

Inception vs Completion: Comparing the Effects of Two Treatments on the Acquisition of *le*

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Abstract

This study aims to explore the effects of two instructional treatments on adult English-speaking Chinese learners' learning of the Chinese particle *le*. Previous studies reveal that adult English-speaking Chinese learners' performance on *le* structures is subject to the influence of the time grammar of English. Drawing upon Input Processing theory, English-speaking Chinese learners' performance on *le* structures correlates to their awareness of the syntactic uniqueness of *le*, and the awareness may vary according to the way *le* is introduced. That is, the influence of time grammar on learners may be either strengthened or weakened depending on how learners' attention is directed at the stage of input. In this sense, this study hypothesizes that the time-analysis based (completion-oriented) instruction will differ from the fact-analysis based (inception-oriented) instruction in effects on English-speaking Chinese learners' learning of the Chinese particle *le*. Specifically, learners exposed to the inception-oriented treatment will develop processing strategies that are less subject to time grammar. Relatively, learners exposed to the completion-oriented treatment will be more susceptible to the influence of time grammar transfer in the processing of *le* structures.

An experiment was conducted to compare the effects of the two instructional treatments, and the results of the experiment support the conclusion that the instructional treatments caused differences the two groups' performances.

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Chapter 1: Introduction

The Background

With the development of China, the interest in learning Chinese as a foreign language has seen exponential growth worldwide. The major differences between Chinese and other languages, especially Western languages, have received close examination over the past two decades, which has not only deepened the understanding of Chinese grammar, but also provided improved instruction to adult English-speaking learners who study Chinese as a foreign language (henceforth ECFL learners). However, Chinese, while sharing universal principles with all other languages on a superficial level, also has some unique parameters that create problems for ECFL learners. Among them is the understanding of the Chinese particle *le*.

Previous syntactic studies have concentrated on interpreting the function of *le* in terms of aspect. Aspect indicates how an event unfolds in the event's own right. And the perfective aspect is specifically about the completion/completedness of an event/situation (Comrie, 1976). To decode the function of *le* in Chinese, syntactic studies have focused on how the speaker's speech time, viewpoint, observed time, and verb types (lexical aspects, see Smith 1997) can determine the temporal meaning of *le* phrases (Klein, 1995; Klein & Li, 2000; Li & Thompson, 1981; Smith, 1997). The majority of studies in literature mainly tackle the function of *le* according to the two-*le* approach. That is, *le* is examined as two separate items: a perfective aspect marker (also known as *verbal le*, in the *verb-le-object* structure; see Li and Thompson 1981) and a new situation marker (also known as *sentential le*, in the *sentence-le* structure; Li and Thompson 1981). Based on the two-*le* approach, the accounts for *le* in grammar books and textbooks

generally explain the functions of *le* as a “completed action” (corresponding to the perfective aspect) marker and as a “new situation” marker (corresponding to the imperfective aspect).

Despite the insightful findings along this line, there are still deficits that need to be addressed: First, the principles generalized in the two-*le* account are not accurate. There are exceptions to the generalization that *verbal le* indicates the perfective aspect, and there are examples showing that *sentential le* may also be understood as marking the perfective aspect (赵世开, 1984). For instance, 下雨了 *xia yu le* “fall rain LE”, in the form of *sentential le*, can be used to mean either *It is raining* or *It rained*. Second, the two-*le* account mainly focuses on interpreting what *le* means in a Chinese sentence, while paying little effort in elaborating what conditions entail the use of *le*. According to the two-*le* account, the meaning of *le* in Chinese can only be determined by considering both the development of situation and the speaker’s viewpoint jointly: when the viewpoint is situated after the situation, the aspect is understood to be completed; when the viewpoint is within the situation, the sentence is understood to be on-going. However, completed actions and on-going situations in Chinese do not necessarily consist in *le* structures. Put differently, the extant two-*le* account is not sufficient for ECFL learners to be able to produce *le* or *non-le* structures properly. Third, based on the two-*le* account, the proper processing of *le* sentences relies on whether the speaker’s viewpoint can be correctly located with reference to the development of the situation, which further relies on the identification of the verb’s ending point, i.e. whether the ending point of the situation is explicit or not.

Unfortunately, the ending point is only explicit with certain verbs, i.e. achievement verbs and accomplishment verbs in Chinese. The ending point of activity verbs and stative verbs is generally implicit (Smith, 1997). As such, ECFL learners under the instructions based on the two-*le* account tend to overuse *le* with achievement verbs and accomplishment verbs that are not

supposed to go with *le* and underuse it with stative verbs and activity verbs that are supposed to go with *le* (Wen, 1995, 1997; Teng, 1999; Ke, 2005). All the revelations achieved in previous studies on *le* point to the fact that ECFL learners' problems in acquiring *le* are related to "past-tense transfer": students had a hard time detailing the properties of verbs, the speaker's viewpoint, etc., and tended simply to default using *le* as a marker of past tense in Chinese.

On the other hand, there is another syntactic account on *le*, which argues that *le* only has one function—to mark the inception/occurrence/existence of a situation (Teng, 1977; Shi, 2000; Xiao and McEnery, 2004). This single-function-*le* account (henceforth one-*le* account) relies more on the contrast in context (meaning-based) and less on time analysis (form-based). For some reason, the one-*le* account is rarely adopted in textbooks, and thus it is unclear whether it has better effects on ECFL learners' learning of *le* or not. However, according to Input Processing theory (henceforth IP), language learners' output performance correlates to the input they receive. In the case of *le* performance, ECFL learners' learning of *le* is constrained by the way *le* is presented, which involves syntactic account, pedagogical method and instructional design,

Against this backdrop, this study postulates that the one-*le* account may affect ECFL learners' learning of *le* differently. The idea is that ECFL learners' performance correlates to their awareness of the function of *le*, and the awareness may vary according to the way *le* is introduced, i.e. the connection between past tense and *le* may be either strengthened or weakened depending on how ECFL learners' attention is directed at the stage of input. Therefore, this study aims to compare the effects of two instructional treatments on *le*, in the same PI model, on ECFL learners' performance.

Learners' Performance and Acquisition Studies on *le*. It can be argued that defective demarcation on *le* may result in various types of errors in ECFL learners' grasp of the functions of *le*. Acquisition studies on *le* have surveyed adult ECFL learners' performances in *le* production and documented a variety of errors (Duff, 2002; Pan, 2013; Teng, 1999; Wang, 2007; Q. Wang & Peng, 2013; Wen, 1995, 1997; Yang, Huang & Cao, 2000; Yang, Huang & Sun, 1999). These errors can be categorized into two types: overuse and underuse. In these studies, depending upon the meaning of the verb or the focus of the sentence, *le* is sometimes required and sometimes forbidden in certain positions. ECFL learners on the beginning level, who were taught that *le* either marks a completed action or a new situation, are mostly not well equipped to determine whether *le* is necessary or not. Their errors were interpreted as indications of past-tense transfer from English. However, the relationships between past-tense transfer and these errors were only examined at the production level.

The factors that might contribute to ECFL learners' performance at earlier stages are largely ignored. Under the assumption that there are two separate *les*, previous acquisition studies mainly revolved around which *le* was acquired first, which *le* was easier to acquire, and the categorization of errors in *le* structure production. These studies varied in purposes, hypotheses, concentrations, subjects (levels, numbers, grouping methods, etc.), teaching and learning methods, testing methods, grouping methods, etc. In addition, none of these studies addressed the acquisition of *le* by examining input as a variable, while how *le* is taught does have crucial influence on learners' performance. Therefore, the conclusions of the previous studies on the acquisition of *le* are not comparable as the input methods were not controlled. At the same time, despite the ongoing syntactic debate about whether there is one *le* or two, the influences of

different syntactic accounts on learners' acquisition have never been compared in acquisition studies.

Linguistic Insights into the Causes of Errors with *le* Structures. There are linguistic factors that contribute to ECFL learners' problems in the acquisition of *le*. First, there is the complexity of *le* structures: *le* can appear in the form of *verb-le*, *verb-object-le*, *verb-le-object*, and *sentence-le*. These forms can have different temporal meanings and there are restrictions on these forms on the discourse level, syntactic level, and the lexical level¹. There are cases where the pragmatic meanings of different forms are the same, but the semantic and syntactic functions are different. For instance, the pragmatic meanings of 到北京了 *dao Beijing le* “arrive Beijing *LE*” and 到了北京 *dao le Beijing* “arrive *LE* Beijing” are the same: *arrived in Beijing*.

However, the syntactic functions are not the same: 到了北京 *dao le Beijing* “arrive *LE* Beijing” can be used to indicate a point of time whereas 到北京了 *dao Beijing le* “arrive Beijing *LE*” is generally used to indicate a state. These subtle differences between different *le* structures are beyond the explanatory power of different versions of the two-*le* theory.

Second, following the two-*le* approach, the properness of the adoption of [+*le*] / [-*le*] is related to the lexical aspect, i.e. the accomplishment, achievement, activity or state (tailored from Smith, 1997) of verbs. Depending on the availability of the ending point, verbs show different amenabilities in accommodating *le*: Syntactically, *le* is always allowed with endpoint-present verbs such as 到 *dao* “arrive”, 停 *ting* “stop”, etc. whose aspectual meanings are mostly

¹ Li and Thompson (1981) argued that the use of *sentential le* is mostly determined on the discourse level and Lixia Ma (2002) studied the acquisition of *le* on the discourse level. However, this study argues that meanings carried by *le* in discourse must be based on more solid syntactic function. Therefore, this study will focus on the syntactic meaning and lexical function of *le*.

perfective. However, the aspectual meaning is more complicated when *le* accompanies endpoint-implicit verbs, such as 有 *you* “have”, 吃饭 *chifan* “eat food” etc. The use of *le* with these types of verbs may cause ambiguity or even errors. For instance, in 爱小美 *ai Xiaomei* “love Xiaomei”, 爱 is understood to be a stative verb in Chinese. The use of *le* in this phrase in the *verb-le-object* form, 爱了小美 *ai le Xiaomei* “love LE Xiaomei”, will enforce temporal boundaries on the phrase causing this “unbounded state” to become a “bounded situation” and thus unqualified to express the state of *being in love with Xiaomei*. As revealed by previous acquisition studies, the reliance on the aspectual property of verbs is one of the major causes for ECFL learners’ errors in *le* sentence output, as they are not aware that the use of *le* may change a verbal phrase’s lexical property and cause contradictions in meaning.

Third, time grammar in Chinese can be different from that in English. The aspectual information that *le* encodes is different from the concepts of the perfective aspect and past tense in English. Specifically, *le* may only concern the beginning point of an event/situation (Teng, 1977; Shi, 2000; Xiao and McEnery, 2004); while the perfective aspect relies on the presence of the ending point of an event/situation, and the past tense is based on how an event/situation is placed in the speaker’s temporal viewpoint. ECFL learners tend to perceive an event/situation in the past tense as “completed” with reference to the speaker’s speech time. However, the perfective aspect and past tense may not have a direct bearing on the use of *le* in Chinese. In fact, instead of being marked by *le*, the completion of an event/situation is spelled out through interactions between the verb, *le* and the object of the verb (if available) in a *le* structure. On the same note, instead of being encoded in the form of verbs, the tense of events/situations in Chinese is spelled out through overtly marked or covertly indicated sentence time.

The investigation on the relationship between sentence time (present time and past time, in this study) and verb form ([+le] and [-le]) is not sufficient. Depending on the combination types, there are four types of [+le] or [-le] structures, i.e. present time [+le], present time [-le], past time [+le] and past time [-le]. In order to interpret the function of *le* properly and completely, besides in what situation *le* is obligatory, a syntactic account also needs to be able to explain in what situation *le* is forbidden. At the same time, besides being able to interpret the meaning of [+le] or [-le] form in perception, an account also needs to be able to predict whether [+le] or [-le] form is needed in production. Unfortunately, the syntactic accounts on *le*, so far, have only been focused on the relationship between [+le] form and sentence time, from the perceptive perspective.

Curriculum Insights into the Causes for Errors with *le* Structures. As documented in acquisition studies, ECFL learners, especially those at the beginning level, have a hard time deciding whether *le* is apt or not when simply looking at a situation in terms of simple completedness/in-completedness (Wen, 1995). ECFL learners may take a situation as “completed” based on the time grammar in English and opt for [+*le*], whereas, in fact, in particular situations, *le* is forbidden in Chinese, as, for example, in the case of the statement *He lived in New York* which is in past time, completed situation but cannot be rendered *他住在纽约了 *Ta zhu zai Niuyue le. He live in New York LE*. Similarly, ECFL learners may be confused about what makes a situation “new” and may not understand how to look at the lexical aspect or completion of a verb to determine this. For instance, to express the idea *He has fallen in love with Xiaomei* as a new situation, *le* is disallowed in Chinese; however, to express the idea *He has begun attending classes*, *le* is required in Chinese. In either case, the “new situation” account is not sufficient for learners to choose the proper verb form in production. The two-*le* account is not explained well enough for learners to get the information encoded by *le* in perception either. For instance, upon perceiving a sentence involving *le*, ECFL learners, especially those at the beginning level, tend to mistake it as indicating that the situation is in the past while in fact it may be in the present, as illustrated in 下雨了 *Xia yu le. Fall rain LE* in the meaning of “It is raining”.

Because *le* is understood as two different items, the sequence of introduction raises another issue. Using the two-*le* account, the *verb-le-object* structure is usually introduced to learners before the *sentential le*. This sequence effectively avoids the obscurities in the *verb-le*

structure² but is equally problematic because the sequence and the way *le* is taught disguises the potential internal interactions between *verb-le* and the verb's object³. In other words, the *verb-le-object* before *sentence-le (verb-le)* sequence effectively dismisses the possibility of revealing the different temporal meanings connoted by *verb (-object)-le* and *verb-le-object* and of illustrating that the difference is actually derived from the interactions between different elements based on ordering. To be clear, what this study argues is not that the *verb-le-object* before *sentence-le* order is wrong, but that it has its downside which may be negatively related to overall acquisition of *le*. In fact, some studies partially attribute the difficulties learners have in learning *le* to this ordering effect and propose that *sentential le* should be taught before *verbal le* because the notion of “new situation” or “change of state” is easier for learners to grasp than “completed action” (Teng, 1999). However, in-depth examinations of this type are still missing from the literature.

What may be convenient yet equally problematic is the sample sentences used in textbooks and classroom teaching are filtered so that it is always correct to use *le* in perception/production and to understand it as a marker of “completed action” or “new situation.” In other words, the verb type and situation type choices in textbooks and grammar books have been conveniently skewed toward “completed action” or “new situation” while turning a blind eye to different readings that may also be carried by the same target structure. For instance, 我喝了一杯茶 *Wo he le yi bei cha. I drink LE a cup of tea* is selected to support the premature generalization that “the *verb-le-quantified object* structure renders a ‘completed action’ reading”,

² *Verb-le* may be understood as a completed action, an ongoing situation or a new situation.

³ The analysis of the interactions, although not sufficient to overcome tense transfer, do help learners to figure out the completedness of the topic event/situation, which is missing in the instructional design based on the two-*le* account.

and the meaning is conveniently provided to learners in the past tense, in this case, “*I drank a cup of tea.*” Teaching *le* in this way may be handy but it can also be “harmful” because there are cases in which the *verb-le-quantified object* structure does not indicate “completed action” (e.g. 我养了一条鱼 *Wo yang le yi tiao yu. I raise LE a CL fish “I have a fish”*) and is not necessarily confined to the past (e.g. 我喝了这杯茶就上班 *Wo he le zhe bei cha jiu shangban. I drink LE this cup tea then go to work. “I will go to work as soon as I finish this cup of tea”*). However, the exceptions to the prematurely generalized rules are largely conveniently excluded in the curriculum. As a result, instead of being effectively addressed, ECFL learners’ wrongful impression that *le* is related to the past tense is repeatedly enforced. As such, regardless of how many times grammar books, textbooks and the instructors theoretically stress that *le* is not a marker of the past tense, ECFL learners, especially those at the beginning level, continue connecting it to the past tense. (Wen, 1995; Teng, 1999; Ke, 2005).

Admittedly, there are other factors that contribute to ECFL learners’ past-tense transfer in learning *le*: the tendency to prefer lexical meanings over grammatical meanings/mechanisms in sentence processing in the early stages, for example, may cause ECFL learners to overlook the function of *le* as a grammatical marker regardless of how and in what order it is taught. However, it is still feasible to examine to what extent curriculum design is related to this natural tendency or to what extent curriculum design may be relied on to counter this tendency.

Pedagogical Insights into the Causes for Errors with *le* Structures. Pedagogical approach is always a factor in language acquisition, and its role has been extensively investigated in the field. Unfortunately, studies of ECFL learners' acquisition of *le* have mainly centered on performance in an "as is" manner—the impact of pedagogy on the learners' performance on *le* has barely been mentioned in the literature of acquisition studies, let alone systematically investigated. However, to serve the goal of improving learning efficiency, pedagogical model needs to be examined as a factor.

In fact, according to IP theory, pedagogical method alone may exert a significant influence on learners' performance. The idea is that, cognitively speaking, the acquisition of a grammatical item involves four stages: input, intake, restructuring, and output. The stage where input turns into intake is especially critical in acquisition because, at this stage, learners might interpret the input in an unexpected way and end up storing erroneous information in their interlanguage resulting in mistakes in output. To effectively avoid erroneous or unexpected intake, it is ideal to manipulate the input so that learners' attention may be directed to the crucial features of the target grammar and thus improve the accuracy of what is learned. This theory has been developed into Processing Instruction model (henceforth PI), which many studies have shown to be effective in facilitating foreign language acquisition (VanPatten, 1996, 2002; VanPatten & Cadierno, 1993). There are five basic principles of PI to keep in mind in ideal pedagogical practice: First, learners need to be informed of the difference between the target item and potential miscalculations. Second, learners need structured input that precisely illustrates the difference between the target item and the potential miscalculations. Third, using structured input, learners' attention must be accurately directed to the difference identified. Fourth, learners need to do something to reinforce what is illustrated by the structured input.

Fifth, instructors must remember that learners prefer processing lexical items over grammatical items for the same semantic information (VanPatten, 2002).

Although there is no record in the literature of how the adoption of PI may affect the acquisition of *le* in Chinese, previous acquisition studies nevertheless indicate the ways in which PI principles were violated in the pedagogical approach in the teaching of *le*, and how the issues that contribute to the errors mentioned in previous sections may be anticipated using the PI model. One of the PI principles is that learners should be informed of potential mistakes through structured input. Based on the two-*le* account, learners' attention should be directed to how the perfectivity of the event/situation should be parsed, i.e. when it is perfective and when it is imperfective (Li and Thompson, 1981; Smith, 1997). However, the extant pedagogical models, regardless of whether they introduce *le* as marking "a completed action" or "a new situation," pay little effort to disentangle different readings of the same structure or different structures that have a similar reading. Consequently, unaware of other potential readings that *le* can carry, learners tend to mistake the phrasal meaning of a *le* structure as *le*'s function and thus intake erroneous information about *le* and apply it incorrectly afterwards. For instance, rather than focusing on how the verb's lexical aspect and the quantified object interact with each other and yield a completed reading (as shown in 喝了一杯茶 *He le yi bei cha*, *Drink LE yi CL tea*), learners are taught the over-generalized function that "*le* marks 'completed action' (in the *verb-le-object* form)", and thus make mistakes when the interactions work out differently, as in 我养了一条鱼 *Wo yang le yi tiao yu*. *raise LE a CL fish*, the meaning of which should be "I have a fish", rather than "I had a fish" which erroneous rendering occurs because students assume that the *verb-le-object* structure indicates a "completed action". Unfortunately, extant pedagogical

approaches are generally insufficient in revealing the relationship between the functions of *le* and the principles of time grammar in English in details.

Research Topics and Research Questions

According to IP theory, learners pay more attention to lexical meanings than to grammatical meanings in processing. Concerning the function of *le*, the two-*le* account focuses on the ending point of a situation, in the sense that *verbal le* marks the presence of ending point of a situation (completion) while *sentential le* marks the entirety of a situation (new situation), both of which are spelled out by the interaction between the verb's lexical aspect and the speaker's viewpoint. This interpretation involves multi-step processing which can create problems when there is a competition between grammatical processing and lexical processing. By contrast, *le* may be easier for ECFL learners to grasp if its function is introduced in a more meaning-based way, i.e. as a marker of *inception* rather than *completion*. Unlike completedness, which consists of different elements and relies on flexible interactions, the idea of the inception of an event/situation is lexically self-explanatory, and thus the meaning is not as susceptible to the influences from other elements.

On the other hand, the inception-*le* account has its downsides: the concept of contrast underlying the inception or the occurrence of a situation may not be easy for ECFL learners to grasp in that this concept does not have counterpart in English, regardless of whether syntactical or lexical. Based on the one-*le* account, the function of *le* does not have its independent meaning; however, it is not interpreted as a clear-cut grammatical rule either. As such, this adoption of one-*le* account in teaching raised an interesting question for IP theory: if meaning has priority over form in processing, what will happen if the interpretation of the target structure is somewhere in between meaning and form?

Research Topics. This study postulates that the inception-oriented account and completion-oriented account have different influences on ECFL learners' learning of *le* and carries out an experiment to explore whether it is true or not⁴. Drawing upon Smith (1997), Klein and Li (2000), and Xiao and McEnery (2004), the inception-oriented account consists of the idea that there is only one *le*, and it only marks the inception/occurrence of a situation and is NOT directly related to perfective aspect as overtly marked in English. As illustrated by the two readings of 他睡觉了 *Ta shuijiao le. He sleep LE*, i.e. either “He is/was sleeping” or “He has/had slept”, the completion-based account focuses on whether his sleeping has finished or not, which involves analyzing the interactions between the verb's development and the speaker's viewpoint, whereas the inception-based account focuses only on what is shared by the two readings of the situation—the occurrence of sleeping. In fact, what is meaningfully stressed by the sentence, and what is shared by the two different temporal readings, is simply the inception of sleeping *per se*—the completedness, whether it is completed or on-going, adds little, if anything, to the intended focus of the sentence. In this sense, compared to the completion-oriented account, the meaning of a *le* structure in the inception-oriented account is less subject to the influence of time grammar in English.

