present variant semantic boundaries for lexical aspects should be treated with caution. Without instructions clarifying certain semantic differences, raising the cross-linguistic awareness about the form-meaning mappings of the inflections appears to be insufficient to benefit learning in all contexts. This is especially true for the non-prototypical contexts. Given the consistent

distributional patterns of the Chinese verb-inflection associations and the universal associational bias shaped by lexical and inflectional semantics, the raised L1 awareness motivated learners to initiate transfer of the distributional patterns of the Chinese inflections to the correlating English inflections, which in turn reinforced the effects of lexical aspect on L2 aspect learning. The long-term gain of CI instruction was observed in the prototypical contexts for the inflection, but not in the non-prototypical contexts, suggesting that the transferred L1 awareness in the aspect domain yielded a greater impact on the lexical aspect than on the overall inflectional awareness. In contrast, without L1 interference, the MI instruction was more likely to raise the overall inflectional awareness in the L2, which facilitated the appropriate use of the inflections in both prototypical and non-prototypical contexts and moderated the effect of lexical aspect. However, the facilitating effect of MI instruction was effective on a limited number of lexical categories, suggesting that, with L2-only resources, the effect of instruction was moderate.

As for the CI pedagogy, learner's responses support the view that discussion in the L1 and practice translating between the L1 and L2, allows learners' L1 to be employed as an effective linguistic and cognitive tool to ensure successful processing, comprehension, communication and collaboration in class (Cummins, 2014). The previous studies on CI instruction (e.g., McManus & Marsden, 2017, 2019) or contrastive instruction (e.g., Harley, 1989; Kupferberg, 1999; Kupferberg & Olshtain, 1996) explain that explicitly comparing the structures and meanings of cross-linguistically complicated inflections can activate the new form in interlanguage, and learners are able to eliminate the slow and inefficient procedures and establish reliable, accurate L2 knowledge after instruction. However, in the current study, the effectiveness of explicit comparison of the aspect inflections across Chinese and English remain

controversial. Determining whether the CI comparison of the inflections simplified their L2 inflectional processing or made inflectional learning more complicated requires more evidence.

This study reveals a distinctive effect for CI instruction on the simple past and past progressive inflections across prototypical and non-prototypical contexts. It also demonstrates learner's variant views about the effectiveness of CI pedagogy on learning different properties of the aspect inflections. CI instruction and pedagogy should not be seen as a one-size-fits-all affair. (Ballinger, et al., 2017). In order to maximize the effect of instruction, this study suggests that teachers should take into consideration the within-language and cross-linguistic properties of the target feature to be learnt and the specific contexts in which learners are learning before determining CI or MI methods and strategies. The prototypical use of the feature presenting cross-linguistic similarity can be facilitated through CI instruction that emphasizes structural and semantic similarities. As for the cross-linguistically variant features and challenging contexts for the feature, the CI instruction and pedagogies should be implemented with scrutiny.

6.2 Limitations

The amount of time dedicated to instruction and practice in this study were limited. The treatment time in the current study was composed of two lessons, 80 minutes in total, which was shorter than the treatment in previous inflection-related literature (e.g., 8-10 hours in Lyster, et al., 2013; 3.5 hours in McManus, & Marsden, 2017, 2019). In the current study, the two lessons of instruction and practice provided after the class might constrain learners' ability to appropriately consolidate the knowledge taught in class (e.g., differentiate the prototypical/non-prototypical use of the inflections) and present the internal change overtly through the production tests. For future studies, I suggest that, in addition to longer time for CI instruction, more practice should be provided in and after class. In this way, the role of the L1/L2 explicit instruction and

L1/L2 practice and the processing mechanism of Chinese learners with CI instruction will be understood in depth. The interaction of the CI instruction and the accumulated L1/L2 practice as well as its impact on learning will also be uncovered.

This study only focused on learners' evolution over the three weeks and did not track their progress after the three weeks. Whether the change will be retained and how the L2 aspect system will evolve after three weeks remains unknown. Therefore, an additional test with longer interval (e.g., two months after the instruction) should be included to track the future development.

As for sampling, the sample sizes for each treatment class appear to be small (27, 33, 34 for CI, MI and control groups) and the three classes of the subjects were not assigned in a random basis. These factors may lead to sampling errors, and the non-random sampling may explain the unbalanced L2 aspect proficiency among the CI/MI and control results at the onset of study (the control class revealed a significantly more advanced overall performance in the throughout the study than the two classes). To avoid sampling errors, more subjects should be recruited and a random sampling methods should be adopted for future studies.

Due to a lack of instruction on the non-prototypical uses of the inflections, whether CI instruction can help learners figure out the cross-linguistic variation and get rid of the inappropriate presentation posed by the universal distributional bias and the transferred L1 Knowledge remains unknown. In order to gain a thorough picture of the CI instruction among Chinese L1 English L2 learners, it is necessary to include the instruction clarifying the variations of the non-prototypical uses of the inflection across Chinese and English and examine its effect on grammatical aspect and lexical aspect.

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Appendix A Material and Teaching plan for Intervention

Text 1: A pirate's amazing adventure

An old pirate was sitting in the bar. He was smoking a pipe and drinking a glass of beer. He was wearing an eye patch and he had a parrot on his shoulder and a wooden leg. Instead of his right hand, he had a metal hook. (1) A young sailor was chatting with the pirate. (2) He asked the pirate about his adventures at sea.

"So, how did you lose your leg?", the man asked the pirate.

"Arrr!", said the pirate, "you see, (3) some sharks were circling the ship when I fell overboard. Luckily, (4) my man pulled me back onto the ship before the sharks ate me completely, but one of the sharks got my leg."

"And how about the hook on your hand? How did you lose your hand?"

(5) "I was boarding a ship when another sailor cut off my hand with a sword."

"That's amazing! What a life full of adventures!" said the young man. "And how about your eye? How did you lose that?"

(6) "I was eating an orange when the juice went into my eyes."

"but I don't understand. How did you lose your eye from the orange juice?"

"Arrr!" said the pirate, "it was my first day with the new hook."

Lesson 1
The form-meaning mappings of aspectual morphemes

1. Noticing stage

a. Activity

CI students: read aloud the first paragraph of the passage and talk about the background of the story in Chinese; read the underlined sentences (4) and (5) which involve the simple past and past progressive verb forms respectively.

MI students: read aloud the passage and talk about learners' impression of the pirate in English; read the underlined sentences (4) and (5) which involve the simple past and past progressive respectively.

2. Awareness stage

a. Individual activity: awareness raising

CI Students: translate the underlined sentences (1) and (2) into Chinese and write down the Chinese translation below the target English sentences. Compare the rules for expressing a completed event (past simple) and an on-going event (past progressive) in Chinese and English.

Table 1 The table for the English sentences and the Chinese translation (1)

(1) A young sailor was chatting (v) with the pirate.	(2) He asked(v) the pirate about his adventures at sea.
yigge-CL nianqing shuishou *zai* liaotian (v) …	Ta **wen-*le*** (v) haidao …

MI students: orally interpret the underlined sentences; identify the rules for expressing a completed event (past simple) and an on-going event (past progressive) in English.
Teacher: remind learners not to rely on temporal adverbials but, instead, to pay attention to the verb's conjugation to decide when and how the activities or the event takes place.

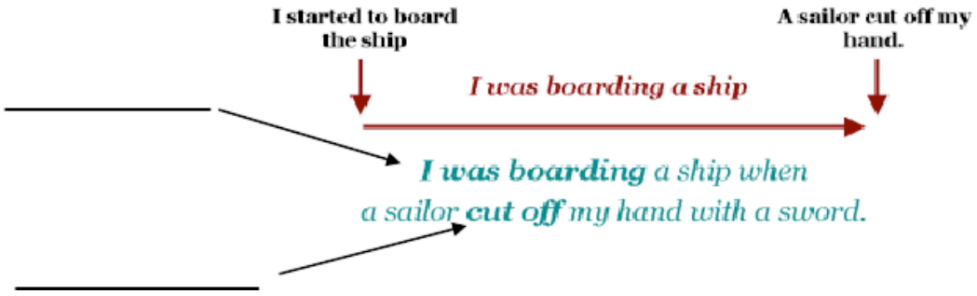
b. Group activity: awareness strengthens
CI Students: read the sentences (3), (5) and (6); translate both clauses to Chinese to strengthen students' cross-linguistic association. Discuss in a group of four and draw a picture of the sequence of the events (e.g., event A occurred before event B) and the structure of the events (e.g., start point, duration, end point of each event) indicated by the clauses; map two events on the timeline and associate the grammatical rules with the timeline. Share the findings in the class.
CI teacher: ask student to connect Chinese and English while drawing the map.

Table 2 The table for the English sentences and the Chinese translation

(3)	some sharks were circling the ship	when I fell overboard.
Translation	***-zai***	***-le***
(5)	I **was boarding** a ship	when another sailor **cut** off my hand with a sword
Translation	***-zai***	***-le***
(6)	I **was eating** an orange	when the juice **went** into my eyes

Translation	***-zai***	***-le***

Figure 1 The Example of the structure of the events encoded in the sentence (5)



MI Students: read the sentences (3), (5) and (6); discuss with a group of four and draw a picture of the structure of the events (e.g., start point, duration, end point of each event) indicated by the English clauses; map two events on the timeline and associate the grammatical rules with the map; share the findings in the class.

c. Individual activity: awareness consolidation

Students: compare the meanings of two pairs of sentences to further distinguish the differences between the simple past and the past progressive; identify differences in meaning between the sentence (a) and (b) by mapping the events on the timeline; share the pictures in class.

(2a) The pirate was coughing when the sailor arrived at the bar.

(2b) The pirate coughed when the sailor arrived at the bar.

Pairs added (please refer to my reply (II)→):

(3a) The pirate checked his cell phone when the sailor arrived at the bar.

(3b) The pirate was checking his cell phone when the sailor arrived at the bar.

(4a) the pirate felt nervous when the sailor arrived at the bar.

(4b) The pirate was feeling more nervous when the sailor arrived at the bar.

(7a) My man pulled me back onto the ship before the sharks ate me completely.

(7b) revised: my man pulled me back onto the ship when the sharks ate me completely.

d. Group Activity: “Truth or Lie”

The private made the following statements. Based on your knowledge of the past simple tense and the past progressive tense. Please help to judge if the private was telling a lie or not / Please help to judge if the scenarios that the private described are possible. Please tell the reasons.