Since the major problem for ECFL learners in *le* acquisition was identified as past-tense transfer, the effects of the two accounts on ECFL learners will be measured through learners' success in overcoming the influence of the tense grammar. To this end, this study will confine the comparison to the *verb-le* structure. Compared to other *le* structures, the simplicity in form

⁴ Strictly speaking, however, what was tested in this study was not ECFL learners' acquisition, but their short-term learning efficiency of *le* structures. Due to the design of the textbook and the learners' limited learning experience (only around two months), it was unrealistic to conduct an experiment to examine ECFL learners' true acquisition of *le* structures by provoking free, unconscious production of [+*le*] and [-*le*] sentences. On the other hand, it is still feasible to examine the short-term effects of different instructional approaches.

and flexible completedness-coding mechanism make *verb-le* a better structure for illustrating the way that syntax and pedagogy are interwoven in *le* acquisition and how the two accounts differ from each other in interpreting *le*⁵. Because this study is based on the IP principle that learners attend to meanings more than forms, and because it hypothesizes that the inception-based account facilitates the acquisition of *le* differently from the form-oriented completion-based account, how learners' attention is directed becomes a key issue. For this reason, PI, known for its advantages in manipulating learners' attention through structured input, is adopted as the pedagogical method.

PI, Perfectivity, and the Two Accounts. The perfectivity (completedness) of a situation is one of the major cues that ECFL learners rely on in processing Chinese sentences (Wen, 1995, 1997). According to the inception-based account, what *le per se* marks is just the inception/occurrence of a situation. In this sense, *verb-le* only indicates either the occurrence of a situation on the lexical level or a new state on the sentence level (Teng, 1977; Shi, 2000; Xiao and McEnery, 2004); the perfectivity of the situation is not the concern of *le* in Chinese at all. As such, with PI and the inception-oriented account, the instructor will only need to stress the idea of inception and thus freeing learners from looking at the ending point of a situation through structured input. On the other hand, with PI and the completion-oriented account, the processing of a situation relies on the parsing of the ending point of the verbal phrase. Therefore, the instructor has to illustrate the way the verb's lexical aspect interacts with the speaker's viewpoint and determines the aspectual reading. For instance, 我上课了 *Wo shangke le* "I have class LE"

⁵ The *verb-le-object* structure is not ideal for this study in that it involves more steps in order to fully illustrate the meaning of *le* with both accounts, which, according to IP theory, should be introduced after *verb-le* has been introduced.

may be understood as an on-going situation when the speaker's viewpoint is placed in the middle of 上课 *shangke* (having class), and a completed situation when the viewpoint is placed after 上课 *shangke* (having class). With the inception-oriented account, however, learners only need to know that the occurrence of a specific event of having class is introduced; whether it is completed or not will not be considered. Therefore, the information decoded by the inception-*le* learners is simply the occurrence of the fact of 上课 *shangke* (having class) in a time-free manner. By contrast, two-*le* learners have to analyze the sentence by first looking at the lexical aspect of the verb, i.e. activity, in this case, and then figuring out the speaker's viewpoint by looking at the context, and then combining the lexical aspect with the viewpoint to decide on the meaning, i.e. "*I had class already*" (completed action), or "*Now my class has begun*" (new situation), depending on the time in the context. In sum, inception-based account views situations from a factual perspective, whereas completion-based account views situations from a temporal perspective. Though the processing mechanisms differ, the final meanings the two groups perceived should be the same within certain contexts if the sentence is processed properly.

PI, the Two Accounts and Tense Grammar Transfer. Most of the errors found in previous acquisition studies on learning *le* have been diagnosed as due to past-tense transfer, based on the correlations between overuse and ascertained past time, and underuse and unascertained past time (Wen, 1995, 1997; Teng, 1999; Duff and Li, 2002; Yang, Huang and Sun, 1999; Yang, Huang and Cao, 2000; Wang and Peng, 2013). However, the ways in which instruction treatments correlate to past-tense transfer in learning *le* have not been specifically elaborated. In fact, although all the grammar notes clarify that *le* is not a marker of past tense, which is also repeated by instructors in class, it seems simply inevitable that ECFL learners will perceive *le* as a marker of past tense.

According to IP theory, ECFL learners' past-tense transfer errors can be caused by two factors: First, unawareness of the difference between the aspectual reading *le* encodes and the perfective aspect in English. Learners tend to use *le* when the action of the verb is deemed to be completed, either by lexical type (i.e. accomplishment and achievement, which indicates completion), or by word cues (e.g. 已经 *yijing*, "already") and they are confused when such hints are not present (Wen, 1995, 1997)⁶. Second, miscalculated correlation between verb form and sentence time. Tense grammar is prioritized when ECFL learners process verb form and time in Chinese. For instance, *worked in New York* and *went to New York* are the same in terms of tense and aspect, but are different in their need for *le* in the Chinese versions.

Accordingly, the two syntactic accounts entail two different attention-guiding approaches, which are supposed to have different effects on ECFL learners' learning of *le*

⁶ While this phenomenon may be interpreted as influence from the perfective aspect in English, it may also be viewed as tense transfer in that the *le* was used most correctly in situations in the past tense in previous acquisition studies. In this sense, the perfective aspect and the past tense are interwoven and the subtle distinction between them does not have much bearing on the current study.

structures. Specifically, the completion-oriented account provides detailed form-based analysis and understand the topic situation by its aspect, i.e. whether the situation is perfective or imperfective, and how the situation can be understood with a certain sentence time. The inception-oriented account, on the other hand, concentrating only on the difference between the specific inception of a situation and its general form, pays more attention to the context, i.e. whether a contrast between general and specific is stressed or not. Consequently, the inception-oriented learners will develop a less time-reliant processing strategy and the completion-oriented learners will still rely on time grammar in English.

Theoretically, past-tense transfer should be the past time version of general tense grammar transfer. The logic is, if past time induces certain forms of verb, then non-past time must induce verb forms other than what are hinted by past time. Since the current study examines the general relationship between time and verb form, in the potential influence of present tense grammar from English would also be addressed. Therefore, instead of past-tense transfer, this study takes the influence of tense grammar in a broader sense, as tense grammar transfer.

PI with Different Focuses. Adopting PI as the pedagogical model, this study taught the *verb-le* structure separately to two groups: The inception group took *le* as a marker of the inception of an event/situation whose meaning centers on the occurrence of the situation *per se* and thus is independent of any completion-based grammar rules and tense-based rules while the completion group took *le* as a marker of either “completed action (perfective aspect)” or “new situation (imperfective aspect)” whose meaning is determined jointly by the lexical aspect of the verb and the speaker’s viewpoint and thus might be more subject to the influence of time grammar in English. In the completion group, the PI model was used to direct learners’ attention to the differences between what *verb-le* encodes and how the perfective aspect and past tense are coded in English. Specifically, how the aspectual reading is flexibly embedded in a *verb-le* sentence in Chinese and how to ascertain what aspect it is was illustrated to learners in the completion group. On the same note, how the aspectual reading of the *verb-le* structure is based on inception and is thus irrelevant to the completion and tense was illustrated to learners in the inception group.

PI stresses the establishment of the proper connection between form and meaning in the target grammar. However, the form-meaning connections carried by *le* structures are more complicated than those examined in previous studies in that the meaning of a *le* structure is not fixed to any categories in the learners’ native language or interlanguage. To properly decode the meaning of a *le* structure, then, the “formless” interactions within the context may be addressed differently by each of the two accounts. With the inception-*le* account, the key issue is to identify the *specificity* of the topic situation—inception is used to mark the occurrence of a specific case as opposed to a general situation. The value of the specificity of a situation is its meaningfulness as an individual entity based on its “different” property. For instance, *He worked in New York* is

in past tense in English; however, the situation of *working in New York* is only perceived as a general situation, and, therefore, although it is in the past, *le* should not be used in the Chinese version. By contrast, if *His working in New York* is processed as a “different” situation, either from *his previous location* or from what was expected by the listener, then *le* is obligatory in the Chinese version, again, regardless of what tense it is. In this sense, the inception-*le* account emphasizes that *le* is free of time and completedness and will not focus on the mechanism of how completion or tense is encoded in *le* structures. With the completion-*le* account, however, the key issue is to determine what tense the sentence implies and how the completedness is dependent on the interactions between verb types and speaker’s viewpoint.

Predictions. Because the inception-based account focused on the occurrence of a situation where the completion-based account focused on the completedness of a situation, learners exposed to the inception-based account were assumed to be less dependent on time cues to perceive the meaning of the verb. By contrast, completion-*le* learners, while more aware of the complexity of the completedness of a situation, were supposed to be more subject to the influence of tense grammar in English. The explanation was twofold: first, the understanding of *le* in the completion-based account was form-oriented which would yield to meaning-oriented processing. Specifically, explicit time cues (meaning-based) would disarray completion-*le* learners' knowledge of completedness (form-based). Second, the principles underlying the completion-based account were the same as the principles of time grammar in English. In this sense, following the completion-based account, what was about to be illustrated by the PI model, to its utmost effect, was that *verb-le* structure was a slippery variant of English time grammar rather than a structure that was alien to the time grammar of English. In other words, the influence of time grammar from English might not be reduced but be strengthened by the completion-based account. As such, it was predicted that the effect, if any, of the completion-based account on helping ECFL learners overcome past time transfer would be less than that of the inception-based account.

Conversely, because inception-*le* learners' attention was directed to the occurrence of a situation, which was meaning-based and independent of the constraints of completedness or tense, inception-*le* learners would be more open to accepting the co-occurrence of the *le* structure and different times. On the other hand, while being more open to different time and verb form combinations could lead to better performance in overcoming tense grammar transfer, the inception group might have disadvantages in accurately selecting *le* in a past tense situation. The

problem was that the inceptive form (*verb* [+le]) and the bare form (*verb* [-le]) of some verbs (i.e. activity verbs, state verbs) might both be correct with a certain time (either past or present, in this study). However, some verbs (e.g. instantaneous verbs) might only have one acceptable form with a certain time, i.e. *verb* [+le] with past time, *verb* [-le] with present time⁷. As such, the completion group might perform better on this type of verbs because of the influence of tense grammar transfer whereas inception group might not perform as well because they were more open to incongruent combinations.⁸

Predications Based on Structure Type. Inception group's processing of [+le] / [-le] sentences is meaning-driven; therefore, this study predicts that their parsing of sentences will be based on the understanding of the meaning of the verb. Conversely, completion-*le* learners' processing of [+le] / [-le] sentences is form-driven; therefore, this study predicts that learners' parsing will largely be based on the rules of time grammar. As mentioned above, the effects of tense grammar transfer have been defined by overuse of [+le] in circumstances where past time or completion is explicit, and underuse of [+le] where past time or completion cues are absent. Based on the understanding that ECFL learners are generally under the influence of tense grammar in English, the effects of the two instructional treatments is measured by learners' performance on the verb form and sentence time combinations as listed in table 1 below:

⁷ This generalization only applies to one-verb sentences.

⁸ The influence of the verb's lexical aspect was studied as a factor since it was controlled in the tests.

Table 1 Test format

Structure Type		Cue Provided	Expected Answer
Sentence Time Interpretation	Type 1	[+le]	<i>Present time</i>
	Type 2	[-le]	<i>Present time</i>
	Type 3	[+le]	<i>Past time</i>
	Type 4	[-le]	<i>Past time</i>
Verb Form Selection	Type 5	<i>Present time</i>	[+le].
	Type 6	<i>Present time</i>	[-le].
	Type 7	<i>Past time</i>	[+le].
	Type 8	<i>Past time</i>	[-le].

The structures in row 2 to row 5 were used to test learners' interpretation of [+le] or [-le] form, i.e. whether learners were able to properly choose the sentence time when they saw a [+le] or [-le] sentence. The structures in row 6 to row 9 were used to test learners' selection of [+le] or [-le] sentences, i.e. whether learners were able to properly choose the form of the verb ([+le] or [-le]) when they perceived the time of a sentence. It is ideal to test learners' performance with authentic materials or in spontaneous speech. However, limited by learners' vocabulary and learning experience, the perception task and production task were simplified into two types of multiple choice questions: the perception task was substituted by "Time Interpretation"—learners were presented with sentences in Chinese and were required to decide the proper time that match the verb form in the sentence; the production task was substituted by "Form Selection"—learners were presented with time-cued questions in English and were asked to answer the question by selecting a sentence in Chinese.

1) Type 1 performance: inception group will be more willing to take the sentence time for a *le* structure as being in the present than completion group will. For instance, inception-*le*

learners may be more willing to take the sentence 他是大学生了 *ta shi daxuesheng le*, “*He be college student LE*”, as a present time situation (i.e. “*He is a college student now.*”) than completion-*le* learners will (i.e. “*He was a college student.*”). This is because inception-*le* learners will be more aware of the tense-free inceptive meaning of *le* and more open to time words other than those indicating past time. Conversely, completion-*le* learners will be more used to the co-occurrence of *le* and past time, and thus will be more susceptible to confusion caused by the co-occurrence of *le* and present time due to the influence of tense grammar transfer. Inception-*le* learners’ accurate rate of this type will be higher than completion-*le* learners after treatment.

2) Type 2 performance: When a [-*le*] structure occurs in a sentence demanding present time, inception-*le* learners might score the same as the completion-*le* learners. Specifically, seeing [-*le*], both inception-*le* learners and completion-*le* learners, though they are driven by different processing strategies, will tend to select a present time as the time adverbial for the sentence: inception-*le* learners’ provision of accurate answers will be based on the proper parsing of the verb, i.e. the situation is not viewed or hinted at as inceptive and the cued time in the context is present; completion-*le* learners’ correctness will be based on the erroneous intake that *le* is a perfective or past tense marker, consequently, if *le* is not used then the situation must not be in the past.⁹ For instance, in a context-hinted present time circumstance, 他喜欢中国菜 *Ta xihuan Zhongguo cai*, “*He like Chinese food*”, “*He likes Chinese food*”. Both groups will select present tense. However, inception-*le* learners may score slightly lower than completion-*le*

⁹ The different mechanisms disguised by learners’ performance in interpretation will be revealed in their performance in selecting past time [-*le*] and present time [+*le*] sentences. That is, inception-*le* learners will demonstrate less dependence on the time constraints in deciding whether *le* is necessary or not.

learners in that they might over-apply the “*le* is not directly related to completedness or past tense” rule and erroneously select past time for the [-*le*] form of the verb.

3) Type 3 performance: When *le* is present and the hinted time is past in a sentence, inception-*le* learners might not perform as well as completion-*le* learners. For instance, seeing *le* in 他去纽约了 *Ta qu Niuyue le* “*He go New York LE*”, completion-*le* learners will tend to select a past time as the time adverbial (e.g. 昨天 *zuotian* “yesterday”) for the sentence, whereas inception-*le* learners might perform slightly less well in that they are more open to other options than past time in deciding the time for a *le* structure. In cases like this, the difference between inception and non-inception is not easily distinguished.¹⁰ By contrast, relying on an analysis of the ending point, completion-*le* learners might quickly arrive at the conclusion that the event/situation was in the past and completed, and thus choose a word indicating past time.

4) Type 4 performance: Inception-*le* learners will be more aware of the relationship between the notion of *le* and an event/situation’s development *per se*, as well as between the notion of *le* and the past tense when processing a Chinese sentence. Inception-*le* learners may perform better when *le* is absent but past time is cued. For instance, seeing 他住在纽约 *Ta zhu zai Niuyue* “*He live in New York*” in an implicit past time context, inception-*le* learners may be readier to take it as a situation in the past (*He lived in New York*) than the completion-*le* learners are.

5) Type 5 performance: Compared with completion-*le* learners, inception-*le* learners may be more likely to use *le* when they deem the inception of an event/situation meaningful even

¹⁰ This does not mean that there is no difference or that PI is not capable of illustrating the difference. It only means that, at the point when the tests are conducted, learners will not yet have been formally taught the ideal structure. That is, the difference between inceptive meaning and non-inceptive meaning can be better illustrated in sequential sentences, which are scheduled to be taught later.

when a time cue is present. For instance, to deliver the idea that *He can speak Chinese now*, inception-*le* learners may do better in adopting *le* in the Chinese sentence: 他会说中文了 *Ta hui shuo Zhongwen le*. “*He can speak Chinese LE*”, whereas completion-*le* learners, influenced by tense transfer, may prefer the [-*le*] version: 他会说中文 *Ta hui shuo Zhongwen*. “*He can speak Chinese*”.

6) Type 6 performance: When the present time is cued in a sentence, inception-*le* learners and completion-*le* learners will perform equally well in choosing the [-*le*] structure in verb form selection, while, again, driven by different mechanisms. Inception-*le* learners’ decision will be based on the proper parsing of the time and the verb, i.e. the time is present and the inception of the situation is not meaningful, whereas completion-*le* learners’ correctness will be based on the false generalization that *le* is a perfective or past tense marker, i.e. if a past time or completion is not explicit, the situation, therefore, must not be in the past. For instance, to deliver the idea that “*He watches TV quite often*” in Chinese, both groups may choose the same answer: 他常看电视 *Ta chang kan dianshi* “*He often watch TV.*”

7) Type 7 performance: When a past time is cued and *le* is mandatory, completion-*le* learners will perform better in adopting *le* than inception-*le* learners do. This study postulates that there are two factors that contribute to this phenomenon: First, inception-*le* learners will be more aware that past time does not necessarily entail the use of *le* and thus will be more open to other options. At the same time, again, the difference between inception (verb [+*le*]) and non-inception (verb [-*le*]) with activity, achievement, and accomplishment verbs in the past cannot be easily illustrated using PI. Thus inception-*le* learners may not be able to accurately decide whether *le* is mandatory or not. Second, the explicit “completedness” and past time cue in this

type of sentence corresponds well to the perfective aspect or past tense influence on completion-*le* learners who are ready to treat *le* as a past tense marker. Consequently, inception-*le* learners' performance will not be as good as completion-*le* learners with this type of sentence. By contrast, inception-*le* learners may perform better with stative verbs (both verb [+*le*] and verb [-*le*]) than they do with non-stative verbs, and they may perform better overall than completion-*le* learners do with stative verbs. In this sense, the effects of PI on *le* acquisition are manifested in another way: PI is effective only when the uniqueness of the target item can be clearly described. In other words, the effectiveness depends on the availability of the explicit syntactic account of the target grammar.

8) Type 8 performance: Inception-*le* learners will be less likely to be misled by time cues referring to the past in the context in form selection and will use *le* less often than completion-*le* learners do. For instance, to deliver the idea that *He lived in New York last year*, *le* should not be used in the Chinese sentence: 他去年住在纽约 *Ta qunian zhu zai Niuyue*. “*He last year live in New York.*” Completion-*le* learners, seeing an explicit past time cue, *last year*, might tend to use *le* and make an error, while inception-*le* learners, being aware of the absence of the meaningfulness of the inception, may not choose *le* as often as completion-*le* learners do.

Predictions on Overall Performance. The effects of PI on acquisition relies on the accuracy of the description of *le*. Based on the fact that PI emphasizes structured input, which guides learners' attention to specific differences between the target item and the possible misunderstandings arising from the learners' interlanguage or native language, learners should benefit equally from PI in both groups (inception-*le* learners and completion-*le* learners) if both accounts are equally accurate.

On the other hand, if the influence of tense grammar is not reduced equally in the two groups, then it follows that the two treatments (inception-focused and completion-focused) differ in their effects on ECFL learners' learning of *le*. Theoretically, the two groups' overall scores based on correctness may not be significantly different from each other in that both accounts have certain advantages and weakness in the processing of different combination types, and the weakness with certain combinations and the strength with other combinations may balance out the correctness-based overall scores. However, the two groups' scores may be significantly different on certain sentence types between subjects. For instance, the inception group may be more open to tense-incongruent combinations such as present time with [+*le*] form and past time with [-*le*] form, whereas the completion group may favor more past time and [+*le*] form and present time and [-*le*]. If this is the case, the inception group will score higher on Type 1, Type 4, Type 5 and Type 8, and the completion group will score higher on Type 2, Type 3, Type 6 and Type 7. On the same note, each group will see a negative correlation within subjects. For instance, the higher the inception group score on Type 1 and Type 4, the lower they will score on Type 2 and Type 3. Similarly, the higher the completion group score on Type 2 and Type 3, the lower they will score on Type 1 and Type 4.

Predictions on the Side-Effects of the Pedagogical Model. Other than adopting exactly the same pedagogical model for the two groups and in order to eliminate the influence of factors that are not controlled between the two groups, this study also controlled the grammatical explanation in PI, i.e. the relationships between *verb-le* and the tense, *verb-le* and the aspectual information, *verb-le* and time cues in a sentence, etc. were explained equally in depth, and illustrated by the same sentences for both two groups. This approach was designed to rule out the possibility that the difference in the two groups' performance would be due to learners' different degrees of awareness¹¹. On the other hand, this approach might have obscured some potential different effects of the two instructional treatments in short term, in that the grammatical knowledge had been taught to the two groups in an equally sufficient manner. Both groups had been prepared in the same capacity (the ways to direct learners' attention were different, but the accuracy of the two ways were the same). In other words, if the learners in the two groups were the same population, their performance might be the same in short term. Nevertheless, if the inception-based account interacts with the time grammar in ECFL learners' native language differently from the completion-based account, the difference might manifest in three respects: 1) different processing strategies embodied in correlations. 2) Different effects on interactions. 3) Different scores on structures that had not been clearly addressed in the teaching.

¹¹ The two groups might develop different knowledge about the similarity of *verb-le* structure and the time grammar in English when *le* was introduced if the depth and width of the teaching were not controlled between the two groups.