(a) My man pulled me back onto the ship before the sharks ate me completely. (truth/possible).
(b) My man pulled me back onto the ship when the sharks ate me completely. (lie/impossible)

(c) I was boarding a ship when another sailor cut off my hand with a sword. (truth/possible)
(d) Another sailor was cutting of my hand when I boarded a ship. (lie/impossible)

(e) One of the sharks got my leg when my man pulled me back onto the ship. (truth/possible)
(f) One of the sharks got my leg when my man was pulling me back onto the ship. (truth/possible)

(g) I fell overboard when a shark was eating me. (lie/ impossible)
(h) A shark ate me when I was falling overboard. (lie/ impossible)

Teachers: When students are sharing their answers in class, draw their attention to the clues of the tenses of the verbal predicates.

d. Instruction
CI Teacher: based on the prior activities, provide a brief instruction about the grammatical rules for the past simple and the past progressive tenses and associate them with the corresponding rules in Chinese; explain how English and Chinese speakers view the timing of the events (including the sequence of two events and the internal structure of one event) and express it through the two languages.
MI teacher: based on the prior activities, provide a brief instruction about the grammatical rules for the past simple and the past progressive tenses. Explain how English speakers view the timing of the events (including the sequence of two events and the internal structure of one event) and express it through English.
3. Practice stage

Students: In groups of two, students should retell the story of the pirate. Remind students that they need to use the third person and to alternate between past tense and past progressive to express the timing of the events.

Lesson 2

The association of verb semantics and aspectual morphemes

Text 2: The early career of a famous actor

Matt Damon is an American movie star. He was interviewed on a TV show yesterday. When he appeared on TV, he **wore a black suit** with a red tie. He **looked glamorous**. He **talked about** his early career as an actor.

Though Matt Damon is one of Hollywood's most famous movie stars nowadays, in the early 1990s, he **was struggling to be success**, and, over the years, life has not always been easy. In 1996, he **lost 40 pounds** for his role as a drug-addicted soldier in *Courage under Fire*. While he was **dieting**, he **became ill** and had to take medication for several years afterwards. In 2000, he **cracked a rib** while he was **playing golf** in the *Legend of Bagger Vance*. (2) Then, he **gained 30 pounds** to play a businessman in *The Informant*. In 1998, he sprained his ankle when he was rushing towards his man in *Saving Private Ryan.*

(3) Matt **lived in Massachusetts** in the U.S. He **started acting** while he **was still a student**. He was **studying English** at Harvard University when he **got a part** in the movie *Geronimo*. When he **heard the good news**, he immediately **dropped out of Harvard**. He **hoped** that Hollywood would take notice of him. It didn't. It wasn't until (4) he **won an Oscar** with his friend, Ben Affleck, for *Good Will Hunting* in 1997. Then, Hollywood **began to show interest**. *After excellent performances in the Talented Mr. Ripley, Savin Private Ryan, and Ocean's 11,* he was offered the lead role in 2002 as the assassin Jason Bourne in The Bourne Identity. From then on, his career **moved** in one direction only—upward.

1. Warm-up stage

Teacher CI and MI: a brief review about the grammatical rules of the English simple past and past progressive.

Students CI and MI: do a cloze exercise using the simple past and past progressive tense appropriately.

The cloze exercise

Matt Damon is an American movie star. He was interviewed on a TV show yesterday. When he appeared on TV, he looked glamorous. He talked about his early career as an actor.

Though Matt Damon is one of Hollywood's most famous movie stars nowadays, in the early 1990s, he (1. struggle) was struggling to be success, and, over the years, life has not always been

easy. In 1996, he had to lose 40 pounds for his role as a drug-addicted soldier in *Courage under Fire*. While he (2. diet) was dieting, he became ill and had to take medication for several years afterwards. In 2000, he cracked a rib while he (3. play) was playing golf in the *Legend of Bagger Vance*. Then, he (4. gain) gained 30 pounds to play a businessman in The *Informant*. In 1998, he sprained his ankle when he (5. rush) was rushing towards his man in *Saving Private Ryan.*

Matt lived in Massachusetts in the U.S. He (6. start) started acting while he was still a student. He (7. study) was studying English at Harvard University when he got a part in the movie *Geronimo*. When he heard the good news, he immediately (8. drop) dropped out of Harvard. He (9. hope) hoped that Hollywood would take notice of him. It didn't. It wasn't until he won an Oscar with his friend, Ben Affleck, for *Good Will Hunting* in 1997. Then, Hollywood (10. begin) began to show interest. *After excellent performances in the Talented Mr. Ripley, Savin Private Ryan, and Ocean's 11,* he was offered the lead role in 2002 as the assassin Jason Bourne in The Bourne Identity. From then on, his career (11. move) moved in one direction only—upward.

2. Noticing stage

a. Individual activity

CI Students: after filling in the blanks, read aloud the passage and talk about the experience of Matt Damon in Chinese. Then, after the teacher hand out the passage (the verbal predicates are marked by different colors), the students should sort the predicates (base form) into Table 3 by the colors and figure out the tenses used for each type of the verbal predicates.

MI student: read the English passage and talk about their impression of Matt in English. Then, fill in the Table 3.

Table 3 The classification of verbal predicates

colors	**Green (state)**	**Orange (activity)**	**Red (accomplishment)**	**Blue (achievement)**
Verbal predicates (for noticing stage)	Look glamorous Hope Be a student	Talk about … Diet Play golf Study English Move in one direction	Struggle to be success Lost 40 pounds gain 30 pounds paint a building	Become ill Crack a rib Start acting Get a part Hear the good news Drop out of Harvard Win an Oscar Begin to show interest
Tenses (for	Simple past	Simple past; past progressive	Simple past; past progressive	Simple past

noticing stage)				
Properties (for awareness stage)	-dynamic +durative	+dynamic +durative	+dynamic +durative	+dynamic -durative

3. Awareness stage

a. Awareness raising stage

Individual activities 1:

CI teacher: read aloud the underlined sentences (1), (2), (3) and (4) and ask four students to act out/explain (in Chinese) the situations expressed by each sentence ("live", "talk", "gain 30 pounds" and "win an Oscar") in class. Students' explanation should be scaffolded by teacher's questions in Chinese, such as "is it an ongoing event or an ended event", "does the action last for a while" and "is the action dynamic?" Then, the teacher should give a brief summary about the properties ([+/- dynamic]; [+/- durative]) of the verbal predicates after student's explanation.
CI students: act out the sentences, explain their action in Chinese.

MI teacher: read aloud the sentences and ask students to act out the situations expressed by the sentences ("live", "talk", "gain 30 pounds" and "win an Oscar"). A brief instruction about the properties ([+/- dynamic]; [+/- durative]) of the verbal predicates.
MI students: act out the sentences.

Students MI and CI: check the properties of the other verbal predicates in each category in Table 3. Write down the properties of the predicates ([+/- dynamic]; [+/- durative]) in Table 3.

Individual activities 2 (only for CI students):

CI teacher: ask students to write down the Chinese translation for (1), (2), (3) and (4). While translating, the teacher should remind students to figure out all potential readings for the sentences, especially for the sentence (1). Then, draw students' attention to the verb-final morphemes in the Chinese translation for different readings.

CI students: translate (1), (2), (3) and (4) in to Chinese; compare the verb-final morphemes in the Chinese translation.

The students will find that (1), (2) and (4) (the [+dynamic] verbs: the lexical categories of activity, accomplishment and achievement) could have only one interpretation (a closed event) with the simple past form. Moreover, in the Chinese translation of (1), (2) and (4), the verbs are followed by the verb-final morpheme *–le*. However, (3) (includes the [stative] verb) could have two interpretations with the simple past form (a closed state or an open state). In particular, in the Chinese interpretation for (3), the two interpretations are marked by different morphemes: the morpheme *–zhe* follows the verb for an open continued state (perfective) reading and the morpheme *-le* follows the verb for the closed state (imperfective) reading.

Table 4 The sentences denoting the state and the dynamic events

Verbal feature	**English Sentences**	**Interpretation**	**Chinese Translation**
+dynamic +durative	(1) He talked about his life as an actor. (activity)	1. closed event: the event completed in the past	…-le
+dynamic +durative	(2) He **gained 30 pounds** to play a businessman in *The Informant.* (accomplishment)	1. closed event: the event completed in the past	…-le
-dynamic +durative	(3) Matt lived in Massachusetts. (state)	1**. open state**: the state may have ended and continues into present	**…-zhe**
		2. closed state: the stated ended in the past.	…-le
+dynamic -durative	(4) he **won an Oscar** with his friend, Ben Affleck, for *Good Will Hunting* in 1997. (achievement)	1. closed event: the event completed in the past	…-le

MI teacher and students: not involved in this activity. Two interpretations for (3) will be strengthened in Instructional stage.

4 Instructional stage

a. Teacher' instruction 1

Teacher MI and CI: present two potential interpretations of (3) and give a brief instruction about the stative verb with simple past tense in neutral contexts. CI teacher should associate two interpretations with different Chinese morphemes.

(3a) Matt lived in Massachusetts when he was young and still lives there (the state has not ended but continued into present; Chinese uses verb-final morpheme *-zhe*).

(3b) Matt lived in Massachusetts for over 20 years and moved to California after he got a job in Hollywood (the state ended in the past; Chinese uses verb-final morpheme *-le*).

b. Teacher' instruction 2

Teacher: give an instruction about the interaction of verbal predicates and the verb-final morphemes with the assistance of the examples (listed below); explain the reason why the stative and achievement verbs always uses simple past tense, while the accomplishment and activities are available for both simple past and past progressive tenses. Then, ask the students to interpret the timing of the events expressed in the following sentences.

Examples:

Stative: [-dynamic], [+durative]

a. he **looked glamorous** on TV.

Activities: [+dynamic], [+durative]

a. On this show, he **talked** about his early life as an actor.

b. While he was **dieting**, he became ill.

Achievement: [+dynamic], [+durative]

a. In 1996, he **lost 40 pounds** for his role as a drug-addicted soldier in *Courage under Fire*.

b. In the early 1990s, he **was struggling to be success**, and, over the years, life has not always been easy.

Achievement [+dynamic], [-durative]

In 2000, he **cracked a rib** while he was playing golf in the *Legend of Bagger Vance*.

c. Group activity

Students MI and CI: given fifteen verb constellations (appeared in the passage "A pirate's amazing adventure") across four lexical categories (stative, activity, accomplishment and achievement), discuss whether the verbs could appear in the simple past and progressive contexts and how the internal structures of the events and the interpretation are in different contexts. Categorize the verbs into the table.

Table 5 The classification of verbal predicates

colors	**Green**	**Orange**	**Red**	**Blue**
Verbal predicates	Have a parrot on his shoulder Have a mental hook	Smoke a pipe Chat with the pirate Circle the ship	Drink a glass of beer Pull me back onto the board Eat me completely Board a ship Eat an orange	Ask the pirate Say Fall overboard Cut off my hand Go into my eyes

CI teacher: remind students to connect the English expressions and their meanings to that of Chinese.