Research Questions. When it comes to an explanation of *le* sentences, as illustrated above, there were two possible focal points: taking *le* as marking the inception of a situation or taking *le* as marking the completion of a situation. Adopting the same PI model, these two focal points would entail different manipulation of learners' attention when the form-meaning connection was built: the inception-*le* account required that learners' attention be guided to the beginning point of a situation, whereas the completion-*le* account required that learners' attention be guided to the ending point of a situation. The latter would rely on time-processing while the former would not. This study explores how focus selection may influence learners' performance on *le* structures. In teaching practice, the two focuses were developed into two instructional treatments, whose difference on focal point was parallel to the difference between syntactic interpretations on *le*. In this sense, this study aimed to answer the following questions:

- 1) Would the two instructional treatments cause difference in learners' performance on *le* sentences?
- 2) Would learners exposed to different treatments perform equally well on each of the eight types of combinations?
- 3) Would learners differ between overall sentence time interpretation and verb form selection?
- 4) Would learners' performance differ between present time sentences and past time sentences?
- 5) Would learners' performance differ when the combination types were in line with tense grammar in English, i.e. [-*le*] → *present time*, [+*le*] → *past time* (tense-congruent

sentences), and when the combinations were not in line with tense grammar in English, i.e. [+le]→*present time*, [-le]→*past time*, (tense-incongruent sentences)?

- 6) Would learners exposed to different treatments show different susceptibilities to tense grammar in English?

While the inception-focused account was predicted to have the advantage of freeing learners from tense grammar transfer, it might or might not be retained well in that the underlying processing strategy was foreign to time grammar in English. By contrast, the performance of the completion-group was predicted to be more stable in the long run. In the posttest to be conducted right after the teaching of *le*, learners' in the inception group might show a higher rejection rate for combinations of *past time* [+le] and *present time* [-le] and a higher acceptance rate for combinations of *past time* [-le] and *present time* [+le]; learners in the completion-*le* group might show a higher acceptance rate of *past time* [+le] and *present time* [-le], as well as a higher rejection rate of *present time* [+le] and *past time* [-le]. In the long run, it was foreseeable that the completion group's performance on these combinations would be more susceptible to the influence tense transfer. However, it was hard to predict whether the tense-freeing effects of the inception account in the posttest would remain the same in the delayed posttest. At the same time, since both groups would be clearly taught about the difference between the target structure and time grammar in English, the performance on the immediate posttest of the two groups might turn out to be similar, at least with some combination types.

Significance of the Current Study

Drawing upon input processing theory, and under the PI model, this study compares the effects of two instructional accounts on ECFL learners' learning of the Chinese particle *le*. This study will contribute to studies on *le* in the following ways:

First, this study explores the possibility of adopting the syntactic one-*le* account (inception account in teaching) in the teaching of *le* structures. As illustrated above, the two-*le* account (completion account in teaching) tackles the function of *le* from a temporal perspective (*verb-le-object* marks “completed action”; *sentence-le* marks “new situation”, both depending on how the completedness is encoded). As such, learners' attention in the PI model has to be directed to syntactic interactions that encode the ending point of situations. The establishment of the form-meaning connections in this direction is positively related to ECFL learners' misuses of *le*. On the other hand, the one-*le* account teasing *le per se* apart from other structural elements, helps learners focus on the situation represented by *verb-le per se*, specifically on the beginning point. In this way, the situation represented by *le* may be understood as a “timeless” entity, whose meaning is self-sufficient without being subject to its completedness or external time constraints. Regardless of whether the hypothesis that the one-*le* account will facilitate the unlearning of tense in ECFL learners is supported or not, the introduction of the one-*le* account into teaching could be meaningful simply because it reveals another angle from which *le* can be understood differently, if not more accurately.

This study contributes to acquisition studies on *le* as well. Traditionally, such acquisition studies have focused on documenting learners' performance and categorizing error types. However, the topic has rarely been addressed from a perspective aimed at promoting ECFL

learners' learning efficiency. Tense transfer is deemed one of the causes that leads to ECFL learners' misuse of *le*, but the questions of why learners tend to connect *le* to the past tense and whether there is any way to minimize past tense influence were rarely investigated in previous acquisition studies. Drawing upon IP theory, this study postulates that there was a miscalculation when the form-meaning connection was built in ECFL learners' intake at the time that they first encountered *le* structures. According to IP theory, the form-meaning connection should be precisely captured and explained to learners in order for them to build the correct connection in their intake. However, when it comes to the learning of *le*, due to the roughness of the grammatical explanations in the textbooks, detailed analysis of the form-meaning connection of *le* structures is generally missing. The assumption underlying the two-*le* account – namely, that *le* is about the perfective aspect – has only been roughly articulated and never examined from other perspectives in teaching. At the same time, ECFL learners' faulty processing strategy (either treating *le* as past tense marker or as a perfective aspect marker) has never been anticipated in the teaching done for the studies, neither has it been treated as a factor in the literature. As such, although it is premature to claim that PI will effectively address tense grammar transfer, it would not be inappropriate to argue that PI will address tense grammar transfer in ECFL learners' acquisition of *le* in a more direct and more pertinent manner.

As a corollary, this study might also contribute to the input processing (IP) theory. The processing principles in IP theory all labor under the premise that the form and the meaning are explicitly and directly connected. However, taking the syntactic accounts of *le* into consideration, the connection between the meaning and the form of *le* structures is not as explicit or direct, especially when it comes to the one-*le* account: the inceptive notion of *le* in this account does not even have a formal fixed equivalent in English. Surely enough, there is still

form-meaning connection in the *le* structures, however, how this connection can be established with the proper understanding and how this connection can be twisted into an erroneous understanding are questions that remain unanswered. If it is not a one-step process, what is involved in the establishment of the proper connection? These questions may stimulate further development of IP theory.

This study also contributes to pedagogical studies. Using the framework of input processing theory, the effects of input-based instruction (mainly PI) have been widely studied in contrast to output-based instruction treatments. The main idea of PI is that language acquisition is the acquisition of form-meaning connections that are based on input processing theory and should be intentionally manipulated when introduced to learners to ensure maximal accuracy. The target structures in previous studies have been universally “homogeneous” in terms of “being particular”. That is, there was little controversy about how the target structure is defined in particular and how the particularity could be delivered to learners through PI. Put differently, the form-meaning connections in the target forms examined were always straightforward and syntactically explicit in previous studies. Consequently, the “processing” has been limited as to how input and activities may be manipulated so that the connections can be better illustrated. The *le* structures, however, present a challenge to the traditional PI practice: namely, how can PI be applied when there are two or more ways to interpret and establish the form-meaning connection? Specifically, in terms of *le* structures, learners’ attention may be directed to either the beginning point of a situation (the one-*le* or inception account) or the ending point of a situation (the two-*le* or completion account). The questions we aim to answer are these: How can these two connections be nurtured using the same PI model? How will the two connections

influence learners' acquisition? To what extent can the difference be attributed to PI? These questions have not been addressed in the literature.

Organization of the Study

The paper will be organized as follows: The first chapter briefly introduces the background, the research topic, and the framework of this study. The second chapter comprises a literature survey of syntactic accounts, pedagogical studies and acquisition studies on *le*. The syntactic accounts will briefly introduce the way *le* structures may be approached from different perspectives. Drawing upon IP theory, the different accounts are viewed as different interpretations on the same form-meaning connection represented by *le* structures. Based on the differing nature of the two interpretations, the PI was selected as the pedagogical model in this study. Therefore, the literature review on pedagogy will touch briefly on fundamental IP theory, the PI model and its principles, a comparison between the effectiveness of PI and output-based instructions, and some representative research and conclusions. The third chapter focuses on methodology, including pedagogical model, instructional design, experimental design, and so on. The results and analysis of the experiment will be presented in Chapter Four. The last chapter is the conclusion, including discussions of the test results, the limitations and implications of the study.

Chapter 2: Literature Review

This study compares the effects of two syntactic accounts on the learning of *le*. Due to the complexity of the form-meaning connections involved in *le* structures, this study adopts PI as the pedagogical model so that the complicated mechanism that operates through these connections may be fully captured and presented to learners. It is necessary for us to know how the form-meaning connection is established in each account so that learners' attention may be directed accordingly. As such, the literature review will include a brief survey on the two major syntactic accounts on *le*. At the same time, this chapter will briefly go over the IP theory, PI model, and some studies on PI.

Linguistic Accounts of *le*

The function of the Chinese particle *le* has been studied extensively from various perspectives, including its relation to tense marking (Parsons, 1990; Huang, 2005; Tsai, 2008), aspect marking (Chan, 1980; Chao, 1968; G. Chen, 1979; Klein & Li, 2000; Li & Thompson, 1981; Rohsenow, 1978; Shi, 2000; C. Smith, 1991; Smith, 1997; Xiao, 2004) and relevance marking in discourse (Andersen, 1996; Chang, 1986; Chu, 1987; Ma, 2006; Spano, 1979). The investigations into the functions of *le* in tense studies have shed light on how *le* can be involved in past tense encoding. However, as noted in the introduction chapter, *le* is not directly grammatically related to tense. The studies at the discourse level commonly concentrate on pragmatic factors in communication, which may make sense in their own right but rarely address the internal form-meaning connection of *le* structures. This chapter will focus on the aspectual studies, which can be categorized into the one-*le* account and the two-*le* account.

Syntactic Accounts on *le* as a Basis of Form-meaning Connections. The syntactic studies on *le* become even more crucial when they are examined under the IP framework as the interpretation for the form-meaning connection represented by *le* structures. Generally, syntactic studies concentrate on what may be carried by *le* and how it is constructed. In the PI model, however, what is examined is how the syntactic knowledge may be introduced to language learners and how the learners will process it. Specifically, from the perspective of PI, acquisition starts with input which is processed by learners and becomes intake. Input, in a broad sense, refers not only to what is presented to learners but also how it is presented to learners. Unlike most of the structures examined in previous acquisition studies whose uniqueness was widely accepted by researchers, the function of the target form in this study has at least two syntactic accounts. In order to examine the effects of these two accounts on ECFL learners' acquisition of *le*, and to calculate ECFL learners' affinity for these two accounts, it is necessary for this study to briefly go over what these two accounts are and how they are presented to ECFL learners as input, and how the two accounts may be perceived by learners from the perspective of IP.

Traditionally, the aspects a *le* structure may encode are defined as the perfective aspect and the imperfective aspect. For the purposes of this study, the term "imperfective aspect" includes both the inchoative aspect and the progressive aspect. The perfective aspect, however, is not quite so easy to define. As will be illustrated later, linguists have varying opinions on the definition of perfective. For convenience of discussion, this study uses the term "perfective aspect" to mean a situation that is viewed as a "whole" entity, either as "a completed action/event" or just "a complete action/event" (Smith, 1997; Klein and Li, 2000; Xiao and McEnery, 2004). The simplification of the definition notwithstanding, the perfective aspect remains profound when aspects are interwoven with the various positions *le* may occupy in a

sentence. It is widely accepted that *le* has different meanings when it appears in different positions: *verbal le*, which comes after a verb, indicates the "completion" of an event (Chao, 1968) while *sentential le*, which comes at the end of a sentence, indicates the occurrence of a new situation, a change of state, or an inchoative situation (Chao, 1968; Rohsenow, 1978; Smith, 1991). To further complicate matters, the function of *le* may be interpreted as either one or both when it happens to follow a verb at the end of a sentence (Li & Thompson, 1981). Based on these studies, the account of *le* can be classified into two approaches: *A*. The two-*le* approach as represented by Li and Thompson (1981), Smith (1997) and Klein and Li (2000), which analyzes the function of *le* by looking at the completedness of the situation represented by the *le* structures, *B*. The one-*le* approach as represented by Shi (2000) and Xiao (2004), which views the function of *le* as indicating "existence" or "eventualization" of a situation carried by *le per se* in structures like *verb-le-object* or *verb-object-le*¹².

On the other hand, consensus has not been achieved as to how the perfective aspect or imperfective aspect is produced even within each approach. Li and Thompson (1981) treat *verbal le* as a marker of a bounded event, where *le* is generally analyzed together with its object, time expression, etc., without systematic articulation of the relationship and interaction between the action's inherent temporal properties or the speaker's viewpoint. Smith (1997) investigates aspect by analyzing a verb constellation's temporal feature at both the lexical level and sentential level, and thus has developed a more systematic two-component theory. Applied to the analysis of *le*, this theory, though still somewhat defective, can better answer questions that have not been addressed by previous studies. However, using the same temporal approach, Klein and Li (2000)

¹² Sentential *le* may be viewed as a specific case of the *verb-le* structure.

disagree with Smith (1991, 1997). Rather than restricting aspect to a concept in a sentence, Klein and Li argue that aspect is about how an event/state is viewed in the speaker's real life.

Accordingly, Klein and Li argue that *le* marks an asserted time span in an activity's real-life time duration. Shi (2000) teases apart the *le* and the verb and object that may go with it, arguing that there is only one *le* and that the function of *le per se* simply marks the "existence" of action. Xiao (2004) holds that *le* marks the eventualization of an action rather than a practical temporal point. According to Xiao, *le* only signals the occurrence of a specific action and the time of its real-life development is of no concern. Despite provocative ideas revealed by these studies, some questions remain unanswered. For example:

(1) John 吃早饭了。

John chi zaofan le.

John eat breakfast LE

John had breakfast already/John is having breakfast/John has begun to have
breakfast every day.

Sentence (1) offers at least three possible readings with different aspects in English. How, then, to decide which one is proper in a scenario? The aggregated view fails to explain the reconciliation of two contradictory aspects: the imperfective (ongoing event) and the perfective (completed action) in one and the same structure. The segregated view, on the other hand, while able to accommodate two different aspects within the same sentence, has a hard time explaining how to distinguish these two aspects in a specific context.

The Two-*le* Account and Processing Issues. The two-*le* account focuses on the completedness of the situation represented by *le* and argues that there are two *les*: one that spells out the ending point of a situation and another that signals a "Currently Relevant State", which is ruled out from the temporal category (Li and Thompson, 1981). Smith (1997) developed a two-component theory to account for the aspect encoded by *le*. According to Smith, there are two types of aspects: lexical and viewpoint. Lexical (situation) aspect refers to aspectual meanings connoted by a verb's inherent properties such as telic or atelic (i.e. whether boundaries are implied or not), durative or instantaneous (i.e. whether an action or event can last or not) and static or dynamic (i.e. whether motion is involved or not). Smith divides verbs' lexical aspects into five categories revolving around the aforementioned dimensions: *Activity* is dynamic, atelic, and durative, such as 走 *zou* "walk" and 听 *ting* "listen"; *Accomplishment* is dynamic, telic, and durative, such as 走去学校 *zou qu xuexiao* "walk to school"; *Achievement* is dynamic, telic, and instantaneous, such as 打破 *da-po* "break"; *State* is static and durative, such as 知道 *zhidao* "know"; and *Semelfactive* is dynamic, atelic, instantaneous, such as 踢 *ti* "kick" and 敲门 *qiaomen* "knock on the door" etc. This categorization captures the temporal properties of verbs and thus provides clues for learners to rely on in processing *le* structures through a temporal lens.

At the same time, Smith (1997) also takes the grammatical aspect, i.e. the speaker's temporal viewpoint, into consideration, which leads to "perfective"—when a situation is viewed in its entirety, and "imperfective"—when a situation is viewed just in the moment it exists. While lexical aspect and viewpoint are separate concepts, it is the synthesis of these two devices that determines the aspect of a verb constellation in a sentence. Based on the possible combinations, different verb constellations yield different aspectual readings.

In teaching practice, from the perspective of IP, based on the two-*le* account, learners' attention should be directed to the completedness of a situation, which is determined jointly by the lexical aspect and the speaker's viewpoint. In the understanding of 他吃早饭了 *Ta chi zaofan le*. "He eat breakfast LE", when the speaker's viewpoint is placed within the development of breakfast-eating, the situation should be understood as imperfective or on-going, "He has started eating breakfast". When the speaker's viewpoint is placed after the event of breakfast-eating, the situation should be seen as having been completed, "He has had breakfast already". The location of the viewpoint depends on the verb's lexical aspect and other elements in the context. For instance, when the speaker is in a conference room at 10:00 AM, the reading of 他吃早饭了 *Ta chi zaofan le*. "He eat breakfast LE" is generally a completed action but when the speaker is in a dining room at 7:30 AM, the reading of (1) is generally an ongoing situation. In other words, the completion or perfectivity is not directly encoded by *le per se*.

Smith's model is not flawless in that it does not differentiate between verb and verb phrase and thus creates spaces for misconnections between form and meaning: 走 *zou* "walk," for example, is included among both *activity* and *accomplishment* verbs. This is a problem not because of typological confusion, but because it conceals the influence an additional element, such as a complement or object, can have on the temporal properties of a verb and thus can be mistaken as a function of *le*. This is illustrated by the following two examples: 养了一年狗 *yang le yi'nian gou* "raised a dog for one year" and 养了一只狗 *yang le yizhi gou* "raise LE one dog." Though they share the same verb and the same structure, they have entirely different temporal readings. The difference is not derived from the use of *le* or the verb constellation type, but from the quantitative property of the object, which is hidden in the interaction between the

verb and other elements in the constellation. The interaction between the length of time, 一年 *yi'nian* “one year,” and the verb, 养 “raise” in the phrase 养了一年狗 *yang le yi'nian gou* “raised a dog for one year” indicates that the action is perceived as being complete whereas the interaction between the object, 一只狗 *a dog*, and the verb, 养 “raise” in the phrase 养了一只狗 only indicates that the action has started. In general, connecting the meaning of *le* to the phrase may be one of the factors that cause the overlooking of other interactions hidden inside the *le* structures and the formulation of erroneous form-meaning connections.

According to the IP theory, when learners process, they prioritize meanings that are more concrete. So, when there are two possible readings that are equally available (i.e. on-going vs completed), which one will be prioritized by ECFL learners? Taking 他吃早饭了 *Ta chi zaofan le*. “He eat breakfast LE” as example again, if learners are aware that *le* is not about tense and the time cues in the context spell out the relationship between the speaker’s viewpoint and the development of breakfast-eating, they will be able to correctly decide the completedness of the situation. However, if learners are still under the influence of the past tense or have been exposed to *le* structures that overlap with past tense or completed action more than *le* structures that do not conflate with past tense or completed situation, the “completed” meaning may override the “ongoing” meaning in ECFL learners processing and lead them to erroneous connections. The competition between completed reading and ongoing reading is not a topic covered by this study. We will, instead, focus on answering these questions: If the competition between two potential meanings is entailed by the two-*le* account, will there be a completion entailed by the one-*le* account? How will the readings entailed by the one-*le* account be prioritized by ECFL learners

compared to those entailed by the two-*le* account? Which account will cause less confusion in the establishment of a correct form-meaning connection?

The One-*le* Account and Processing Issues. Although taking the two-*le* approach, Klein and Li's (2000) model captured the beginning point of a situation. They include in their model a concept named time of assertion (or topic time, also known as TT), which refers to a time stretch cast by the speaker when viewing a situation. According to Klein and Li, events have their own real-life time (time of situation, also known as T-SIT); aspect and tense are the results of interactions between different time intervals: tense indicates a temporal relationship between the speaker's time (time of utterance, or TU) and TT, while aspect indicates a temporal relationship between the event's TT and T-SIT. The relationship between TT and T-SIT developed in Klein and Li can be used to analyze the inceptive meaning of *le* structures. Based on the one-*le* approach, *verb-le*, including *verb-object-le* and *sentence-le*, only spells out the happening/occurrence of an event/situation regardless of the verb's lexical aspect. This function is well articulated by studies done by Teng (1977), Shi (2000), and Xiao and McEnery (2004). However, it is Klein and Li's (2000) account that provides a model that makes it possible to accurately present the temporal relationship between the time intervals involved in the structure. That is, what *le per se* signals is that TT includes both the inception of an event/situation and a span of time before the occurrence of the event/situation. Because *le* only introduces the inception, without further modifications, the ending point of the event is left open¹³. Taking 他吃早饭了 *Ta chi zaofan le* "He eat breakfast LE" as example again, it can be seen that there are two basic readings regarding the completedness of eating breakfast but only one reading regarding the inception of the situation, namely, the occurrence of breakfast eating. When the sentence is used to explain *why he is not hungry now*, 他吃早饭了 *Ta chi zaofan le* "He eat breakfast LE" means "He ate breakfast already" in English, but it is the happening of the event

of breakfast eating that accounts for the subject's current situation in Chinese. Similarly, when 他吃早饭了 *Ta chi zaofan le* “*He eat breakfast LE*” is used to explain *why no one should bother him*, “He is/was/will be eating breakfast already” is the correct reading in English. Again, it is viewed as a situation that is marked by the happening of the event of breakfast-eating in Chinese. When breakfast-eating is viewed as a new habit, “He has/will have started a new habit of eating breakfast” is the correct reading in English. In Chinese, the sentence is viewed as a situation marked by the happening of a new habit of eating breakfast. The three readings are different regarding the perfectivity of the event but use the same structure in Chinese because the three readings share the same concept—a situation that is marked by the occurrence of an event/situation, in this case, the event of breakfast eating. It is the happening *per se*, rather than completion of eating that is used to account for *his not being hungry*, *why he should not be bothered*, and *his new healthy habit*. In this sense, the completion of eating does not have much bearing on the intended meaning of the sentence.

In contrast to the two-*le* account, the one-*le* account entails a form-meaning connection in a more “formless” manner in that it only spells out the inception or occurrence of a situation, which, as illustrated above, may correspond to various tenses and structures in ECFL learners’ native language, English. This specific inception is free of completedness and tenses. As such, learners may have a hard time building the form-meaning connection in the very beginning when they are introduced to the form, just because it is a concept that has no match in English. On the other hand, due to the emphasis on inception, which does not revert back to learners’ time

¹³ With the two-*le* accounts, one needs to analyze the completedness, i.e. whether the situation is ongoing or completed. However, with the one-*le* account, the completedness of the situation is considered entirely irrelevant to the meaning of *le* structures.

grammar, learners exposed to the one-*le* account may become less susceptible to the influence of tense. Therefore, the study of the effects of the one-*le* account in facilitating ECFL learners' ability to establish accurate connections between the form and meaning begets two interesting issues: first, it may be more difficult for ECFL learners to accept the connection in the one-*le* account, and, second, for those who have accepted the connection properly, they will perform better in disconnecting *le* structures from past tense.