5. Practice stage

Teacher: provide a topic and a series of questions; ask the students to write a story about a robbery using simple past and past progressive appropriately. While students are sharing the stories in class, provide oral corrective feedback on their use of simple past and past progressive.

Students: based on the given topic and the questions, write a story in a group of two. Share their story with another group and then with the class.

Table 4 The topic and the questions for the writing practice

Topic	A robber's amazing experience
Questions	Where was the robbery? When did it take place? How many robbers were there? Were they wearing disguises?

Were they armed?
Was anybody injured?
What were the victims of the robbery doing with the robbers arrived?
What did the robbers take?
How did they get away?
Who called the police?
When did the police arrive?
What were the robbers doing when the police arrived?
Have the robbers been caught yet?

Appendix B Questions and Responses in the Interview

Question 1: Before the instruction, have you ever noticed that Chinese distinguishes simple past and past progressive or uses different rules to express these meaning as does English?

Alice: *No.*

Betty: *No.*

Calvin: *No, I didn't. It's my first time to hear about it (the rules).*

David: *No, I didn't notice that Chinese distinguishes the two tenses before this class.*

Fanny: *No, I didn't. I didn't realize it until you talked about it in class. The rules make sense.*

Grace: *Yes, I do. I notice it (Chinese distinguishes different tenses) when I am writing English essays. However, I don't notice the rules in daily life.*

Harry: *I don't notice the rules in daily life, because we don't speak English very often. But I do notice that Chinese distinguish different tenses (aspects) as does English. For example, Wo zai ganma ("I am doing something") and wo zuo-le shenme ("I did something") are different in Chinese. They are comprehensible. I realize them both in Chinese and English. A greater in Chinese than in English.*

Iain: *As long as I use a "le" in my Chinese translation, I immediately understand if the sentence is in simple past tense and know how to express it orally in English. I do notice the tenses in Chinese in my daily life!*

Question 2: Have you ever noticed any similarities or differences across Chinese and English before the instruction, other than the grammatical rules of the tenses?

Cross-linguistic similarities	*Cross-linguistic Differences*
Fanny: *both Chinses and English have conjunctions and exclamations as well, like well and oh.*	Edie: *word orders are different, like for phrase. English postpones the adverbials. I often comprehend it with the Chinese word order.*

Grace: *there is a metaphor in both Chinese and English.*	Fanny: *Two languages have different word orders. Adverbials are postponed (in English).*

Question 3: How do you figure out the temporal information in an English text? What linguistic cues do you rely on?

Alice: *(point to a verb in the test) is the verb "reach" is a process or a completed action? … oh, it's completed.*

David: *I would read the text following the verb. If there is phrase like last week in context, I can tell the tenses.*

Harry: *Basically, I rely on the key words, like is and was, the verbs and the formal changes of the verbs. I also translate the sentences into Chinese and see if the verb and the tense fit into the Chinese context … When translating, I concentrate on general meanings of the sentences, rather than any specific words.*

Question 4: Do you usually use Chinese to support English grammar learning, like tense learning?

Alice: *Yes. When learning English grammar, I write down the rules in Chinese. I don't look for the similar grammar rules in Chinese.*

Calvin: *I am learning new knowledge! If only using English, I will understand nothing and get confused. Based on the Chinese translation, I will understand the words and sentences and learn about the functions of the rules.*

Fanny: *I never connect to Chinese. It feels like making a wild guess. I usually try to find key words in English.*

Grace: *I translate a lot! However, we cannot merely rely on translation. If so (translating), the grammar will be incoherent.*

Harry: *I first rely on Chinese and then translate the sentences into English. I often use this method (Chinese translation), because it is the only method for me. I am only able to use the language (Chinese) that I am familiar with to check the English contexts.*

Iain: *When doing English exercises, based on Chinese translation, I know how to fill in the blanks and use the collocations.*

Question 5: Has your teacher used Chinese in her English class? How does she use it?

Betty: *Our teacher uses Chinese to list the English rules and explain the rules in Chinese briefly.*

Calvin: *our teacher sometimes allows us to talk in Chinese, but she prefers us using English if we are able to.*

Edie: *our teacher also connects English and Chinese in class in case we don't understand it. Once upon a time, she also asked us to translate the sentences into Chinese. If there are sentences that we don't understand, she will explain them in Chinese. When teaching the grammar, she also explains it in Chinese.*

Question 6: How do you find the group discussion using Chinese after reading the English article in the class?

Alice: *The discussion in Chinese intensified our understanding of the text.*

Calvin: *a. The discussion in both Chinese and English are in need. We could discuss the English content that we don't understand in Chinese.*
b. There might also be something in English that we understand but couldn't pronounce. Replacing them with Chinese words supported communication and memorizing.

David: *a. The discussion in Chinese was better than that in English only. Because the English article is difficult. If I speak English, others may not be able to understand it. It's easier to talk in Chinese (with other students).*
b. I can't understand most things if the teacher speaks English only. Teacher's explanation in Chinese help me understand what was said in English before.

Edie: *a. Because we are better at Chinese. We need to think about the words when talking in English.*
b. When other students are talking in Chinese, I also reviewed the English words in mind.

Fanny: *I couldn't understand anything and would easily lose concentration if only discussing in English.*

Grace: *a. I enjoyed the discussion in Chinese. It helped us comprehend the content of the story. The discussion in English would be difficult for us as beginners.*
b. We could find the similarities across Chinese and English during the discussion.

Harry: *After the discussion in Chinese, I knew how to summarize the article.*

Iain: *The discussion in Chinese could get my thought straight regarding the content and the organization of the article.*

Question 7: Do you find presenting the Chinese rules and connecting the Chinese and English rules in class helpful learning English simple past and past progressive?

Alice: *After the class, the Chinese rules will provide prompts for translation. They also help us memorize the English rules.*

Calvin: *It was helpful. The systematic comparison of the rules made it easier for memorization.*

David: *There is a little but no much help. If I forget the rules, I will try to figure it out through Chinese translation (of the whole sentence).*

Edie: *a. It made it easier to learn. I used to translate the sentences between Chinese and English. Now I would easily figure out if the event was happening or happened based on "-le".*
b. It helps me use the rules in a long term.

Fanny: *The Chinese rules made the English rules more comprehensible and easier to be remembered.*

Grace: *The comparison of the Chinese and the English rules clearly demonstrates the completeness of the event: a person was doing at some point in the past. It strengthened my understanding of the two tenses. Before the instruction, I used –ed for all past-tense conditions without differentiating the completed and on-going events.*

Iain: *Yes. More helpful for translation and learning. Making the sentences more fluently.*

Question 8: How do you like referring to the Chinese interpretation when comprehending the meanings of the association of the verbs and inflections in English, like the association of the long-action verb (e.g., accomplishment) and the past progressive?

Alice: *Connecting to Chinese help me clearly understand the reason why some verbs can or cannot co-occur with the past progressive under certain contexts. Because according to the Chinese translation, some sentences are not logical.*

Betty: *It helps me decide whether the sentences are logical or not.*

Calvin: *the sentences sound similar in Chinese and English. Only a little different. Compared to English, we are more familiar with Chinese. But I am not used to this kind of comparison.*

David: *English is abstract for us. With Chinese, we can make use of it in our daily life. Because Chinese is our mother tongue. We have limited exposure to English. Replacing English meaning with Chinese interpretation, we vividly understand the function (of the association) and know the reason.*

Edie: *Yes, it helps! Connecting to Chinese interpretation made it easier. I realized that the words in Chinese and English are consistent. I can judge the types of action based on the temporal or other detailed information in the words in Chinese.*

Fanny: *it's quite helpful for constructing sentences and comprehend the meaning (in English).*

Harry: *this method helps memorization. I will notice it (the association) in my daily life (Chinese using) and review it anytime.*

Iain: *Connecting to Chinese is necessary and very important. It helps comprehension. I was fuzzy before the instruction. After the (cross-linguistic) instruction, my logic becomes clear. I used to rely on the English reference book. Now I can analysis on my own! It will be more flexible if I refer to Chinese interpretation.*

Question 9: If applicable, which method do you prefer in English classes, the monolingual methods or the cross-linguistic methods? Why?

Alice: *I need Chinese prompt for word learning, but not for rule learning.*

Calvin: *I like the class combining Chinese and English. For the new words, it will be easy to communicate if I know the meaning in Chinese. As for grammar, I prefer to focus on English exclusively and spend more time on English.*

David: *If all words were comprehensible, Chinese should be used as less as possible (for communication).*
Connecting Chinese and English can help us remember the rules firmly. But the rules about –le and –ed are too complicated and confusing.
As for the semantic and contextual learning, which is too profound to understand, I will use Chinese. I will use Chinese to judge if the action was completed or on-going in the past and then decide which tense is more suitable for the context.

Edie: *I prefer using Chinese. Chinese is more comprehensible and we can understand quickly and remember firmly. If using English only, I can't follow because I have to figure out what the teacher and other students are talking about.*

Grace: *The English-only class is very boring and incomprehensible. Some students might lose their interest in English. Chinese can help us understand the meaning and contexts because the contexts in English and Chinese are consistent.*

Appendix C Teacher Participant Consent Form

(This consent form is translated into Chinese)

Researcher: Shanshan Hu, B.A, McGill University, Department of Integrated Education, 438-979-8802; Shanshan.Hu@mail.mcgill.ca
Supervisor: Susan Ballinger, Ph.D., Assistant Professor, Department of Integrated Studies in Education, McGill University, (514) 398-4527 ext 094715;

Title of Project: The Cross-linguistic Transfer of Inflectional Awareness from Chinese L1 to English L2

Sponsor(s): N/A

Purpose of the Study:

As a researcher working in the area of second language education I am exploring the effect of transferring the inflectional awareness from Chinese to English on school children. This study is to explore the process and the outcome of the cross-linguistic transfer and to support the implementation of cross-linguistic pedagogy.

Study Procedures*:*

Participating in this study will involve conducting two English language art lessons for 80 minutes (two classes) and administering three language tests for a period of approximately 20-30 minutes for each test. During the instruction, you will teach English simple past and past progressive inflections or If-clauses. The teaching material will be provided by the researchers. The scores of the tests will be collected so that the researcher can do analysis based on them.

Voluntary Participation:

Participating as a participant in this study is voluntary. You may refuse to participate in any parts of the study, you may decline to answer any question, and you may withdraw from participating in the study at any time, for any reason. If you decide to withdraw from participating in this study any information you provided will be destroyed, unless you give permission otherwise.