Input Processing Theory and Processing Instruction

This study adopts processing instruction (henceforth PI) as the pedagogical model in its experiment in that it fits the properties of the target structure better than other pedagogical models. This section will briefly introduce the way the acquisition of *le* is viewed from the input processing perspective, how the input-based PI model is different from output-based models, and why PI has been selected as the instructional framework.

This study follows VanPatten's position and understands language acquisition as the development of some competence that underlies language use. The competence is also known as the interlanguage, the underlying mental representation, the developing system, etc. The competence consists of a lexicon component, a phonological component, a syntactic component, a semantic component, and a sociopragmatic component, which interact with each other at different levels in comprehension and production (VanPatten, 2004). As studies reveal, learners' competence in second language acquisition (henceforth SLA) lies somewhere between their competence in their native language and the competence of a native speaker of the target language. As such, learners are under the influence of both the target language and their native language in acquiring a foreign language, from input processing to output processing. Input processing and output processing are the two stages in language acquisition where instruction

can weigh in and influence the outcome of acquisition. Centering on these two stages, different instructional schools have been developed, i.e. input-based theory and output-based theory (Swain, 1985; VanPatten & Cadierno, 1993).

Input Processing Theory. Gass (1997) describes the role input plays in SLA as indispensable to any instructional model. One of the research focuses in SLA over the last three decades has been determining the relationship between the developing system and input. Against this backdrop, Input Processing theory (henceforth IP) was developed. IP concentrates on how learners develop intake from input. “Intake is defined as the linguistic data actually processed from the input and help in working memory for further processing.” (VanPatten, 2002: p. 757) In other words, IP attempts to interpret how the form-meaning connection of a target structure is formed (not necessarily in the correct way) semantically and syntactically at the input stage. The transformation from input to intake involves interactions of different facets following certain principles. The principles are:

P1. Learners process input for meaning before they process it for form.

P1a. Learners process content words in the input before anything else.

P1b. Learners prefer processing lexical items to grammatical items (e.g. morphology) for the same semantic information.

P1c. Learners prefer processing “more meaningful” morphology before “less” or “non-meaningful” morphology.

P2. For learners to process form that is not meaningful, they must be able to process informational or communicative content at no (or little) cost to attention.

P3. Learners possess a default strategy that assigns the role of agent (or subject) to the first noun (phrase) they encounter in a sentence/utterance. This is called the first-noun strategy.

P3a. The first-noun strategy may be overridden by lexical, semantics and event probabilities.

P3b. Learners will adopt other processing strategies for grammatical role assignment only after their developing system has incorporated other cues (e.g. case marking, acoustic stress).

P4. Learners process elements in the sentence/utterance initial position first.

P4a. Learners process elements in the final position before elements in the medial position.”(VanPatten, 2002: pp. 757-758)

Generally, learners will first rely on the words (lexical items), rather than grammar (e.g. morphology) for meanings. When both content lexical items and a grammatical form encode the same meaning and both are present, it is the lexical item, rather than the grammatical form, that learners attend to for the meaning. For example, in the Spanish sentence *No creo que comprenda Ramon lo que dice el profesor*, both *no creo* and the *-a* of *comprenda* are related to mood. The *-a* may be ignored by foreign language learners because its function is realized by the presence of *No creo*. An example in ECFL learners' acquisition of Chinese is when a *verb-object-le* structure is processed. As Wen (1995) documented, learners were more willing to use *le* when 已经 *yijing* “already” is present because they were under the influence of past tense transfer and

took *le* as marking an activity that had been completed¹⁴. What is related to IP theory is the “communicative value” hypothesis (VanPatten, 1985). Communicative value refers to the meaning of a form in a sentence or utterance which consists of two aspects: [+/- inherent semantic value] and [+/- redundancy]. Specifically, a given form must have one of four features: 1) [+semantic value] and [-redundancy] (e.g. English *-ing*), 2) [+semantic value] and [+redundancy] (e.g. subjunctive verb inflections), 3) [-semantic value] and [+redundancy] (e.g. adjective concordance in Romance languages), and 4) [-semantic value] and [-redundancy] (e.g. some complementizers such as *that*). (VanPatten, 2002: p.759) Following the principles noted above, the communicative value of a form is diminished if its meaning can be retrieved elsewhere in an easier content-based manner. On the other hand, the more salient a form is in the delivery of meaning, the more likely it is to be processed and transferred into intake on the way to acquisition. Conversely and not surprisingly, a form with less communicative value will be less likely to be processed (VanPatten, 2002). In a general sense, acquisition involves a sequence of development as illustrated below:

Input → intake → developing system → output

Intake refers to the form-meaning connection of the target structure that learners have comprehended and attended to from input. Depending on the availability and accessibility, the establishment of the form-meaning connection of the input may be accurate, partially correct, or totally erroneous. IP is developed to capture what happens from input to intake and what will facilitate the transition of the form-meaning connection from input to intake.

¹⁴ 已经 *yijing* “already” and *le* do not encode the same thing in Chinese. However, this example illustrates that under the influence of past tense, ECFL learners rely on lexical items to judge the form of a verb, which is a sign that lexical meaning takes priority in processing.

Accommodation and restructuring happen when intake is accommodated into the existing developing system (interlanguage). Accommodation refers to the partial or complete incorporation of a form-meaning connection into the interlanguage system; restructuring refers to the change to the developing system caused by the accommodation of a new form-meaning connection (Gass & Selinker, 2001). While the intake may change the system, the accommodation of the intake may or may not fit or be accepted by the system. Access means producing sentences using the developing system, which “may be totally, partially, or not at all successful, depending on task demands, previous experience(practice), and other factors.” (Terrell, 1991)

Processing Instruction. At input processing stage, two sub-processes occur: First, the form-meaning connection, which determines how the learner understands the form and the meaning/grammatical functions and, second, parsing, which determines how the learner syntactically understands a word's function in the organization of a sentence (Clifton, Frazier, Rayner, & Rayner, 1994; Pritchett, 1992; Robinson, 2001). It is based on these two sub-processes that input-based instruction models developed. The idea is that, during processing, the learners' attention may be distracted by elements other than the target structure, or that the form-meaning connection is not salient enough to catch the learners' attention. In these cases, it is optimal for instructors to manipulate the input in particular ways so that the learners' attention will be guided to the target form-meaning connection. Ellis (2012) defines input-based instruction as involving the manipulation of the input for the learners to process. There are different forms of input-based instruction, among which is the model that this study adopts, i.e. VanPatten's PI model (VanPatten, 1993, 1996, 2002, 2004; VanPatten & Cadierno, 1993; VanPatten & Uludag, 2011) Unlike comprehension-based approaches, such as Total Physical Response or the natural approach, PI focuses on assisting the learner in making form-meaning connections during processing. As such, PI has three basic components:

1. Learners are given explicit information about the target structure.
2. Learners are informed about a particular processing strategy that may negatively affect their picking up of the form or structure. PI identifies a potentially problematic processing strategy from the IP model then provides activities that steer learners away from that strategy.
3. Learners are pushed to process the target item with structured input. Namely, input is manipulated in particular ways so that extraneous "noise" is maximally

eliminated, and learners can focus on the form-meaning connection in the input (VanPatten, 1993, 1996, 2002).

PI is similar to traditional grammar instruction techniques in the way it provides learners with explicit knowledge about the target structure. The uniqueness of PI rests in the fact that PI also addresses the target structure as a processing problem. That is, besides defining the target structure, learners are explicitly informed of the erroneous processing strategies they are most likely to adopt in processing as well. In addition, examples are provided to show why learners' "default" processing strategies do not work. The practice learners receive with the PI model is particularly structured so that the target form and its meaning are established in an accurate manner in learners' working memory and thus proceed to the interlanguage as intake. This way, the influence of those instinctive but less-than-optimal processing strategies will be maximally reduced. In this sense, the structured input activities clearly differentiate PI from other approaches that focus on form or intervention regarding grammatical properties of language (Farley, 2004; VanPatten & Uludag, 2011; Wong, 2004)

Within the PI framework, empirical studies have proven the effectiveness of structured input in inducing change in learners' knowledge about a variety of structures in a variety of languages. VanPatten and Cadierno (1993) compared the effects of PI and TI on word order and object pronoun acquisition in Spanish. IP theory features a 'First Noun Principle', i.e. learners tend to process the first noun in a sentence as the subject; however, the first noun is not always the subject in Spanish. VanPatten and Cadierno studied the performance of three groups on the acquisition of word order in Spanish: one group received PI; the second group were taught through TI; and the third group did not receive any instruction at all. The results were measured

by the scores on an interpretation task and a form selection task: the PI group outperformed the TI group and the control group in the interpretation task and the PI and the TI group both outperformed the control group in the form selection task on a similar scale. Based on the results, VanPatten and Cadierno claimed that PI is a more effective approach to grammar instruction than TI and that PI *per se* is sufficient to equip learners with the ability to produce the target linguistic features. The same design has since been adopted by a series of studies in investigating the effectiveness of PI in teaching various languages and linguistic features and their conclusions agree with those of VanPatten and Cadierno (Benati, 2005, 2008; Cadierno, 1995; Cheng, 1995; Fernández, 2008; VanPatten & Wong, 2004).

Output-based Instruction. Studies have also been done that come to conclusions that support the indispensable role that output plays in acquisition. The output-based theory (Henceforth OI, in this paper) focuses on a stage of processing that is not included in the input-based processing theory, namely, the function of output in acquisition (Swain, 1993, 1995, 1998; Swain & Lapkin, 1995). However, researchers supporting OI argue that output can also bring about mental processes that are involved in interlanguage development. Specifically, output has three functions: the hypothesis-testing function, the metalinguistic function, and the noticing function. The typical argument for the output-based theory is that it can push learners from “semantic processing” at the input stage to “syntactic processing” which is needed for form selection. Under the OI model, learners will pay more attention to the means of expression and thus be more aware of the gap between their linguistic resources and the target language system, which is especially necessary for the development of native-like fluency (M. Swain, 1985, 1995, 2005).

The theory is conceptualized and operationalized in different ways in teaching practice (Erlam, 2005). Depending on the focus of instruction, OI may consist of pure mechanical drill or meaningful communications. Among the different approaches used by OI, traditional instruction (TI) and meaning-based output (MOI) are the two major ones that have been used in previous studies. TI involves ‘explanation plus output practices that move learners from mechanical to communicative drills.’ (VanPatten, 2000, p. 54) MOI are described by Lee and VanPatten as producing utterances containing new information and target structures (VanPatten, 1995) . Analyses of the effectiveness of OI positively conclude that it is as essential as input in developing L2 competence (Izumi, 2002; Izumi & Bigelow, 2000; Izumi, Bigelow, Fujiwara, & Fearnow, 1999; Swain, 1995, 1998; Swain & Lapkin, 1995; Toth, 2006).

The Effects of OI and PI on Acquisition. The effects of PI and OI have been compared in empirical studies through interpretive measures and productive measures and the conclusions were divergent. In terms of comprehension, about half of these PI vs. OI studies reported an advantage for the PI group on the posttests: Benati (2005); Benati et al. (2008a, 2008b) and Uludag and VanPatten (2012). Roughly the other half found no significant difference between PI and OI: Farley(2001); Morgan-Short and Bowden (2006); Lee and Benati (2008a, 2008b); Qin (2008) and VanPatten et al. (2009); Farley and Aslan(2012). In terms of production, a majority of the studies showed no significant difference. The studies that did show a significant advantage of OI over PI in production were Morgan-Short and Bowden (2006); Toth (2006); Farley and Aslan (2012). The only study that showed an advantage for PI in production was Benati et al. (2008b). A caveat, however: when comparisons were drawn between the effects of PI and OI, the treatments and assessment tasks were not equivalent across these studies (See VanPatten, 2002; VanPatten & Wong, 2004). That is, in some of these studies, treatments were substantially different from those in PI research in that explicit information was not provided to influence learners' processing strategy (e.g. Dekeyser & Sokalski, 1996; Erlam, 2005). Some studies reduced the meaningfulness of input activities (e.g. Dekeyser and Sokalski; erlam; Salaberry, 1997); some studies did not control event probabilities (e.g. Allen, 2000) and, in some studies, the output group received some interpretation activities during treatment (e.g. Farley, 2001a; Allen, 2000). Assessment and scoring procedures adopted in these studies were different from those adopted by PI studies in that comprehension tasks were used rather than interpretation tasks (Dekeyser & Sokalski; Erlam; Salaberry), a sentence-level production test was not included (e.g. Allen), and partially correct answers were either not credited (e.g. Dekeyser & Sokalski; Salaberry) or only particular forms (morphological aspects) were scored (e.g. Erlam). These

different treatments make the conclusions of the comparisons less reliable than they hoped to be, regardless of whether they showed that PI is superior to OI, OI superior to PI, or they are similar.

Despite the uncertainties of the comparability between PI and OI, the general differences between PI and OI remain the same. First, PI stresses the impact of learners' awareness of the uniqueness of the target grammar and the "optimal" processing strategy for acquisition, whereas OI stresses the impact of output on the awareness of the target grammar. Specifically, in the PI approach, the particularities of the target structure are explicitly pointed out to learners whereas in the OI approach, the particularities are left to the learners' own processing strategy.

Considering the salience of the form-meaning connection in the target form, it is possible for learners to build the form-meaning connection properly, but space is also left for learners to be misled by "noises" in the input and, thus, build false/weak form-meaning connections in their intake. Second, output may be avoided in PI, but input is unavoidable for OI. As such, OI will not happen without involving the influence of input and the function of output practice is always based on input. For instance, Farley (2001a) compared the effects of PI and OI (specifically, MOI) on the acquisition of the Spanish subjunctive. The material for the PI treatment was developed following the guidelines for structured input activities (e.g. VanPatten, 1996). The MOI did not contain mechanical drills and the treatment was based on the structured-output tenets proposed in Lee and VanPatten (1995). Results showed that both the PI and MOI groups significantly improved on both the interpretation and the production tasks. However, the similar effectiveness of MOI could have been the result of another factor, that is, the MOI in this study was not entirely input free. Learners were actually exposed to incidental input from their partners in the output-based practice. The incidentally-focused input made the subjunctive more salient than it would be in pure output-based processing.

PI and the Acquisition of *le*. Based on the features and the working mechanisms of PI and OI, this study adopts VanPatten's argument that PI is a better approach than OI in language instruction (VanPatten 1996; 2002) for the following reasons: First, PI focuses on the primary stage of processing, the proper establishment of form-meaning connection, which lays the foundation for both OI approaches and other input-based approaches; second, through structured sentences, PI 'pushes learners to abandon their inefficient processing strategies for more optimal ones so that better form-meaning connections are made' (Wong, 2004: 35); third, the properties of the target structure, *verb (-object)-le*, are extremely complicated and the problems in acquisition are multilayered and may not be properly addressed by ECFL learners by simply matching them with comparable grammatical categories in English. On the one hand, *verb (-object)-le* has no direct, straightforward counterpart, in either a lexical or syntactic sense, in the learners' native language. On the other hand, the function of *le* is linguistically inconclusive. As noted at the beginning of this study, there is more than one account of how *le* should be understood, and there is no consensus as to which account is more accurate. Fourth, due to the complexity, the reversibility of the accounts is not the same, i.e. the two-*le* account may help learners understand what *le* means upon perception of a specific *le* structure but may not help learners to decide whether *le* is demanded, optional, or disallowed in a similar situation in production.¹⁵

In IP theory's own right, considering the complexity of *le*, PI also has advantages over OI in the instruction of *le*. The IP principles state that 1) learners look for meaning before form in

¹⁵ For instance, 他睡觉了 *Ta shuìjiào le* "He sleep LE" can mean "He is/was/will be sleeping" in a certain scenario. However, to express the idea that "He is sleeping" as in the sentence "when I went to visit him, he was sleeping", 他睡觉了 *Ta shuìjiào le* "He sleep LE" is not necessarily a good option.

processing, and thus they prefer processing “more meaningful” forms before “less” or “non-meaningful” forms and, 2) learners prefer processing lexical items to grammatical items (e.g. morphology) for the same semantic information (VanPatten, 2002: p. 758). In terms of the understanding of *le* structures in Chinese, IP provides a framework under which the processing of *le* may be seen as having three distinct parts: First, there are the two points that learners may take advantage in processing a situation—the starting point and the ending point and the ECFL learners’ acquisition of *le* is related to which phase of development of a situation they should attend to for optimal comprehension; second, there are the grammatical roles learners will assign to *le* accordingly. For instance, when learners attend to the beginning point of a situation, *le* functions as a “specific case” marker; when learners attend to the ending point, *le* marks “completedness” in a flexible fashion, neither of which have an equivalent in English begging the questions which approach is more likely to be accepted by ECFL learners, and which approach is more effective in assisting ECFL learners? And, third, based on the first two issues, there is the question which point, as the focus of attention can help ECFL learners better overcome the influence of the tense grammar? When it comes to focusing on the variables within the form-meaning connection and investigating their impact on the acquisition of *le*, PI has an absolute advantage over OI.

Acquisition Studies on *le*

In acquisition studies, the functions of *le* have been mainly examined through Li and Thompson's (1981) theory or Smith's (1991, 1997) model. The major assumption of the frameworks of these studies is based on the argument that there is a distinction between *verbal le* and *sentential le* (Teng, 1999; Wen, 1995, 1997; Yang, Huang and Sun 1999; Yang, Huang and

Cao 2000, Duff and Li, 2002; Ke, 2005; Wang, 2007; Wang and Peng, 2013). These studies are similar in four respects: 1. *le* was treated as two different particles: *verbal le* and *sentential le*. 2. The constraints from sentence structures on the use of *le* were examined. 3. A verb's lexical aspects, such as state, activity, achievement, etc. were examined with regard to the proper use of *le*. 4. The errors with *le* were either overuse or underuse, although there was no consensus as for what structure/verb type was more susceptible to which type of error. These studies all noted the effect of past-tense transfer from English on the adoption of *le*. However, the relationships between past-tense transfer, lexical errors and structural errors were only superficially formulated, i.e. although errors were formally classified, the underlying rules were not fully discussed. The division of two *les* brought forth another issue that may affect the acquisition of *le*, namely, the ordering effect of the two *les*, i.e. which *le* was introduced first and what possible influence it might have on the acquisition and understanding of the other *le* introduced later. However, none of these studies counted how or in what order *le* was introduced as a variable. At the same time, none of these studies addressed the acquisition of *le* by examining how an account that is different from the two-*le* account may influence the acquisition efficiency.

It is natural that, due to various factors, the error types and rates reported in these studies were not the same, but the survey in this section reviews the error rates of each type in the hope that the correlation between the errors and the artificial division between *verbal le* and *sentential le* will be better understood.

Wen (1995, 1997). Wen (1995) examined the acquisition of *le* in the interlanguage of fourteen English-speaking CFL learners in a regular Chinese language classroom setting at an American college. There were 8 beginning-level students who had been learning Chinese for 14 months and 6 advanced students who had been learning Chinese for 26 months. The data were collected through interviews with the subjects, which consisted of conversation, question and answer exchanges based on pictures, and picture description. The error rates on *verbal le* were 24.8% (out of 385 sentences) and 17.3% (out of 305 sentences) for beginning-level learners and advanced-level learners separately. The error rates on *sentential le* were 58.5% (out of 465 sentences) and 22.7% (out of 363 sentences) for beginning-level learners and advanced-level learners separately. Wen concluded that the beginning-level students and the advanced-level students did not differ significantly in the frequency of correct use of *verbal le* but differed significantly in the correct use of *sentential le*. She concluded that the subjects performed better in their use of *verbal le* than *sentential le* and that *verbal le* was acquired earlier and more easily.

Based on Li and Thompson (1981), Wen divided the sentences in production into 5 types, the error rates and a sample sentence of each type are listed below:

1. Two actions (error rate: beginning 21%, advanced 11%) :

我吃完了早饭就去上中文课了。

Wo chi wan le zaofan jiu qu shang zhongwenke le.

I eat finish LE breakfast then go to have Chinese class LE.

I went to Chinese class after I finished eating breakfast.

With this sentence type, Wen reported that despite the fact that the first *le* is optional, 5 subjects used *le* in this sentence type. Results indicated that the use of *verbal le* is closely associated with

verb types indicating completeness, i.e. verbs signaling achievement such as “*to forget*”, verbs signaling accomplishment such as “*to buy many books*”, and verbs with a resultative complement such as *verb-wan-le* “*verb-finish-LE*”.

2. Time duration (*verbal le* error rate: beginning 26%, advanced 16%; *sentential le* error rate: beginning: 47%, advanced 20%):

我学中文学了一年了。

Wo xue zhongwen xue le yinian le.

I learn Chinese learn LE one year LE.

I have been learning Chinese for one year.

Wen noticed that students were aware of the development of the situation, i.e., students tended to use *sentential le* when they viewed the situation as lasting to the speech moment; otherwise they tended to omit it. Wen also pointed out that the error rate with *verbal le* decreased when the verb was telic---when there was a clear-cut end-point--- 22% and 16% separately for beginning-level learners and advanced-level learners.

3. Immediate future (error rate: beginning 63%, advanced 36%) :

古博和巴兰卡就要去中国学中文了。

Gu Bo he Balanka jiu yao qu zhongguo xue zhongwen le.

Gu Bo and Ba Lanka soon be going China learn Chinese LE.

Gu Bo and Ba Lanka are going to China soon to learn Chinese.

The error rate for *sentential le* was much higher than that for *verbal le*. Wen contended that it was because learners were more sensitive to constraints on verbs than they were to constraints on

whole sentences as well as the fact that the meaning of the *verbal le* was more concrete and less elusive than the meaning of *sentential le*.