Potential Risks:

There are no anticipated harms or risks associated with the participating in this study.

Potential Benefits:

Participating in the study might not benefit you, but will help the researcher to better understand the effect of cross-linguistic transfer. In this study, you may benefit from your practice of implementing the cross-linguistic methods in the English class. Your practice will

lay the foundation for implementing the cross-linguistic pedagogies in English class and transferring learners' aspectual inflectional awareness from Chinese to English.

Confidentiality:
In this study, your information and the information you share with the researcher will remain confidential. Only the researcher will have access to the data collected. The test results will be stored on the researcher's individual computer. She will use the data to write articles for disseminating the results. The data will be deleted once the articles are written.

Questions: If you have any questions or would like clarifications about the study, please contact Shanshan Hu (Shanshan.hu@mail.mcgill.ca), the researcher of the study, or her supervisor, Dr. Susan Ballinger (susan.ballinger@mcgill.ca).

If you have any ethical concerns or complaints about your participation in this study, and want to speak with someone not on the research team, please contact the McGill Ethics Manager at 514-398-6831 or lynda.mcneil@mcgill.ca".

Consent to participate
Please sign below if you have read the above information and consent to participate in this study. Agreeing to participate in this study does not waive any of your rights or release the researchers from their responsibilities. A copy of this consent form will be given to you and the researcher will keep a copy.

Participant's Name: (please print) _____

Participant's Signature: _____

Appendix D Student Participant Consent Form

(This consent form is translated into Chinese)

Researcher: Shanshan Hu, B.A, McGill University, Department of Integrated Education, 438-979-8802; Shanshan.Hu@mail.mcgill.ca
Supervisor: Susan Ballinger, Ph.D., Assistant Professor, Department of Integrated Studies in Education, McGill University, (514) 398-4527 ext 094715;

Title of Project: The Cross-linguistic Transfer of Inflectional Awareness from Chinese to English

Sponsor(s): N/A

Purpose of the Study:

As a researcher working in the area of second language education I am exploring the effect of transferring the inflectional awareness from Chinese to English on school children. This study is to explore the process and the outcome of the cross-linguistic transfer and to support the implementation of cross-linguistic pedagogy.

Study Procedures*:*

Participating in this study will involve taking two Chinese reading classes for 80 minutes (two lessons), taking three English language tests for a period of approximately 20-30 minutes for each test and probably taking an interview to talk about the English learning and the English class. During the instruction, you will learn about an English grammatical feature. The scores of the tests will be collected and the interview will be recorded and transcribed so that the researcher can do analysis based on them.

Voluntary Participation:

Participating as a participant in this study is voluntary. You may refuse to participate in any parts of the study, you may decline to answer any question, and you may withdraw from participating in the study at any time, for any reason. If you decide to withdraw from participating in this study any information you provided will be destroyed, unless you give permission otherwise.

Potential Risks:

There are no anticipated harms or risks associated with the participating in this study.

Potential Benefits:

Participating in the study might not benefit you, but will help the researcher to better understand the effect of cross-linguistic transfer. In this study, you may benefit from the Chinese instruction and improve your language proficiency.

Confidentiality:

In this study, your information and the information you share with the researcher will remain confidential. Only the researcher will have access to the data collected. The test results will be stored on the researcher's individual computer. She will use the data to write articles for disseminating the results. The data will be deleted once the articles are written.

Questions: If you have any questions or would like clarifications about the study, please contact Shanshan Hu, the researcher of the study Shanshan Hu (Shanshan.hu@mail.mcgill.ca), or her supervisor, Dr. Susan Ballinger (susan.ballinger@mcgill.ca).

If you have any ethical concerns or complaints about your participation in this study, and want to speak with someone not on the research team, please contact the McGill Ethics Manager at 514-398-6831 or lynda.mcneil@mcgill.ca".

Consent to participate

Please sign below if you have read the above information and consent to participate in this study. Agreeing to participate in this study does not waive any of your rights or release the researchers from their responsibilities. A copy of this consent form will be given to you and the researcher will keep a copy.

Participant's Name: (please print) _____

Parent's Name: (please print) _____

*Parent's signature:*_____

Date

Appendix E Cloze Test

Passage 1

Hi. my name is Nick. Yesterday was terrible for me because I (stay) stayed at home all day. I (like) like outdoor activities, but it was raining outside. I could not go out. I tried to invite my friend Bill over for a movie. When I (call) called him, nobody answered the phone. I wanted to play with my sister at home but she (work) was working on her homework, so I watched TV alone. When I (watch) was watching a TV show, Bill returned my call and said he was too busy to come over. I (watch) watched the TV show until lunch time. Then, I (cook) cooked some noodles for lunch. After lunch, I sat by the window and watched the street. As I (look) was looking, I saw an accident. A car didn't stop at the traffic light and hit another car. Unfortunately, the drivers (injure) were injured. After five minutes, I heard an alarm coming from far away. An ambulance (arrive) was arriving.

Passage 2

My friends and I always (play) play football during the weekend. Two weeks ago, I injured my knee while I (play) was playing football. I had to stay indoors to recover. When I (stay) was staying at home, my mother was taking good care of me. This morning, I was feeling better, so I planned to do some outdoor activities. When I (decide) was deciding where to go, I heard a knock at the door. I (open) opened the door. It was my friends! We (decide) decided to go to the park to play football together. Everyone (excite) was excited that I came because my team needed me! Then, we (walk) walked to the park together. When we (reach) reached the park, we saw another group of boys playing football there. We (wait) waited for a while. After they finished the game, we had a discussion and created two teams for a match. Everyone in my team (play) played very hard. It was the greatest match of all time.