4. Change of situation (error rate: beginning 62%, advanced 37%) :

以前他喝了很多酒，现在他不喝酒了。

Before he drink LE much alcohol, now he not drink alcohol LE.

He used to drink a lot of alcohol; now he has stopped drinking.

Wen documented two types or errors: First, using the *verbal le* properly in the first clause, *but* omitting the *sentential le* at the end of the second clause; second, mistakenly using *sentential le* in the first clause. Once again, these errors were due to the same cause pointed out in pattern 3.

5. Occurrence of event, current relevance (error rate: beginning 38%, advanced 21%) :

你已经买了中文词典了吗？

Ni yijing mai le zhongwen cidian le ma

You already buy LE Chinese dictionary MA?

Did you already buy a Chinese dictionary?

Wen noticed that 已经 *yijing* “already” hinted at the need for *verbal le*. When 已经 *yijing* “already” was not used, *le* was largely omitted at the end. The error rates were 66% and 48% for beginning-level learners and advanced-level learners in the absence of 已经 *yijing* “already”. At the same time, when there were no objects or resultative verb complements at the end, the error rates for *sentential le* were 45% and 20% for beginning-level learners and advanced-level learners; but when there was an object or complement, they tended to omit *le*, so the error rates rose to 71% and 28% for beginning-level learners and advanced-level learners respectively.

Wen (1995) argued that students relied on local context cues such as 已经 *yijing already* or 太 *tai too* to determine the inclusion of *le*. Wen suggested that when the *sentential le* in the second type had a semantically more concrete reference, i.e. the action continued to the moment of utterance. This type of situation was easier for students to master. However, the *sentential le* in types 3 and 4 was not specific enough for the students to grasp. Students at both levels performed well with the *verbal le* in the two-action sentence type because the linear order signals completion of the first action. The same phenomenon happened when the students were presented with 完 *wan "over"* or 以后 *yihou "after"*, 以前 *yiqian "before"*. In addition, when the verb was telic by nature, students consistently used *le*.

Wen held that ECFL learners' approach was meaning-based. When the function of a verb was connected with a concrete, specific meaning, learners were able to use it with *le* properly at an early stage. When a verb did not present a straightforward reference, and when meanings were not concrete, students seemed to approach this type of issue through problem solving strategies. In other words, learners were sensitive to the forms of and functions of verbs, and they were more sensitive to constraints on verbs than on whole sentences. Based on Li and Thompson (1981), Wen argued that, other than its pragmatic function, *sentential le* sometimes does not have a specific meaning, which could be the reason that students make mistakes when processing *sentential le*.

Wen suggested that a learner's first language has a considerable influence on the acquisition of both *verbal le* and *sentential le* and found that the beginning-level students took *verbal le* as a marker of the past tense and used it when the action happened in the past. By contrast, they constantly avoided the *verbal le* when an action would be completed in the present

or future. Consequently, Wen found that it was hard to tell whether the correct use of *verbal le* was due to the learners' proper understanding of *verbal le*'s temporal meaning, or simply because the learners mistook it as a past tense marker because many completed actions happened to occur in the past. For instance, students used *verbal le* correctly in,

(2) 昨天晚上, 我睡了六个小时。

Zuotian wanshang, wo shui le liu ge xiaoshi.

Last night, I sleep LE six CL hour.

Last night, I slept six hours.

However, it is possible that they took 昨天晚上 *last night* as a cue and relegated the action as to the past tense, rather than the perfective aspect. Another piece of evidence of negative transfer was found in the use of *sentential le*. Wen contributed the fact that the learners at both levels omitted *sentential le* (96% in all errors with *sentential le*) to the fact that the learners' native language did not have this pragmatic device.

Wen (1997) compared ECFL learners' acquisition of three aspect markers in Chinese: *le*, *zhe*, and *guo*. Using the same data collecting method as in Wen (1995), she studied the performance of 19 ECFL learners at a college in the United States. The subjects were divided into two groups: 10 at the lower level, who had learned Chinese for 15 months; 9 at the advanced level, who had learned Chinese for 27 months. In the lower group, the mean error rate for *le* was 29.69%, and for the advanced group, the mean error rate was 23.1%. The difference in the correct production of *le* was not statistically significant at the .05 level. Wen categorized the correct use of *verbal le* into three patterns: The first pattern was *two actions*, the same as the first pattern Wen analyzed in Wen (1995), the error rates of which were 27% (lower level) and 15% (advanced level) respectively. Wen argued that because two actions consisted of a temporal

linear order indicating that the first action was viewed in its wholeness, learners at both levels did better with this pattern. The second pattern involved time duration such as *liu ge yue* “six months”, or time expressions such as 已经 *yijing* “already”, 以前 *yiqian* “before”, etc. For instance,

(3) 我在中国住了六个月。

Wo zai zhongguo zhu le liuge yue.

I in China live LE six CL month.

I lived in China for six months.

The error rate for lower level learners with this pattern was 32.9%, and for higher level learners, 26.9%. Wen observed that lower level learners were using *yijing* “already” as a hint for the use of *le*. The time expressions always co-occurred with *le* in their performance with this sentence pattern. Wen also pointed out that lower level learners were aware of the discourse cues; That is, learners tended to use *le* in the answer when they heard *le* in the question but were less likely to use *le* when they did not notice the use of *le* in the question. The third pattern involved punctual verbs and stative verbs such as 晚 *wan* “late”, 停 *ting* “stop”, 忘 *wang* “forget”, etc. For instance,

(4) 他晚了，老师生气了。

Ta wan le, laoshi shengqi le.

He late LE, teacher angry LE.

He was late and the teacher was angry.

The error rates were 22.9% and 17.7% for lower-level learners and higher-level learners respectively. Wen contended that lower-level learners resorted to lexical aspect, i.e. verb types, and would consistently use *le* when they perceived a clear-cut end-point of the action.

Wen (1997) concluded that ECFL learners' acquisition of aspect markers was meaning-based, and four types of clues seemed to be crucial in learners' processing: 1) temporal sequence of actions, 2) time adverbials, 3) lexical aspects, and 4) pragmatic cues.

Teng (1999). Based on the categorization of *le* structures by Lü (1981), Teng (1999) studied the Chinese interlanguage corpus data at the Institute of Chinese as a Second Language at Taiwan Normal University. Teng analyzed 9 ECFL beginning learners' performance at different stages over a 9-month period. Similar to Wen (1995)'s findings, Teng (1999) found that learners were more likely to use *le* when an event was perceived in a "complete" sense as represented by a *verb-le-object* structure, a pattern that comprised the largest body of *le* sentences in his study. However, Teng (1999) reported that *verbal le* is the most frequently used and caused the greatest number of errors. There were 244 *verbal le* sentences recorded, 22.54% of which were wrong. And the percentage of *verbal le* errors (126 sentences) was 43.65% in proportion to all errors that are related to *le*. The percentage of *verbal le* errors and *sentential le* errors together (34 sentences) in proportion to all *le* sentences (306) was 11.11%. The error types with *verbal le* documented by Teng were largely the same as reported in Yang, Huang and Sun (1999). One difference is that Teng reported that most of the errors with *verbal le* arose from overuse, i.e. *le* was used where it should not occur. Teng contended that learners were under the influence of negative transfer of the past tense from English and claimed that the *sentential le* is more straightforward and thus should be introduced to learners prior to the introduction of *verbal le*. The pedagogical implication of Teng's conclusion was that the introduction of *verbal le* should be based on the understanding of *sentential le*, and some basic action verbs and past-time expressions such as 'yesterday', 'last week', and 'this morning' should have been taught when *verbal le* is introduced. Teng argued "...perfectivity is a semantically complex notion and may not be easily mastered by beginning-level students. What the students were attempting in the error sentences above is probably a shade of 'completion' that is close to the English simple past tense." This is in direct contrast to Wen's conclusion.

Though the current study adopts the same idea as Teng suggested for curriculum design, it is based on a different rationale, namely, that the function of sentential *le* is the same as *verbal le* except that *verbal le* contains an extra layer of interaction between the *object* and *verb-le*. Therefore, to understand the effect of complicated interactions within *verb-le-object*, a step-by-step analysis starting from *verb-le* is necessary.

Yang, Huang and Sun (1999). Using the interlanguage database at Beijing Language and Culture University, Yang, Huang and Sun (1999) studied certain *le* structures produced by ECFL learners. They divided the learners into 8 levels per semester at the university and documented 579 *le* sentences in 158 essays across all levels. The overall error rate in the use of *le* was 23%. And the error rate from the first semester was 26%. The errors were examined in relation to verb types and sentence structures and thus categorized into two groups: lexical error: when *le* occurs with a verb that disallows *le*, i.e. state verbs and activity verbs and structural error: when *le* occurs in a position where it is prohibited, e.g. after the first verb of two sequential verbs. The lexical error rate was 63% with state verbs; 21% with activity verbs; 0% with accomplishment verbs and achievement verbs. An activity phrase was the most frequent structure in learners' production (92 out of 579 sentences), and the state phrase was the least chosen structure (16 out of 579 sentences). Comparatively, the structural error rate was 0% with state verbs, 15% with activity verbs, 17% with achievement verbs and 9% with accomplishment verbs. "...past tense is used in English to encode perfectivity. Accomplishment verbs and achievement verbs are telic, indicating inherent end-points, and naturally match the past tense concept. Therefore, the co-occurrence of *le* with these two categories is the earliest and easiest for CFL learners to acquire." On the other hand, the high error rate with state verbs and activity verbs was mainly due to overuse, indicating the learners were not aware of the lexical constraints on the use of *verbal le*. Yang, *et al.* identify one of the reasons for the overuse as past-tense transfer from English. That is, the learners would use *le* whenever something was deemed to have happened in the past, regardless of lexical or structural constraints. As Wen (1995) pointed out, the correct use of *le* may not reflect proper understanding; on the contrary, the rates of

overuse and underuse of *le* based on temporal context reflect that learners were matching the notion of past tense to *le* structures.

Yang, Huang, and Cao (2000). Yang, Huang and Cao (2000) examined 120 essays and some test results to examine the overuse and underuse of *le* among 26 learners at Yanbian University in Jinlin, China whose native languages were Korean and Japanese. The learners were from four levels of an intensive training program: elementary (6-7 months); intermediate (12-14 months); advanced (2-5 years); high advanced (more than 9 years). Yang, Huang and Cao (2000) studied the phenomenon of overuse and underuse of temporal markers, including but not limited to *le*. Two types of data were collected in their study: CFL learners' performance in Chinese essay writing and their performance on tests designed by the researchers. Similar to the findings in Duff and Li (2002), Yang, Huang and Cao found that the underuse of *le* was correlated with verb types. The test results showed an underuse of *le*, especially when an activity verb or state verb was quantified by the object or time duration. (the error rate of learners at the beginning level was 41%). For instance, 我喝了两杯水 *Wo he (le) liang bei shui*. "I drink LE two CL cup water" I drank two cups of water. 他在山上玩儿了一会儿 *Ta zai shanshang wan (le) yihuir*. "He on the hill play LE a while" He played on the hill for a while.

At the same time, the study found an overuse of *le* in the essay data. The study also related the learners' errors to certain sentence structures. Specifically, Yang *et al* identified three structures that pose challenges to learners: (a) serial verb constructions in which *le* usually occurs only once after the main verb of the sentence; (b) objective clauses in which *le* should not be used after the main verb and (c) attributive phrases in which *le* should not be used even if there is a verb indicating perfectivity. Namely, learners were not sure where to place *verbal le* when two

sequential events occur in a sentence; learners did not know that *verbal le* should not be used with a verb that introduces an objective clause; learners did not know whether *le* should be used with a verb in an attributive clause or adverbial clause¹⁶. Yang *et al.* (2000) claimed that the observed overuse, in terms of both error types and sentence structures, was similar to that seen among ECFL learners. Based on Tarone (1985), Tarone and Parrish (1988), Yang, Huang and Cao (2000) attributed the cause for the different error distributions between writing data and test results to subjects' attention, i.e. the learners focused more on the content when they were writing and more on the form when they took the grammatical test. As a result, they would avoid the use of *le* in the test if they were not sure, but they would use *le* without as much grammatical monitoring effect in natural writing.

Some studies showed that perfective/past tense markers generally first occur with accomplishment verbs and achievement verbs before activity verbs and state verbs in L1 acquisition; therefore, the major error in second language aspect acquisition is the underuse of markers with activity verbs and state verbs in both L1 acquisition and L2 acquisition (Adersen, 1990; Bardovi-Harlig & Reynolds, 1995; Kaplan, 1987; Robison, 1990; Shirai & Andersen, 1995). However, Yang, Huang and Cao (2000) found that the general inclination for the underuse of *le* with activity verbs and state verbs happens to be proper in Chinese because these types of verbs generally do not go with *le* if an event/situation is not quantified. Yang *et al.* (2000) also documented the underuse of *le* in quantified structures, which contradicted the general principles in second language acquisition. Yang *et al.* described it as a unique

¹⁶ The authors original generalization was problematic in that, although there are sentences in which *verbal le* is prohibited in attributive or adverbial clauses, *verbal le* may, in fact, occur with the verb in an attributive or adverbial clause that has a certain meaning. Compare, 我买 (*了) 的桔子 *Wo mai (*le) de juzi* "the oranges that I bought" and 剥了皮的桔子 *Bo le pi de juzi* "the oranges that were already peeled".

phenomenon in the interlanguage between Chinese and the learners' native languages, Korean and Japanese. Namely, unlike English, Japanese and Korean, the use of aspect markers in Chinese is not obligatory, but subject to contextual factors such as lexical type, sentence structure, etc. When learners were aware that *le* was not obligatory in Chinese, but did not know exactly how to deploy it, they might intentionally avoid using it. Therefore, it was understandable for learners not to use *le* when they were not confident. However, Yang *et al.*'s account for the underuse did not explain why underuse only occurred in quantified structures. Additionally, it did not explain why ECFL learners were in the same situation but only showed overuse as documented by Yang, Huang, and Sun (1999), Teng (1999) and other studies.

Duff and Li (2002). Duff and Li (2002) compared the difference between native Chinese speakers and native English-speaking Chinese L2 learners in verbal *le* production. Nine native English-speaking Chinese learners (proficiency level and other L2 background not specified) and nine native Chinese speakers (geographic region and other variables not specified) were recruited for their study. A video story-retelling task, a personal narrative of vacation travel task and a written editing task of a past narrative were assigned. As the studies mentioned above, this study examined subjects' performance in different contexts separately designed so that the *le* was either obligatory, optional, or ungrammatical. The results showed a high agreement rate (94%) among native Chinese speakers regarding the use of *le* in both obligatory and ungrammatical categories. However, native Chinese speakers had different opinions on the adoption of *verbal le* in the optional category.

Duff and Li's results showed that, across the three tasks, the learners were inclined to underuse *le* in oral narratives in certain obligatory contexts and to overuse *le* with certain stative and non-perfective activity verbs. Duff & Li contended that a number of interrelated factors

could be responsible, including L1 transfer, uncertainty of the meaning of *le*, input factors, the interaction between grammatical aspect and lexical aspect, the discourse features of tasks (video-story retelling vs. personal travel narrative), and the explicitness of the form-meaning connection in instruction. Duff and Li also suggested that L1 transfer was one of the major factors that leads to learners' confusions in learning.

Ke (2005). Ke (2005) studied the oral production data of 64 ECFL learners at four instructional levels. Excepting those students at the first-year level, all the subjects took a simulated oral proficiency test (SOPI, ACTFL's computer-Simulated Oral Proficiency Interview) upon beginning and concluding an eight-week intensive program. The data consisted of about 30 hours of the subjects' spontaneous speech. The subjects' performance using 19 major Chinese linguistic features, including *le*, selected from a variety of Chinese grammar books (Chao, 1968; Li & Thompson, 1981; Y. Liu, Pan, & Gu, 1983) and textbooks used in the United States (Z. Chen, 1987; X. Liu, 1981; Yao, 1997) was analyzed. Ke divided the function of *le* into 10 types and used three coding categories: Category 1 contained sentences that were acceptable both syntactically and semantically; Category 2 included sentences that were only syntactically acceptable, and Category 3 was reserved for sentences that were only semantically acceptable. To examine the accuracy of the subjects' acquisition, only Category 1 scores were analyzed. Across all four levels, the subjects' acquisition of *le* exhibited a linear progressive pattern meaning that learners do better with *le* when they have a longer instruction time from which it can be extrapolated that, given sufficient exposure time, English-speaking learners can overcome past tense transfer.

Wang (2007). Wang (2007) investigated whether the acquisition of *le* by English-speaking learners of Chinese is influenced by past tense transfer from their native language. To gauge this, Wang conducted a Grammaticality Judgment task to test whether English-speaking Chinese L2 learners can accept co-occurrence of future time and *verbal le*. Her theory was that, if learners were caught in a past tense transfer, they would reject the combination of future time and the *le* structure, and the acceptance of this type of co-occurrence would indicate that past tense transfer was rejected. The Grammaticality Judgment test included eight pairs of sentences involving four different verb categories (Achievement, Accomplishment, State, and Activity) as defined by Smith (1991, 1997), as well as 16 fillers. Half of the target sentences combined the *verbal le* and temporal words referring to the past, such as *yesterday*, and *last year*; half of the sentences contained the *verbal le* and non-past temporal words such as *tomorrow*, and *next year*. Using a total of eight sentences, Wang tested nine English-speaking Chinese L2 learners who were third-year Chinese students at a university in the United States. All of them did well in accepting sentences containing the combination of *verbal le* and future time. Out of 100, the average score was 84.72 (SD=10.42). The results indicate that these learners were able to accept the co-existence of future time and *verbal le*, which was interpreted by Wang as a sign of the rejection of past time transfer.

However, it could be argued that Wang's (2007) results were not strong enough to allow for an out-of-hand rejection of past tense transfer because, in fact, in Wang's experiment, there were other variables that could have misled learners into accepting that co-occurrences should be ruled out. For example, in the Grammaticality Judgment Test, all fillers were in the wrong order, whereas all the test sentences were in the right order, which increases the probability that the subjects were simply accepting the "right order of words" without truly being aware of the

interaction between *verbal le* and future time. Additionally, time encoded in temporal adverbials might override time indicated by *verbal le*, meaning that the mechanism of past tense transfer might be turned off by time words referring to future, in which case learners might just accept the sentence without giving any consideration to the morphological function of *le*. If this was the situation, then the acceptance of the co-occurrence cannot be used as a reliable indicator of the rejection of past tense transfer. Lastly, mistaking *verbal le* as *sentential le* must be ruled out before asserting perfective aspect transfer.

Pan (2013). Pan (2013) examined learners' perception of the relationship between time words and the adoption of *le*. The control group consisted of eight adult native Chinese speakers from different areas in China. The experimental group consisted of 15 English-speaking third-year adult ECFL learners at a university in the United States. The subjects were tested separately in the first and second semester of the academic year. Target sentences were presented with a blank so that subjects had to decide which, among three options, the best fit was: *le*, *nothing*, or *either*. To test different combinations of a time word and *le*, three types of sentences were used: First, sentences with time words indicating future time, where *le* is either optional or mandatory, such as:

(5) 下个月我放__假就去一家公司实习。

Xiage yue wo fang __jia jiu qu yijia gongsi shixi.

Next month I have ___break then go a CL company to have internship

Second, sentences with time words indicating past time, where *le* is either optional or forbidden.

(6) 以前，我在 Kansas 工作___。

Yiqian, wo zai Kansas gongzuo___.

Before, I at Kansas work_____.

Third, sentences with time words indicating present time, where *le* is optional.

(7) 现在, 他在北京上___大学, 放假也不回家。

Xianzai, ta zai Beijing shang ___daxue, fangjia ye buhui jia.

Now, she at Beijing go _____college, does not go home even during break.

The results showed that tense grammar still had an effect on the processing of *le* in Chinese by native English-speaking third-year students. When *le* was necessary or optional with a time word indicating the future, third-year first-semester students tended not to use it, which differed significantly from native Chinese speakers, who used it consistently. The test results also showed that when *le* was forbidden or optional with a time word indicating the past, the English-speaking third-year first-semester students tended to use it while the third-year second-semester students tended not to. Native Chinese speakers used it the least. And the third-year first-semester students' performance was significantly different from native speakers ($p=0.019$). The test results also showed that, when *le* was optional with a time word indicating the present, third-year first-semester students' performance was not significantly different from native Chinese speakers($p=0.155$). However, third-year second-semester students favored *non-le* structures. They used *le* less frequently than first semester peers and native speakers. Pan (2013) concluded that time words have a priming effect on ECFL learners' acquisition of *le* and that the transfer effect size varies: future time word > past time word > present time word. That is, the effect of tense transfer is more easily seen in the presence of a future time and least easily seen in the presence of a present time word. This, in turn, correlates with Ke (2005)'s study indicating that students showed a linear correlation with instruction level.

Wang and Peng (2013). Using the HSK database at Beijing University of Language and Culture, Wang and Peng (2013) studied 118 essays by ECFL learners of three levels (beginning level, 60 pieces; intermediate level, 40 pieces; advanced level, 18 pieces). The error rate of the elementary level learners was 11.11% (21 errors out of 168 sentences, *verbal le* and *sentential le* together). Wang and Peng suggested that *verbal le* is more commonly used than *sentential le* through the three levels of ECFL learners. Learners performed better with *verbal le* than with *sentential le*. However, this conclusion was problematic in that the overall error rates were about the same (*verbal le* 9.2%, *sentential le* 8.5%) and the elementary level's error rate with *verbal le* (14.57%) was actually significantly higher than the error rate with *sentential le* (2.5%). More specifically, in the 22 documented errors with *verbal le* at the beginning level, 5 were overuse (22.73%) and 17 were underuse (77.27%). Considering the performance through all levels, the percentages become 8 overuse (24.24%) and 25 underuse (75.76%). In addition, there was no overuse of *sentential le* documented at any of the three levels. Although the study did not disclose the sentence types in which the errors occurred, the cause for the errors might be the same as in previous studies: the learners' performance was influenced by negative transfer from English: they made more mistakes with *verbal le* structure.

Summary. Results of the studies in the field show that ECFL learners are inclined to regard *le* as a past tense marker. Ke (2005), Ma (2006), and Pan (2013) found a correlation between learners' performance and their instructional level, meaning the higher a learner's level, the better he/she performs in processing *le* structures. However, besides the superficial conclusion of negative transfer of past tense from English, the underlying mechanism of this faulty tendency has not been fully investigated. On the other hand, this tendency may serve as proof that learners are not aware of the difference between past tense and perfective aspect when processing *le* structures. And this lack of awareness may, in turn, suggest that the meaning of *le* exists on a level that is deeper than aspectual grammar and tense grammar. As discussed in Chapter 1, this lack of awareness may derive from confusion between the unique aspect that *le per se* marks and the phrasal aspect that the *le* structure may have. Disregarding the interactions between a verb's lexical aspect, *le* and the object may lead to mechanical matching between *le* and temporal categories in English, either aspect or tense. This assumption will be supported in the next chapter when the results of linguistic studies and acquisition studies are put together. It should be noticed that most of the existing studies on the acquisition of *le* used a ready-developed model as their framework and thus may have overlooked the fact that these models could be misinterpreting the function of *le*. For this reason, it can be argued that some of the details of the methods and conclusions from previous studies can be questioned. Lastly, the way *le* is taught is an indispensable variable in its acquisition. Except for a few studies in which pedagogy is discussed as a practical implication of certain results, pedagogical factors have not yet been fully investigated as an independent variable in the literature.

Chapter 3: Methodology

The Methodology in this study includes the pedagogical design, experimental design, grammatical test design, statistical test design, subjects, procedure, etc.

PI as the Pedagogical Model

The pedagogical design consists of the selection of pedagogical model and the development of instructional materials. In this study, PI was selected as the pedagogical model. The properties of *le* structures and the theoretical strength of PI make it suitable for examining the effects of different syntactic accounts in that 1) PI stresses explicit information on the difference between the target item and potential counterparts in learners' native language or interlanguage beforehand. As such, the differences between the two syntactic accounts may be highlighted to the utmost degree, something that cannot be easily realized through other models. For instance, the major factor that differentiates the one-*le* account from the two-*le* account is the focus on the developmental phases: the one-*le* account focuses on the occurrence of the beginning point of a situation whereas the two-*le* account focuses on whether the situation is perfective or not. Without the manipulated highlighting of this difference, this major difference may be obscured by other superficial differences such as the interpretation of interactions between *verb-le* and its contextual elements. Subsequently, the "results" of the two accounts in teaching may not reflect the real effects of the two accounts. Conversely, with learners' attention being guided to the target points through structured input, learners' awareness of the target point will be maximally ensured and the interference of "noises" from other elements would be minimal as a result. 2) PI stresses explicit information on the potential erroneous processing strategy. As such, learners' faulty processing strategies may be anticipated before any *le* structure misunderstandings happen. Learners, regardless of which account they will be exposed

to, will all be informed about the improperness of processing *le* using tense grammar or aspect grammar. In this way, the interfering factor from the processing strategy will be maximally controlled. Considering the relevance to the research topic, this study will review literature in three fields, namely, syntactic studies on *le*, acquisition studies on *le* and pedagogical studies that are related to the current study. Based on the syntactical difference between the one-*le* account and the two-*le* account, two specific instruction designs were developed for this study: one is inception-oriented and the other is completion-oriented. Revolving around the two instructional designs, two sets of materials were prepared.

Completion-Oriented Instructional Packet¹⁷. In classroom teaching, the particularity of *le* structures was explicitly explained to learners, with examples illustrating how the completedness of a situation is encoded. The difference between the completion-based reading of *le* structures and the aspect/tense grammar was illustrated by identifying the verb's lexical aspect and the speaker's viewpoint¹⁸. Focusing on the ending point of situations, the efficiency of PI relies heavily on the accurate judgement of the lexical aspect of the verb in a *le* structure. To better promote learners' awareness of the flexibility in temporal readings, two verb types were presented to learners in teaching: activity verbs and stative verbs, both of which can be completed or progressive in terms of aspect, past and present in terms of tense¹⁹. Taking 他睡觉了 *Ta shuìjiào le* "He sleep LE" as an example, this sentence can be used to present a scenario wherein someone is/was sleeping or a scenario where someone has/had woken up. With the focus on completion, PI would direct learners' attention to the interactions that dismiss the uncertainty of the completedness indicated by *le* structures. That is, when the speaker's viewpoint is after the situation of sleeping, it will be the perfective aspect; and when the speaker's viewpoint is within the development of the situation, it will be the imperfective aspect. By contrast, if the verb is stative and the speaker's viewpoint can't be placed after a situation, the only reading for the combination of that verb and *le* will be a new situation. For example, the only reading for 他会说中文了 *Ta huì shuō zhōngwén le* "He can speak Chinese LE" is "He has/had gained the competence to speak Chinese", depending on the context, the tense can be either past or present.

After the explicit explanation, an activity was conducted in class. This activity consisted of pictures representing completed action (*le* indicating perfective aspect) and new situation.

After the presentation of a picture, learners were asked to decide whether [+le] or [-le] should be used in Chinese to describe the scenario in the picture. For instance, learners were shown a picture about a man's behavior as the result of drinking coffee, and the question "why is this guy so hyperactive?" was asked. The correct answer should be a [+le] sentence 他喝咖啡了 *Ta he kafei LE* "He drank coffee". This [+le] sentence in Chinese then was compared to the [-le] version (i.e. 他喝咖啡 *Ta he kafei* "He drinks coffee"). Similarly, the learners in the completion group were guided to produce a picture-cued new situation [+le] sentence.

¹⁷ The detailed lesson plan is attached as Appendix A.

¹⁸ Syntactic categorizations and terms will be avoided. Instead, learners will be guided to look into the relationship of the development of the verb and the speaker's viewpoint, which does not require any linguistic elaboration.

¹⁹ Learners were not explicitly taught that they needed to identify the lexical aspect of a verb. The two types of verbs were only used to illustrate how the ending point of a verb could interact with the speaker's viewpoint.

Inception-oriented Instructional Packet²⁰. In classroom teaching, the particularity of *le* structures was explicitly explained to learners, with examples illustrating how the inception/occurrence of a situation was stressed and how the completedness was irrelevant to what was encoded by *le*. The form-meaning connection of *le* was explained to learners by comparing it to its potential counterparts in English. Specifically, the relationship between lexical meaning and morphological form in English were distinguished first. For instance, the meaning of “slept” as in *He slept* is the occurrence of the activity of *sleeping* and the time for this activity is in the past, before the speaker’s time. The form “slept” combines the two meanings (a specific activity of “sleeping” and “in the past”) in English. On the same note, “be doing” in *He is sleeping* combines the occurrence of “sleeping” and the time “now”. The specific activity of “sleeping” is the same across the two sentences in English, and the “on-going” and “completed” notions are synthesized in the verb’s morphological form. In contrast to English, the specificity of a situation and its time are tackled separately in Chinese: using *le* to encode the occurrence of a specific situation, leaving the completedness and tense to other devices, e.g. explicit time words, cued time by context, particles marking completion (完 *wan* “finish”) etc. As such, Chinese can use the same single sentence 他睡觉了 *Ta shuijiao le*. “*He sleep LE*”²¹ to indicate the specific occurrence of the activity, *sleeping*. Combined with the time in the context, this sentence in Chinese can mean either *He slept* or *He is/was sleeping*.

Learners were shown how the same sentence 他睡觉了 *Ta shuijiao le*. “*He sleep LE*” is used in scenarios (illustrated by pictures, as can be seen in Appendix A and Appendix B) where

²⁰ The detailed lesson plan is attached as Appendix B.

²¹ One can add 那时候 *nashihou* “at that time” or 已经 *yijing* “already” to mean *He slept*; or one can add 现在 *xianzai* “now” to indicate *He is/was sleeping*. However, the two readings can also be clearly retrieved by referring to proper context without adding any words.

although the completedness of sleeping varies, the inception remains the same. Namely, in one scenario the sentence means someone has just woken up from sleeping, in another it means someone is in the middle of sleeping. The contrast between the same sentence and different perfective meanings will serve the purpose of illustrating to learners what is encoded by *le* (specific inception of a situation) and what is not (the completedness of the situation and the tense). Put simply, *le* encodes a specific inception/occurrence of a situation and is used when the specific inception/occurrence itself is meaningful. For instance, 他睡觉了 *Ta shuijiao le*. “*He sleep LE*” may be used to demark a state where quietness is required or where someone has been fully re-charged. In either case, it is the fact of the specific occurrence of *sleeping*, rather than its tense or completedness (which should be indicated by the context), that is pragmatically meaningful. Additionally, the same sentence can also be used to answer a question such as, “Why didn’t he come to class this morning?” —the specific occurrence of *sleeping* provides the answer. In these scenarios, what matters is a specific fact of *sleeping*; the time of the fact is not irrelevant, but it is not deemed as the focus of the pragmatic meaning in Chinese. In addition, the time grammar, either aspect or tense, is spelled separately. However, when the occurrence of a specific situation is not pragmatically meaningful, *le* should not be used, in that a general case that does not refer to any specific situation with a beginning point. This contrast and explanations were provided to learners so that they knew where to locate their attention when they were deciphering the meaning of a *le* structure in comprehension or when they want to decide whether *le* should be used in form selection.

This form-meaning explanation was followed by an activity. After the presentation of a picture, learners were asked to decide whether [+*le*] or [-*le*] should be used in Chinese to describe the scenario in the picture. For instance, learners were shown a picture about a man’s

behavior as the result of drinking coffee, and question “why this guy is so hyperactive?” was asked. The correct answer should be a [+le] sentence 他喝咖啡了 *Ta he kafei LE* “*He drink coffee LE*” “He drank coffee”. This [+le] sentence in Chinese then is compared to the [-le] version (i.e. 他喝咖啡 *Ta he kafei* “*He drink coffee*” “He drinks coffee”).

According to the PI model, learners should be pushed to process the target item with structured input, through which the target structure is highlighted, and learners are trained to process it properly. This principle was adopted by the current study. However, due to the complexity of *le* structures and learners’ limited experience (including both vocabulary and topics), it was not realistic for them to go through the processing step as learners typically did in previous studies. For instance, it was impossible to cue the verb form by just providing the time for an event or picture or vice versa. In this sense, the model was tailored in this study in such a way that besides formal cues (i.e. picture, past time/present time, [+le]/[-le]), context was stressed as the most crucial hint in structured input. The tailored version made it easier for ECFL learners to understand the function of *le* but was not exactly the original PI model. On the other hand, the application of the model was the same between the two groups. Therefore, the pedagogical model *per se* did not have different effects on the two groups’ performances.

Experimental Design

To compare the effectiveness of the two processing strategies, i.e. inception-oriented and completion-oriented, an experiment was designed. The dependent variable was ECFL learners’ performance in understanding the relationship between verb form and sentence time. Subjects were divided into two groups: a group that was taught using PI, with the focus on the inception of a situation (inception group) and a group that was taught using PI, with the focus on the completion of a situation (completion group).

The Parallel Instructional Packets. The function of *le* was introduced in a formal classroom setting in two 50-minute sessions. The teaching of *le* consisted of an introduction of approximately 30 minutes in the first lecture session, and a review of around 10 minutes in the second lecture session. The two sessions were one day apart from each other. On the next day of each lecture session, a 15-minute structured input exercise on *le* was given in the form of question and answer in the target language, Chinese. The subjects took the first posttest on the fifth day.

The two groups shared the same instructor for both lecture sessions. The drill instructors were not the same, but the content, instructional design, questions and practice format were exactly the same for the two exercise sessions.

Using the same PI model, this study consisted of two packets of instructional materials: one presented the particularity of *le* structures as being flexible in completedness (completion-based, two-*le* account), and the other presented the particularity of *le* structures as fixed in inception (inception-based, one-*le* account). Other than the treatments, the administrations of both sets of materials were exactly the same in terms of time, pace, pedagogical model, instructional design and schedule. All the tasks in both sets were the same in terms of subject matter, vocabulary items, and numbers of tokens.

Grammatical Test Design. The tests consisted of tokens that measured learners' performance in judging the compatibility of a *le* structure and the time cue in the context. The rationale was that, if the treatments had different effects on ECFL learners' understanding of *le*, the two groups' performances on *le* structures should differ from each other.

Taking into consideration the learners' level, sentence reading comprehension was selected as the test format²². A paragraph was compiled in such a way that interpretation and identification of verb form ([+le]/ [-le]) were both tested. Specifically, in terms of interpretation of verb form, the subjects were asked to decide the times indicated by the [+le] and [-le] structures in the paragraph²³. For instance,

(8) 小英会说中文了²⁴。

Xiaoying hui shuo Zhongwen le.

Xiaoying can speak Chinese LE.

Xiaoying can speak Chinese now.

With *le* being present, the subjects were asked to select the time for this situation from the following options:

- a. 小英 was able to speak Chinese.
- b. 小英 is able to speak Chinese.
- c. either a or b

²² Based on the learners' current level, three paragraphs were edited and developed as the reading material for pretest, posttest and delayed posttest, which are attached as Appendix C, Appendix D and Appendix E.

²³ The goal of perception test was to examine learners' acceptance of different combinations of [+le]/ [-le] and past/present time, of which the independent variable was the focus of PI (i.e. inception or completion), rather than a verb's lexical type. Therefore, the verb's lexical types were not strictly matched in pairs in the tests.

²⁴ The time for this sentence was cued as *now* in the context.

Though *le* was used, (8) is about *Xiaoying*'s current situation, as was cued by the context. The judgment regarding the time was reflected in the subjects' selection of the answers: they would be able to select *b*. if they knew that *le per se* was not a marker of past tense or perfective aspect; otherwise they would choose *a*. Paired with the question type represented by (8), the subjects were tested on another type of question, in which *le* was used with an event in the past. For instance,

(9) 小英来 Lawrence 了²⁵。

Xiaoying lai Lawrence le.

Xiaoying come Lawrence LE.

Xiaoying came to Lawrence.

The subjects were asked to select the time for this situation from the following options:

- a. 小英 came to Lawrence.
- b. 小英 will come to Lawrence.
- c. either a or b

(9) was about an event in the past, as was cued by the context. The selection of the answer would reflect how the subjects perceived *le* and the time that was related to it, namely, past tense and/or perfective aspect happened to overlap with *le* structure in (9) making *a*. the right answer. At the same time, another question based on a sentence that indicates past time but does not involve the *le* structure was asked. For instance, what do the following sentences mean?

(10) 小英常去吃法国菜²⁶。

²⁵ The time for this sentence should be cued as *a point of time in the past* in the context.

²⁶ The time for this sentence was cued as *before* in the context.

Xiaoying chang qu chi Faguo cai.

Xiaoying often go eat French food.

Xiaoying often went to eat French food.

The options were:

a. 小英 often went to have French food.

b. 小英 often goes to have French food.

c. either a or b

(11) 小英常跟朋友练习中文²⁷。

Xiaoying chang gen pengyou lianxi Zhongwen.

Xiaoying often with friends practice Chinese.

Xiaoying often practices Chinese with friends.

The options were:

a. 小英 often practiced Chinese with friends.

b. 小英 often practices Chinese with friends.

c. either a or b

Though *le* was not used, (10) was about *Xiaoying*'s habit in the past, as was be cued by the context. However, when *le* was not used, (11) was about *Xiaoying*'s current habit. The judgments on the times of (10) and (11) were reflected in the subjects' answer selection: they would be able to select *a.* and *b.* separately if they knew that [-*le*] did not rule out past tense; otherwise they would choose *b.* for both questions.

²⁷ The time for this sentence was cued as *present* in the context.

In terms of identification of verb form, subjects were asked to decide whether to adopt *le* in the answers based on the temporal cues provided in the paragraph. The idea was that, if the subjects knew the function of *le* well enough, they would be able to overcome tense grammar in the form selection task. The paragraph contained events and situations that were contextualized for situations that entailed both [+*le*] structures and [-*le*] structures, each type being paired with present time and past time²⁸. There were four types of tokens in total in the paragraph as introduced in chapter 1: 1) *Past time* [+*le*]; 2) *Past time* [-*le*]; 3) *Present time* [+*le*]; 4) *Present time* [-*le*]. The subjects were tested to see whether they can properly opt for a sentence with *le* in Chinese characters when [+*le*] was due and opt for a sentence without *le* when [-*le*] was due. For instance:

(12) 小英的爸爸是法国人，所以小英会说法文。

Xiaoying de baba shi faguoren, suoyi Xiaoying hui shuo fawen.

Xiaoying's dad be French, so Xiaoying can speak French.

Xiaoying's dad is French, therefore Xiaoying can speak French.

Based on a sentence like (12), the subjects were asked to answer a question indicating a temporal judgment which might, or might not, entail the use of *le*. The question was composed in this way: *Xiaoying knows how to speak French, because _____ when Xiaoying was little*. The answers were given in Chinese in a multiple-choice format:

a. 小英常跟爸爸说法文²⁹。

Xiaoying chang gen baba shuo Fawen.

²⁸ Future time was not included because the learners had not learned future time at this point.

²⁹ The glossary and translations for a. and b. are only for the convenience of the readers of this study; they were provided to the subjects in the test. It was the same with all the examples designed for the test.

Xiaoying often with dad speak French

Xiaoying often spoke French with her dad.

b. 小英常跟爸爸说法文了。

Xiaoying chang gen baba shuo Fawen le.

Xiaoying often with dad speak French LE

Xiaoying often spoke French with her dad.

c. Either a or b.

The right answer to this question was *a*. The idea here was that the subjects would know that *Xiaoying's* being able to speak French was due to the fact that *Xiaoying spoke French with her dad*. However, the subjects might have different views about the fact. The inception group might be aware that *Xiaoying spoke French with her dad* is a plain fact, and there was no contrast implied, as such they would be able to choose *a*, although the fact was in the past. By contrast, the completion group might not be as aware of the rule of occurrence, and thus would be more susceptible to past-tense transfer and more inclined to select *b*.

On the other hand, there were also cases in which an event in the past entailed the use of *le* in Chinese. The subjects were asked to answer questions for which they were required to make speculations based on the information in the paragraph. For instance,

(13) 小英来 KU了。

Xiaoying lai KU le.

Xiaoying come KU LE.

Xiaoying came to KU.

A question was formulated based the fact and time in (13): *Last weekend, Xiaoying's uncle went to New York to visit Xiaoying's family, but he did not see Xiaoying. How will you explain the reason in Chinese?* And the options were:

- a. 小英来 Kansas 。

Xiaoying lai Kansas.

Xiaoying come Kansas

Xiaoying comes to Kansas.³⁰

- b. 小英来Kansas 了。

Xiaoying lai Kansas le.

Xiaoying come Kansas LE

Xiaoying came to Kansas.

- c. Either a or b.

The right answer was *b*. Comparing the answers to the questions in (12) and (13), we would be able to tell whether the subjects were correlating past time and *le*.

On the same note, a pair of questions of this type was designed in which the perception of the relationship between *le* and the present time was tested. The subjects were asked to answer questions for which they must speculate about *Xiaoying's* current situation based on the information in the paragraph. For instance, according to the fact given in (14), the subjects were asked about *Xiaoying's* going to Chinese restaurants by answering a question like this: *Based on*

³⁰ Again, the glossary and translation were not be shown to the subjects, so they had to make their own judgment on time based on the Chinese sentences.

the information in the paragraph, how would you describe the frequency of Xiaoying's visiting Chinese restaurants in Chinese?

(14) 小英喜欢吃中国菜。

Xiaoying xihuan chi Zhongguo cai.

Xiaoying like eat Chinese food.

Xiaoying likes to eat Chinese food.

The options were:

a. 小英常去中国饭馆了。

Xiaoying chang qu Zhongguo fanguan le.

Xiaoying often go Chinese restaurant LE.

Xiaoying often goes to Chinese restaurant now.

b. 小英常去中国饭馆。

Xiaoying chang qu Zhongguo fanguan.

Xiaoying often go Chinese restaurant

Xiaoying often goes to Chinese restaurant.

c. Either a or b.

Similarly, based on the fact given in (15), the subjects were asked to answer a question that aims to test the subjects' understanding of the relationship between the use of *le* and the present time.

(15) 小英来 KU了。

Xiaoying lai KU le.

Xiaoying come KU LE.

Xiaoying came to KU.

A question was formulated in such a way that a statement based on the fact in (15) would be produced in Chinese. For instance, *Xiaoying's mom misses the days when Xiaoying was home, because _____*

a. 小英不住在纽约了。

Xiaoying bu zhuzai Niuyue le.

Xiaoying not live in New York LE

Xiaoying does not live in New York any more.

b. 小英不住在纽约。

Xiaoying bu zhuzai Niuyue.

Xiaoying not live in New York

Xiaoying does not live in New York.

c. Either a or b.

The intended answers to the questions related to (14) and (15) are *b.* and *a.* respectively in that *b.* in (14) only told a fact, whereas *a.* in (15) indicated a contrast between *Xiaoying's living in New York* and *Xiaoying's living away from New York*. Juxtaposing the answers to the questions represented by this pair, the comparison showed how much the subjects were influenced by tense grammar in English.

The questions in the verb form selection part were delivered in English for three reasons: first, to dismiss the potential that the subjects might be able to match the time and words in the answers with those in the questions if the questions were in Chinese; second, the study involves a pretest, which contained words that the subjects had not learned. Using these words in Chinese would increase the difficulty of the subjects' processing and unnecessarily impact their

performance. Therefore, questions were delivered in English to ensure that the subjects understand the question in Chinese and thus avoid the possibility that the answers did not reflect their real perception and, third, to prevent other factors, such as different retention rates of grammar patterns and vocabulary, from interfering with the performance on verb form selection. This also explained the use of the multiple-choice format which limited the answer to either a [+le] structure or a [-le] structure.