Passage 3

Now My friend Amy (play) is playing a special song on her piano. She (enjoy) enjoys playing and listening to music in her spare time. Yesterday was Amy's birthday. One week ago, I got a phone call from her. She said she (call) was calling to invited me to her birthday party. Then, I (try) tried to compose a song for her as a gift, so I spent all my spare time doing it. Every day last week, I (work) worked on my homework at school, so I could create the song throughout the night at home. Finally, I created a nice birthday song. Yesterday when I (walk) was walking to Amy's place, I met Linda. Linda was also going to the party and was bringing a cake. When we arrived, Amy (wait) was waiting for us at the gate. Then, we left the cake in the kitchen. We saw that Amy's mother (cook) was cooking dinner there. Later, I performed the song which I created on a piano. Amy liked it very much. She said the song (sound) sounded beautiful. People were singing and dancing while I was playing the piano. We (have) were having such a great time when suddenly we heard a crash from the kitchen. Amy's cat had knocked the cake off the table. It was smashed on the floor!

Passage 4

Yesterday, my father and I (have) had a horrible time. It was raining very hard when the bus left the school. When I (arrive) arrived at home, I saw my father standing at the door. He (2. shout) shouted at me to run into the basement. When we saw that a tornado was coming towards our house, my father and I (try) was trying to run towards the stairs. But it was too late. The tornado passed over us just as we (reach) were reaching the stairs. We (close) were closing the door when the wind suddenly pulled it off. It was very dark. For five long minutes, the tornado was blowing furniture and debris around the room, while the noise (sound) was sounding as loud as a train. Suddenly the wind stopped. I heard my father (shout) was shouting for help. When I (look)

looked at him, he was in a lot of pain. His leg was hurt badly. I immediately sent him to the hospital. Now, my father (lie) is lying in the hospital. He (10. stay) will stay there for two weeks.

Test B

Passage 5

Ann is outgoing. She (likes) likes doing sports outside in her spare time. Yesterday, it was raining and thundering all day. Ann was stuck inside the house. Ann (try) tried to keep busy inside the house, but nothing worked. When she (watch) was watching a TV show, the electricity went out. Then, she (decide) decided to play the piano, but when she (play) was playing, her older sister told her to be quiet. Finally, she (cook) cooked lunch. While she was having her lunch, her brother (call) called. Her brother said he was coming home and was bringing a new board game. She was excited. Ann (wait) was waiting for him at the door when his brother arrived. Then, they played the board game. While they (play) were playing games, the rain stopped! Ann didn't even notice because she (have) was having such a good time with her brother!

Passage 6

Last night, when I (cook) was cooking dinner in the kitchen, the telephone in the living room rang. When I (reach) was reaching over to answer the phone, the ring stopped. I (wait) waited for a while, the telephone rang again. I answered the phone. It was Angela. Her voice (sound) sounded nervous, so I asked where she was. She said she (call) was calling me on her cell phone from her math class. I couldn't believe she was making a phone call during class. She said that the math class was too difficult. She couldn't understand anything. She said she (decide) was deciding if she needed to take an afterschool math class. I told her that last term I also (have) had a hard time learning math. Taking an afterschool class was very helpful for me. I suggest she

could take the afternoon class tomorrow with me. While we were talking, I heard that the teacher (shout) shouted at her. Angela hung up the phone in a hurry. Now, we (8. take) are taking the afterschool class together. She (listen) is listening carefully.

Passage 7

When Nate was in high school, every Friday, he complained that he (arrive) was arriving home with tons of homework, so, he (stay) stayed at home doing homework every weekend. One Sunday night, when Nate (work) was working on his homework at home, it was very noisy outside. He heard that someone (shout) was shouting for help. When he (look) looked through the window, he saw an old empty building near his apartment was on fire! He (10. open) opened door and rushed outside with his cell phone. As he (was) was trying to call the fire department, the firefighters showed up. After five minutes, the policeman also (6. arrived) arrived. During the time that the firefighters were fighting the fire, Nate was recoding a video with his phone. After the fire was finally out, Nate went back. When he (open) was opening the door, he found the door was locked and he didn't have the key. He knocked the door and his mother opened it. Then, he (work) worked on his homework until 12 o'clock. Before going to bed, he (watch) watched the video he recorded. He found he captured a few amazing moments.

Passage 8

Jams is a bank manager. He (live) lives in London with his family. Now, he (tell) is telling us a surprising story happened to him a few years ago. Before moving back to London, he (stay) was staying in New York with his cousin. As a student, James (walk) walked to home from school every day. One afternoon, he (walk) was walking to home when he saw a dog in the middle of the road. As he passed by the dog, the dog was barking and starting. The bark (sound) was sounding very strange, so James stopped and turned around. As he (look) was looking at the dog,

the dog ran into the bush. When James kept on walking, the dog jumped out and rushed towards James. It (reach) reached James' side in a second. Then, the dog started to drag James' feet towards the bush. Suddenly, he saw a little boy lying on the brush. He was in a lot of pain. James asked him what was going on. The boy said he (play) played football alone this afternoon. The ball got into the bush, so he walked into the bush to search it. Unfortunately, he tripped over a branch and sprained his ankle.