Another factor that needed to be considered was the provision of the *c.* options. *c.* was provided to capture the “grey area” in the subjects’ understanding. Specifically, taking (15) as an example, the selection of *a.* means that the subject was confident that *le* is about a contrast; the selection of *b.* indicates that the subject did not get the contrastive information carried by *le*. Still, there might be subjects who found both *a.* and *b.* acceptable, meaning they had perceived the contrastive information carried by *le*, but were fine with a non-contrastive interpretation or vice versa. Option *c.* was designed for this type of understanding. The selection of *c.* in this case indicated that the subject’s understanding of *le* was not the same as those who selected *b.*

Considering the time of the test and the subjects’ vocabulary level³¹, there were 6 questions for each pair listed above, twenty-four questions in total in each test (please see Appendix C, Appendix D, and Appendix E). These questions were on information given in one piece of narrative in Chinese characters on paper. The test made the utmost effort to limit the words used in the passage to what the subjects had formally learned. However, due to limited instructional time, inclusion of new words in the passage was inevitable. To eliminate any interference or anxiety that might be caused by the new words, they were accompanied by both

³¹ The subjects were mostly be true beginners enrolled in a beginning level course. When the test was conducted, they had learned Chinese for less than three months.

pinyin and English translations in parentheses. To eliminate influence from factors other than the instructional design, the content, format, and difficulty level of the pretest and two posttests were strictly controlled so that the results of the tests will be comparable.

Subjects. The subjects were beginning level ECFL learners in a university in the Midwest of the United States. Thirty English-speaking students enrolled in first-year Chinese classes were recruited in the study. The subjects' were all English native speakers, who had never been exposed to Chinese before they took Chinese in the university. They were divided into two groups based on their enrollment in two class sessions. One group (18 students) learned *le* with focus on the inception of a situation (inception group); the other group (12 students) learned *le* with focus on the completion of a situation (completion group). Assignment of instructional treatments to the groups was random. Pretest was used to evaluate learners' improvements and control preexisting conditions in the two groups.

Procedure. The subjects were taught in a formal classroom setting. Before beginning the chapter containing *le*, the subjects took a pretest. The teachings were distributed into two class meetings on Monday and Wednesday. As detailed above, the two groups were exposed to exactly the same materials, using the same pedagogical model, at the same pace, for the same amount of time, on the same dates, with the same instructor. On the first day, the function of *le* was fully introduced to each group with different focuses on the development of the situation represented by *le* structure. The intended time for this was approximately 30 minutes. One day later, the function of *le* was briefly reviewed for approximately 10 minutes with each group. On the fifth day after *le* was introduced, the subjects took the first posttest. One month later, the second post-test was conducted. The teaching and tests were held in a normal classroom as regular scheduled classroom activities.

Data Collection and Coding. Data was collected in surveys based on sentence time interpretation (henceforth interpretation) task and verb form selection (henceforth selection) in the format of multiple choice. Sentence time interpretation asks learners to decide the time for a sentence in Chinese which contains either [+le] or [-le] form. Verb form selection asks learners to select the verb form ([+le] or [-le]) for a hinted time. The tests were paper-based. The subjects had 50 minutes to finish each test each time. The target structure of this study was *le* sentences, which, involved factors of test format (two levels: interpretation and selection), sentence time (two levels: present and past), tense-congruence (two levels: tense-congruent and tense-incongruent). Learners were tested on their performances on eight sentence types as delineated in the table below.

Table 2 The factors and structure types.

Test Format	Sentence Time	Verb Form	Tense-congruence	Structure Type
Time Interpretation	Present time	[+le]	Tense-incongruent	Type 1
		[-le]	Tense-congruent	Type 2
	Past time	[+le]	Tense-congruent	Type 3
		[-le]	Tense-incongruent	Type 4
Form Selection	Present time	[+le]	Tense-incongruent	Type 5
		[-le]	Tense-congruent	Type 6
	Past time	[+le]	Tense-congruent	Type 7
		[-le]	Tense-incongruent	Type 8

Each of the eight types consisted of three questions. Therefore, there were 24 questions on the each of the test. The test also contained 8 fillers that were based on the content of the paragraph. The questions were strictly controlled across the tests and were shuffled on each test. Learners had taken a pretest, a posttest and a delayed posttest, which were taken as the three levels of the factor of test. A 3(test) x2(group) x2(format) x2(sentence time) x2 (tense-congruence) factorial design was developed, as illustrated below.

Table 3 Mixed ANOVA statistical test design.

Group	Test	Test format	Sentence time	Tense-congruence	Combination type
Completion	Pretest	Time interpretation	Present time	Tense-incongruent	Type 1
				Tense-congruent	Type 2
			Past time	Tense-congruent	Type 3
				Tense-incongruent	Type 4
		Verb form selection	Present time	Tense-incongruent	Type 5
				Tense-congruent	Type 6
			Past time	Tense-congruent	Type 7
				Tense-incongruent	Type 8
	Posttest	Time interpretation	Present time	Tense-incongruent	Type 1
				Tense-congruent	Type 2
			Past time	Tense-congruent	Type 3
				Tense-incongruent	Type 4
		Verb form selection	Present time	Tense-incongruent	Type 5
				Tense-congruent	Type 6
			Past time	Tense-congruent	Type 7
				Tense-incongruent	Type 8
	Delayed Posttest	Time interpretation	Present time	Tense-incongruent	Type 1
				Tense-congruent	Type 2
			Past time	Tense-congruent	Type 3
				Tense-incongruent	Type 4
		Verb form selection	Present time	Tense-incongruent	Type 5
				Tense-congruent	Type 6
			Past time	Tense-congruent	Type 7
				Tense-incongruent	Type 8
Inception	Pretest	Time interpretation	Present time	Tense-incongruent	Type 1
				Tense-congruent	Type 2
			Past time	Tense-congruent	Type 3
				Tense-incongruent	Type 4
		Verb selection	Present time	Tense-incongruent	Type 5
				Tense-congruent	Type 6
			Past time	Tense-congruent	Type 7
				Tense-incongruent	Type 8
	Posttest	Time interpretation	Present time	Tense-incongruent	Type 1
				Tense-congruent	Type 2
			Past time	Tense-congruent	Type 3
				Tense-incongruent	Type 4
		Verb form selection	Present time	Tense-incongruent	Type 5
				Tense-congruent	Type 6
			Past time	Tense-congruent	Type 7
				Tense-incongruent	Type 8
	Delayed Posttest	Time interpretation	Present time	Tense-incongruent	Type 1
				Tense-congruent	Type 2
			Past time	Tense-congruent	Type 3
				Tense-incongruent	Type 4
		Verb form selection	Present time	Tense-incongruent	Type 5
				Tense-congruent	Type 6
			Past time	Tense-congruent	Type 7
				Tense-incongruent	Type 8

The dependent variable was learners' scores on tests, and the factors were test (pretest, posttest, delayed posttest), group (completion group, inception group), format (interpretation vs. selection), sentence time (present vs. past) and the test structures' tense-congruence (tense-congruent vs. tense-incongruent). Learners' scores were calculated on each structure type, based on accuracy, i.e. correct answers were coded as 1; wrong answers were coded as 0³². Since each structure type include three questions, the full point of each structure type was 3, and the accepted mean score was set at 1.5.

³² Option *c.* was designed to capture learners' hesitation between the right answer and the wrong answer of each question. However, in order to reflect influences of the two treatments in a more precise manner, answer *c.* was coded as "wrong".

Statistical Analysis. The mean scores on the eight structure types were used to evaluate learners' absolute improvements. The significance of interactions was used to evaluate the change in learners' processing strategies. The correlation between different structure types were used to indicate whether learners' processing strategies were consistent across structure types.

Statistical Analysis on Specific Structure Types. A 3(test) x2(group) repeated-measure analysis of variance (Mixed ANOVA) was conducted on each of the eight structure types to evaluate whether the two treatments were significantly different in facilitating ECFL learners' proper understanding of the target structures. The rationale was, if the two groups' mean scores were significantly different between the tests, then the two treatments must have influenced the two group differently.

Statistical Analysis on Interactions. A 3(test) x2(group) x2(format) x2(sentence time) x2(tense-congruence) repeated-measure analysis of variance (Mixed ANOVA) was conducted to evaluate whether the two treatments had caused significant change in certain interactions among tests. The rationale was, if the two treatments significantly affected the two groups processing, then the significance of some interactions should change between tests. There were four types of interactions in the analysis:

- 1) Interactions without group and test, including test format*sentence time, test format*tense-congruence, sentence time* tense-congruence, test format*sentence time*tense-congruence. The significance of this type of interaction was meaningful in analyzing the performance of the population.
- 2) Interactions with group, but without test, including two-factor interaction, such as format*group, sentence time*group, etc.; three-factor interaction, such as format*sentence time* group, format*tense-congruence*group, etc.; and four-factor

interaction, that is, test format*sentence time*tense-congruence*group. The significance of this type of interaction was meaningful in indicating whether the two groups were the same or not on the interactions. Note that without interactions with test, the significant interactions of this type only signaled overall difference between the two groups, and the difference might or might not be a function of treatments.

3) Interactions with test, but without group, including two-factor interaction, such as format*test, sentence time*test, etc.; three-factor interaction, such as format*sentence time* test, format*tense-congruence*test, etc.; four-factor interaction, that is, test format*sentence time*tense-congruence*test. The significance of this type of interaction was meaningful in indicating whether the performance of the population was significantly influenced by the treatments. Note that without interactions with group, the significant interactions of this type only signaled overall main effect of the treatments, and the treatments might function significantly differently or not significantly differently.

4) Interactions with test and group, including two-factor interaction, that is, test*group; three-factor interaction, such as format*test*group, sentence time*test*group, etc.; four-factor interaction, such as format*sentence time*test*group, sentence time*tense-congruence*test*group, etc.; and five-factor interaction, that is, test format*sentence time*tense-congruence*test*group. The significance of this type of interaction was meaningful in illustrating the two groups' relationship and whether this relationship was subject to the treatment each group received.

Based on the interaction types, the analysis was divided into eight parts: 1) the overall significance of the interaction between group and test; 2) the effect of test format and its

interactions with test, group, and test*group; 3) the effect of sentence time and its interactions with test, group, and test*group; 4) the effect of sentence time and its interactions with test, group, and test*group; 5) the significance of interaction between test format and sentence time, and the interaction's further interactions with test, group, and test*group; 6) the significance of interaction between test format and tense-congruence, and the interaction's further interactions with test, group, and test*group; 7) the significance of the interaction between sentence time and tense-congruence, and the interaction's further interaction with test, group, and test*group, and 8) the significance of the interaction of test format, sentence time and tense-congruence, and the interaction's further interaction with group, test, and group*test. Per the necessity of the analysis, one-sample *t* test, paired-samples *t* test, or one-way ANOVA was conducted as follow-up test after certain tests.

Statistical Analysis on Correlations. To evaluate whether learners experienced tense-driven changes in processing *le* structures, Pearson correlation Coefficient test was conducted. The study examined the correlations between two categories of combinations, namely, tense-congruent structures (type 2 and type 3, type 6 and type 7) and tense-incongruent structures (type 1 and type 4, type 5 and type 8). The rationale was that, if learners were under the influence of tense grammar, there would be separate correlations between tense-congruent structures and tense-incongruent structures. The correlation test was different from the first two types in that the main effect of treatment test on each structure type only indicated whether the difference between the treatments was reflected in scores; the significance of interaction tests only indicated whether there the interactions were significantly influenced by the treatments; whereas the correlation tests indicated how strong learners' processing strategies were related to tense grammar.

Chapter 4: Analysis and Discussion

The effects of the two instructional treatments were analyzed in three dimensions: 1) by learners' scores on each of the eight structure types; 2) by the changes of significance of interactions between different factors; 3) by the changes of the correlations between different structure types. The first dimension measures the effects of the two treatments on the accuracy rate of specific structures. The second dimension measures the interplay between the rules introduced through the target structures and the preexisting rules in learners' interlanguage or native language. The third dimension measures whether the treatments caused systematic change in learners' processing strategies.

Learners' Performances on the Eight Structure Types

The target structure of this study was *le* sentences, which, involved factors of test format (two levels: interpretation and selection), sentence time (two levels: present and past), tense-congruence (two levels: tense-congruent and tense-incongruent). Accordingly, learners were tested on their performances on eight sentence types as delineated in the table 2. The research question in this section is whether the two groups performed equally well on each of the eight structure types, as illustrated by table 2.

Type 1 performance. There was no significant interaction between group, test, and type 1 sentence performance, $F(2, 52) = 1.468, p > .05$, which means that the two treatments did not cause any performance difference on *le*-cued present time sentence interpretation between the two groups. In other words, upon the perception of *le* in a sentence, the judgments ECFL learners made on whether the sentence time should be present or past were not significantly different between the groups. The inception group was predicted to be more willing to take present time for this type of *le* sentence after treatment, but this prediction was not supported by the results of the test.

Table 4 Structure type 1 results.

Tests of Within-Subjects Effects

Measure: type 1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_post2	Sphericity	1.356	2	.678	1.167	.319	.043
	Assumed						
	Greenhouse-Geisser	1.356	1.323	1.025	1.167	.304	.043
	Huynh-Feldt	1.356	1.421	.955	1.167	.307	.043
	Lower-bound	1.356	1.000	1.356	1.167	.290	.043
pre_post_post2 * group	Sphericity	1.705	2	.853	1.468	.240	.053
	Assumed						

Greenhouse	1.705	1.323	1.288	1.468	.241	.053
-Geisser						
Huynh-Feldt	1.705	1.421	1.200	1.468	.241	.053
Lower-bound	1.705	1.000	1.705	1.468	.237	.053

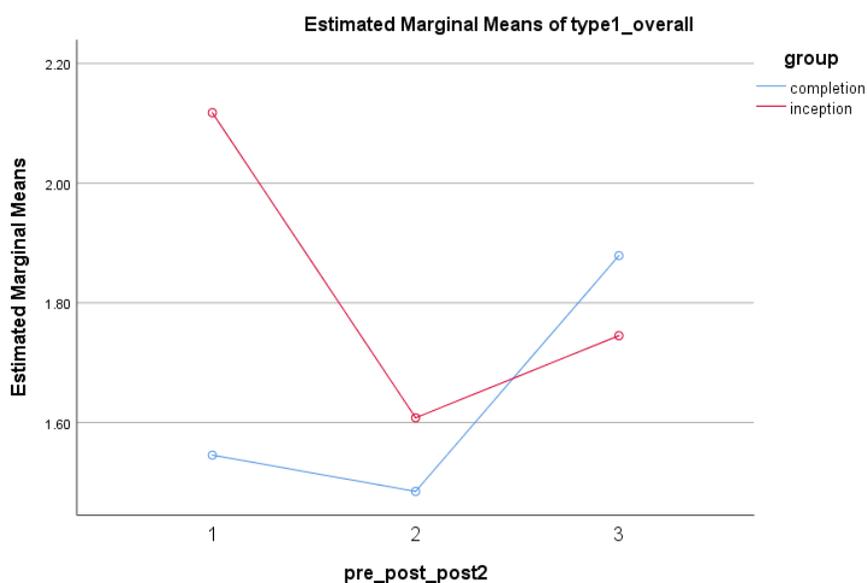


Figure 1. The two groups structure type 1 performances across the three tests

The graph shows that each group's score decreased on the posttest and increased slightly on the delayed posttest, which means that both groups underwent some self-adjustment on the judgment of the relationship between the [+*le*] form and present time. Apparently, the balance between the new intake from instruction and the pre-existing tense-based rules was changing. However, it was not clear whether the adjustment was due to the fact that the new intake was developing in learners' interlanguage or simply due to the waning of the intake and the return of the pre-existing rules.

Type 2 performance. There was a significant interaction between group, test, and type 2 sentence performance, $F(2, 54) = 5.317, p < .05$, which means that two treatments caused a difference on [-le]-cued present time sentence interpretation between the two groups. In other words, upon the perception of [-le] in a sentence, the inception group's judgment on present time was significantly different from that of the completion group across the three tests. The two groups were predicted to perform similarly on this type of *le* sentence, but this prediction was not supported by the results of the test. The graph shows that the inception group underwent a bigger change between the pretest and posttest than the completion group did indicating that the inception-focused treatment had a stronger effect than the completion-focused treatment had on [-le]-cued present time sentence interpretation. Put differently, as the result of the treatments, upon the perception of a [-le] form, the inception group was more open to the possibility that the time might be past than the completion group was.

Table 5 Structure type 2 results.

Tests of Within-Subjects Effects

Measure: type 2

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_ post2	Sphericity	12.224	2	6.112	28.92	.000	.517
	Assumed				5		
	Greenhouse- Geisser	12.224	1.736	7.043	28.92	.000	.517
	Huynh-Feldt	12.224	1.913	6.390	28.92	.000	.517
	Lower-bound	12.224	1.000	12.224	28.92	.000	.517
pre_post_ post2 * group	Sphericity	2.247	2	1.124	5.317	.008	.165
	Assumed						
	Greenhouse- Geisser	2.247	1.736	1.295	5.317	.011	.165
	Huynh-Feldt	2.247	1.913	1.175	5.317	.009	.165
	Lower-bound	2.247	1.000	2.247	5.317	.029	.165

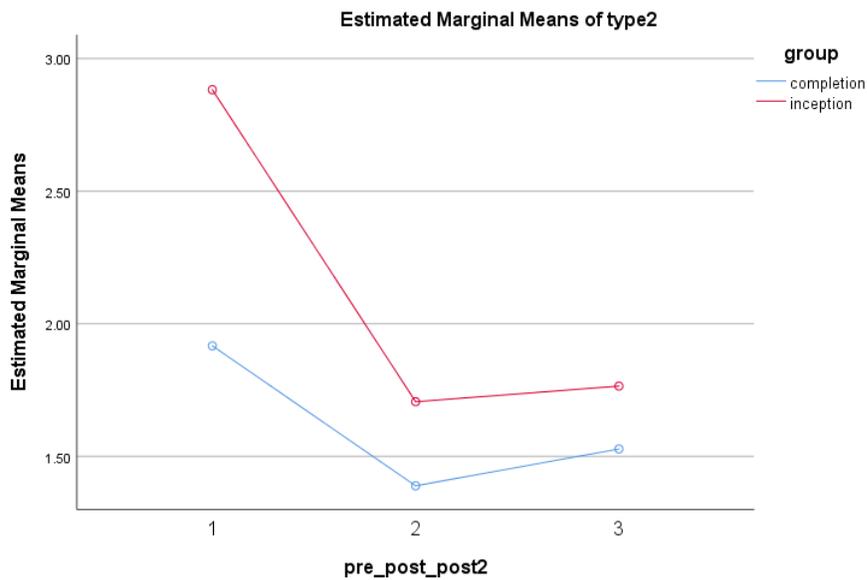


Figure 2. The two groups structure type 2 performances across the three tests.

The scores of both groups remained at the same level on the delayed posttest. However, since there might have been concurrent competition and interpenetration between the newly introduced rules and the preexisting rules, it was not clear what caused the performance stability between the posttest and the delayed posttest for each of the groups.

Type 3 Performance. There was no significant interaction between group, test, and type 3 sentence performance, $F(2, 54) = .583, p > .05$, which means that the two treatments did not cause significance performance difference on *le*-cued past time sentence interpretation between the two groups. Upon the perception of *le* in a sentence, the judgments ECFL learners made on whether the time should be present or past were not significantly different between the groups. The inception group was predicted to be more prone to accept present time for this type of *le* sentence, but this prediction was not supported by the results of the test. The graph shows that each group's score decreased on the posttest on almost the same scale, and each group's score showed a slight increase on the delayed posttest, which means that both treatments functioned in a similar manner.

Table 6 Structure type 3 results.

Tests of Within-Subjects Effects

Measure: type 3

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_post2	Sphericity	15.191	2	7.596	17.031	.000	.387
	Assumed						
	Greenhous e-Geisser	15.191	1.571	9.669	17.031	.000	.387
	Huynh- Feldt	15.191	1.713	8.868	17.031	.000	.387
	Lower- bound	15.191	1.000	15.191	17.031	.000	.387
pre_post_post2 * group	Sphericity	.520	2	.260	.583	.562	.021
	Assumed						
	Greenhous e-Geisser	.520	1.571	.331	.583	.523	.021
	Huynh- Feldt	.520	1.713	.303	.583	.537	.021
	Lower- bound	.520	1.000	.520	.583	.452	.021

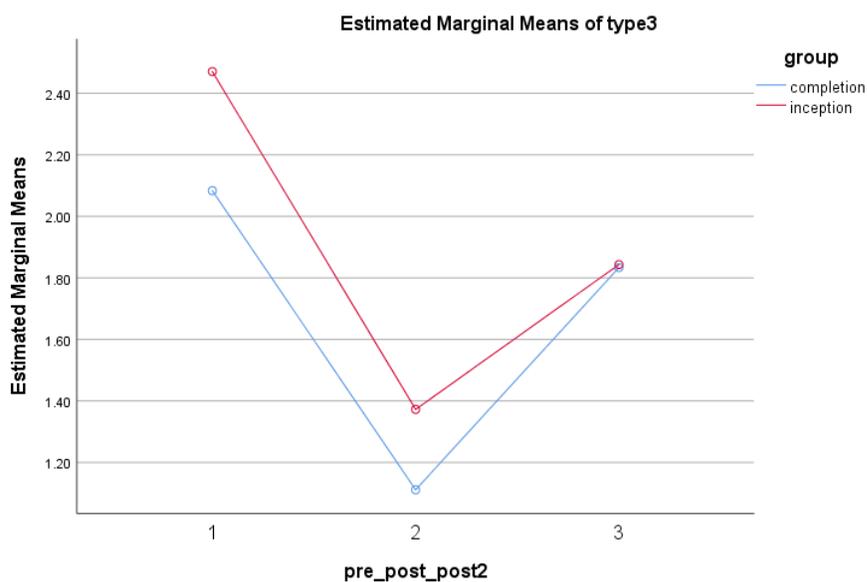


Figure 3. The two groups structure type 3 performances across the three tests

The scores of both groups bounced back on the delayed posttest. The results of a paired samples t test showed that the mean score of the completion group on posttest ($M = 1.11$, $SD = .72$) was significantly different from the mean score on the delayed posttest ($M = 1.83$, $SD = .27$), $t(11) = -3.46$, $p < .01$. On the same note, the mean score of the inception group on posttest ($M = 1.37$, $SD = .50$) was significantly different from the mean score on the delayed posttest ($M = 1.84$, $SD = .29$), $t(16) = -3.05$, $p < .01$.

Paired Samples Statistics on Completion Group Type 3 Interpretation

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	post_type3_percpt	1.1111	12	.71539	.20652
	post2_type3_percpt	1.8333	12	.26591	.07676

Paired Samples Test on Completion Group Type 3 Interpretation

Pair		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
1	post_type3_perc pt - post2_type3_per cpt	-.7222	.72242	.20854	-1.18122	-.26322	-3.463	11	.005

Figure 4. Paired Samples Statistics on completion group type 3 performances between delayed posttest and posttest.

Paired Samples Statistics on Inception Group Type 3 Interpretation

Pair		Mean	N	Std.	Std. Error
				Deviation	Mean
1	post_type3_percpt	1.3725	17	.49836	.12087
	post2_type3_perc pt	1.8431	17	.29149	.07070

Paired Samples Test on Inception Group Type 3 Interpretation

Pair		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
1	post_type3_perc - post2_type3_percpt	-.4705	.63529	.15408	-.79722	-.14395	-3.054	16	.008

Figure 5. Paired Samples Statistics on inception group type 3 performances between delayed posttest and posttest.

The results of one sample t test showed that the completion groups' sample mean of 1.83, ($SD = .27$), was significantly different from 1.5, $t(11) = 4.34$, $p = .00$. The 95% confidence interval for type 3 posttest interpretation mean ranged from 1.66 to 2.00. The effect size d of 1.22 indicates a large effect. On the same note, the inception groups' sample mean of 1.81, ($SD = .31$), was significantly different from 1.5, $t(17) = 4.35$, $p = .00$. The 95% confidence interval for type 3 posttest interpretation mean ranged from 1.66 to 1.97. The effect size d of 1.03 indicates a large effect. In other words, both groups performed significantly better than mere chance would explain.

One-Sample Statistics: Completion Group

	N	Mean	Std. Deviation	Std. Error Mean
post2_type3_percpt	12	1.8333	.26591	.07676

One-Sample Test: Completion Group

Test Value = 1.50

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
post2_type3_per cpt	4.342	11	.001	.33333	.1644	.5023

Figure 6. The results of one-sample t test on completion group type 3 performance.

One-Sample Statistics: Inception Group

	N	Mean	Std. Deviation	Std. Error Mean
post2_type3_percpt	18	1.8148	.30726	.07242

One-Sample Test: Inception Group

Test Value = 1.5

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
post2_type3_per cpt	4.347	17	.000	.31481	.1620	.4676

Figure 7. The results of one-sample t test on inception group type 3 performance.

However, again, concurrent competition and interpenetration between the new intake and the pre-existing rules in each group could have had an effect. More importantly, both pre-existing rules and a successful digestion of the newly introduced rules could have contributed to the positive changes seen in each group. Therefore, looking at the change *per se*, it was not clear

whether it was due to the establishment of the new rules or the revival of tense grammar, or an interplay between the new rules and the tense grammar.

Type 4 Performance. There was no significant interaction between group, test, and type 4 sentence performance, $F(2, 54) = .803, p > .05$, which means that two treatments did not cause any significant performance difference on [-le]-cued past time sentence interpretation between the two groups. In other words, upon the interpretation of a [-le] form in a sentence, the judgments ECFL learners made about whether the time should be present or past were not significantly different between the groups. The inception group was predicted to perform better on this type of *le* sentence. Although this prediction was not statistically proven by the results, the graph shows that it might be true that, under the influence of the treatments, the completion group became less open to past time than the inception group did. In other words, the completion group did not benefit from the instruction that [-le] might go with past time; on the contrary, there seemed to be a stronger past-tense influence on the completion group after the treatment. By contrast, the inception group's performance did not significantly change on the posttest, which means that the inception group was as ready to accept past time for a [-le] form as they had been before the treatment, and readier to do so after the treatment than the completion group. Note that this is only what was suggested by the graph and was not conclusively proved by the results.

Table 7 Structure type 4 results.

Tests of Within-Subjects Effects

Measure: type 4

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_post2	Sphericity	.182	2	.091	.279	.758	.010
	Assumed						
	Greenhouse- Geisser	.182	1.842	.099	.279	.740	.010
	Huynh-Feldt	.182	2.000	.091	.279	.758	.010
	Lower-bound	.182	1.000	.182	.279	.602	.010
pre_post_post2 * group	Sphericity	.524	2	.262	.803	.453	.029
	Assumed						
	Greenhouse- Geisser	.524	1.842	.284	.803	.444	.029
	Huynh-Feldt	.524	2.000	.262	.803	.453	.029
	Lower-bound	.524	1.000	.524	.803	.378	.029

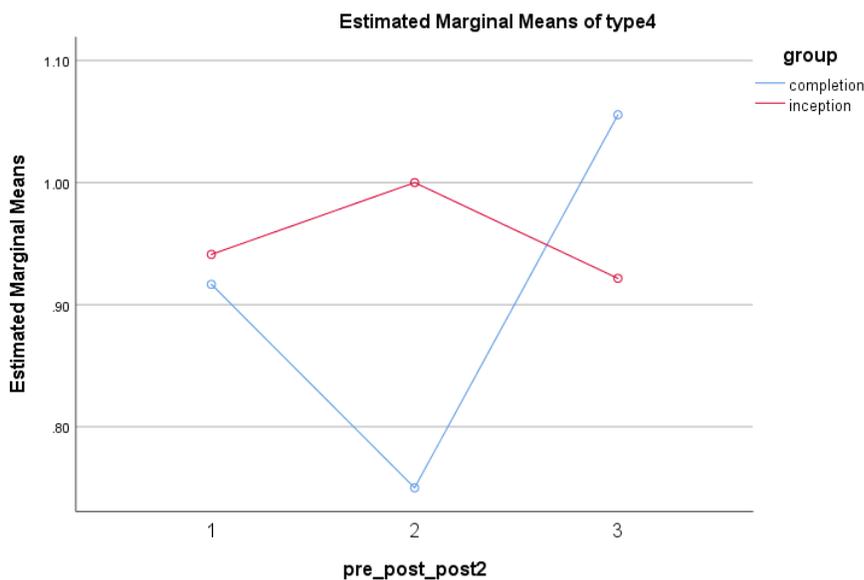


Figure 8. The two groups structure type 4 performances across the three tests.

At the same time, the inception group's performance remained on the same level on the delayed posttest while the completion group's performance showed an increase, although not a statistically significant one. This difference between the two groups might be taken as a signal that the completion group performed better than the inception group on this tense-incongruent structure and thus the completion-based treatment might have outperformed the inception-based treatment in shaping proper interpretation of the tense-incongruent relationship. However, this conclusion is premature as both groups' scores were significantly lower than the accepted mean score of 1.5. The logic was that, upon the perception the *[-le]* form, the odds of learners choosing the intended past time was 50 percent if tense grammar and newly introduced rules were equally influential, and their mean score would be close to the accepted mean, 1.5. Conversely, if their mean score was significantly lower than 1.5, then it was still highly likely that the newly introduced rules were outweighed by tense grammar. Put differently, both groups, upon the perception of *[-le]*, were inclined to select present time for a type 4 structure when past time was

required; this inclination was a sign of tense grammar influence, which was proven by the groups' performances on type 5 and type 8 structures.

In comparing the two groups' performances on structure type 4 to those on structure type 2, it can be seen that learners, in general, preferred past time for type 2 and preferred present time for type 4, although both types were cued by a [-*le*] form. These different preferences indicate that other factors were affecting learners' judgment on the relationship between verb form and sentence time, an area that begs for further exploration.

Type 5 Performance. There was no significant interaction between group, test, and type 5 sentence performance, $F(2, 54) = .428, p > .05$, which means that the two treatments did not cause performance difference on present-time-cued [+*le*] verb form selection between the two groups. In other words, upon the perception of present time in a sentence, ECFL learners' judgments on the [+*le*] form were not significantly different between the groups. The inception group was predicted to be more likely to choose the [+*le*] form, but it was not confirmed by the test results.

Table 8 Structure type 5 results.

Tests of Within-Subjects Effects

Measure: type 5

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_post2	Sphericity	16.345	2	8.173	19.411	.000	.418
	Assumed						
	Greenhouse- Geisser	16.345	1.707	9.578	19.411	.000	.418
	Huynh-Feldt	16.345	1.878	8.705	19.411	.000	.418
	Lower-bound	16.345	1.000	16.345	19.411	.000	.418
pre_post_post2 * group	Sphericity	.360	2	.180	.428	.654	.016
	Assumed						
	Greenhouse- Geisser	.360	1.707	.211	.428	.623	.016
	Huynh-Feldt	.360	1.878	.192	.428	.641	.016
	Lower-bound	.360	1.000	.360	.428	.518	.016

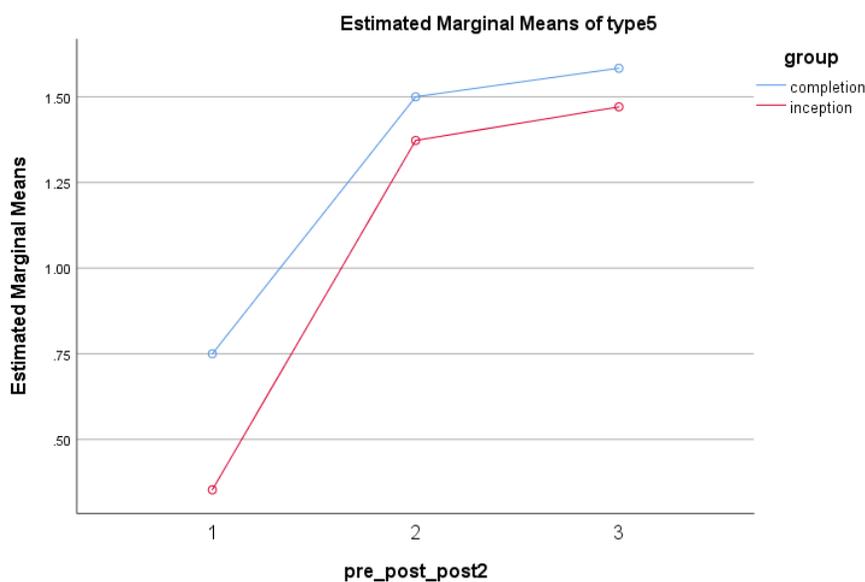


Figure 9. The two groups structure type 5 performances across the three tests.

The graph shows that both groups improved significantly on the posttest, and the achievement remained stable at the time of the delayed posttest. Put differently, both groups became equally aware that present time could co-occur with the [+le] form. However, this awareness only produced a chance level accuracy rate. In other words, although learners' understanding of the relationship between present time and the [+le] form improved, the intake from instruction was not clear enough to help learners consistently choose correct options. The inception analysis and completion analysis were equally ineffective in promoting ECFL learners' proper interpretation of the necessity of *le*.

Type 6 Performance. There was no significant interaction between group, test, and type 6 sentence performance, $F(2, 54) = .167, p > .05$, which means that two treatments did not cause a performance difference on present-time-cued [-le] form selection between the two groups. In other words, upon the perception of present time in a sentence, ECFL learners' judgments on the [-le] form were not significantly different between the groups. The two groups were predicted to perform equally well on this type of structure and this was proven by the results. The graph shows that both groups' scores dropped slightly on the posttest, and the scores were not significantly different on the delayed posttest.

Table 9 Structure type 6 results.

Tests of Within-Subjects Effects

Measure: type6

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_post2	Sphericity Assumed	.094	2	.047	.233	.793	.009
	Greenhouse- Geisser	.094	1.851	.051	.233	.776	.009
	Huynh-Feldt	.094	2.000	.047	.233	.793	.009
	Lower-bound	.094	1.000	.094	.233	.634	.009
pre_post_post2 * group	Sphericity Assumed	.068	2	.034	.167	.846	.006
	Greenhouse- Geisser	.068	1.851	.037	.167	.830	.006
	Huynh-Feldt	.068	2.000	.034	.167	.846	.006
	Lower-bound	.068	1.000	.068	.167	.686	.006

What is implied is that both groups learned that present time might co-occur with [+le] form, so all learners were slightly less willing to opt for the [-le] form than they were on the pretest.

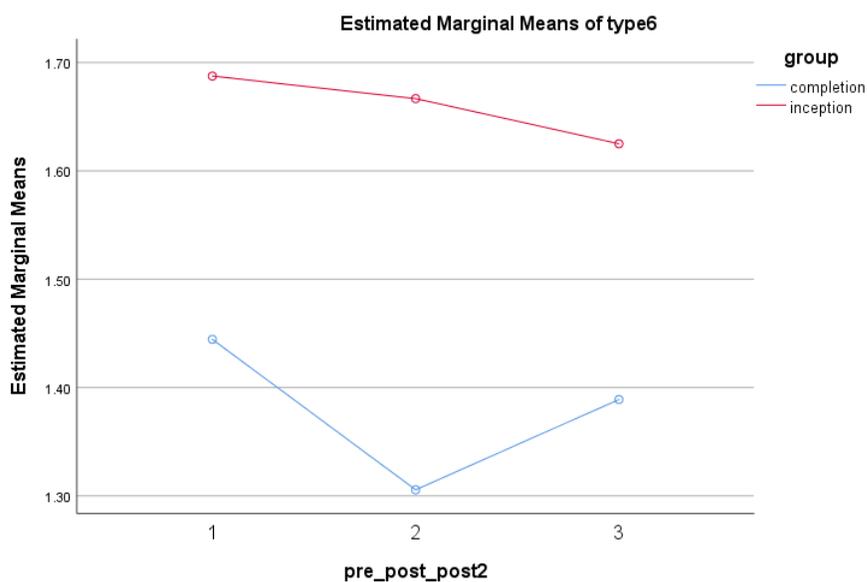


Figure 10 The two groups structure type 6 performances across the three tests.

However, again, this is only slightly suggested by the graph, but was not proven by statistical analysis.

Table 10 Structure type 6 between-subjects results.

Tests of Between-Subjects Effects

Measure: type 6

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	190.032	1	190.032	575.372	.000	.957
group	1.614	1	1.614	4.886	.036	.158
Error	8.587	26	.330			

On a different note, as shown in the table above, there was a significant between-subjects difference between the two groups, $F(1, 26) = 4.886, p < .05$. This difference was not evident in the interaction between test and group; therefore, we must conclude that this difference was not due to the effects of the treatments and would not be discussed here.

Type 7 Performance. There was no significant interaction between group, test, and type 7 sentence performance, $F(2, 54) = 2.697, p > .05$, which means that two treatments did not cause a significant performance difference on past-time-cued [+le] form selection between the two groups. In other words, upon the perception of past time in a sentence, ECFL learners' judgments on the [+le] form were not significantly different between the groups. The completion group were predicted to perform better on this structure type but this was not borne out by the results. However, the difference was close to significant, $p = .076$.

Table 11 Structure type 7 results.

Tests of Within-Subjects Effects

Measure: type 7

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_post2	Sphericity	4.547	2	2.274	8.161	.001	.232
	Assumed						
	Greenhouse-Geisser	4.547	1.857	2.449	8.161	.001	.232
	Huynh-Feldt	4.547	2.000	2.274	8.161	.001	.232
	Lower-bound	4.547	1.000	4.547	8.161	.008	.232
pre_post_post2 * group	Sphericity	1.503	2	.751	2.697	.076	.091
	Assumed						
	Greenhouse-Geisser	1.503	1.857	.809	2.697	.081	.091
	Huynh-Feldt	1.503	2.000	.751	2.697	.076	.091
	Lower-bound	1.503	1.000	1.503	2.697	.112	.091

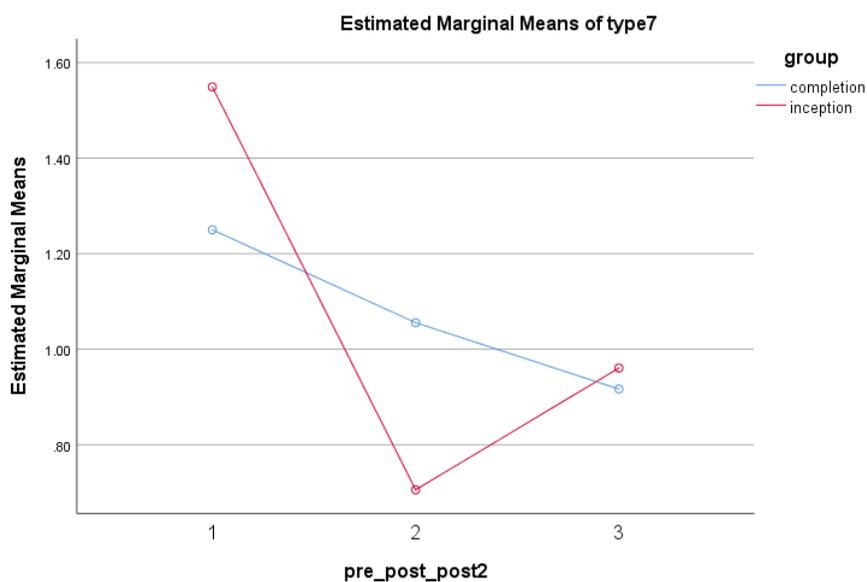


Figure 11. The two groups structure type 7 performances across the three tests.

As suggested by the graph in figure 11, the completion group seemed to be more willing to select the [+le] form than the inception group was on the posttest, and the two groups' performances on the delayed posttest were similar. There are two points to clarify here: 1) The seemingly better performance of the completion group might be due to the influence of tense grammar, but it might also be due to a better understanding of past time and the [+le] form as well, and 2) The difference between the two groups was only suggested but not statistically supported.

Type 8 Performance. There was no significant interaction between group, test, and type 8 sentence performance, $F(2, 54) = .003, p > .05$, which means that two treatments did not cause a performance difference on past-time-cued [-le] form selection between the two groups. In other words, upon the perception of past time in a sentence, ECFL learners' judgments on the [-le] form were not significantly different between the groups. The inception group was predicted to be more likely to choose the [-le] form, but this was not confirmed by the test results.

Table 12 Structure type 8 results.

Tests of Within-Subjects Effects

Measure: type 8

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_post2	Sphericity	2.046	2	1.023	2.628	.081	.089
	Assumed						
	Greenhouse- Geisser	2.046	1.636	1.251	2.628	.093	.089
	Huynh-Feldt	2.046	1.792	1.142	2.628	.088	.089
	Lower-bound	2.046	1.000	2.046	2.628	.117	.089
pre_post_post2 * group	Sphericity	.002	2	.001	.003	.997	.000
	Assumed						
	Greenhouse- Geisser	.002	1.636	.002	.003	.992	.000
	Huynh-Feldt	.002	1.792	.001	.003	.995	.000
	Lower-bound	.002	1.000	.002	.003	.956	.000

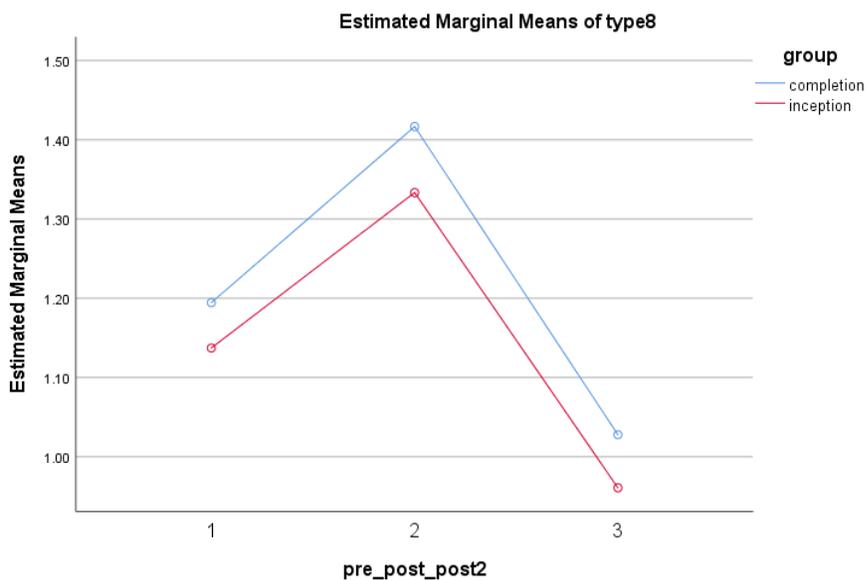


Figure 11. The two groups structure type 8 performances across the three tests.

The graph shows that both groups improved significantly on the posttest, and their achievements dropped on almost the same scale on the delayed posttest. Put differently, after the treatments, both groups became equally aware that past time could co-occur with the *[-le]* form but this knowledge wasn't retained well by either group. The results of pairwise comparisons showed that both groups' posttest scores were significantly different from their delayed posttest scores.

Table 13 Structure type 8 delayed posttest and posttest pairwise comparisons.

Pairwise Comparisons

Measure: post_post2_type8

(I)	(J)	Mean Difference (I- J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	.381 [*]	.152	.018	.069	.692
2	1	-.381 [*]	.152	.018	-.692	-.069

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Table 14 Structure type 8 delayed posttest and pretest pairwise comparisons.

Pairwise Comparisons

Measure: pre_post2_type8

(I)	(J)	Mean Difference (I- J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
1	2	.185	.196	.353	-.217	.587
2	1	-.185	.196	.353	-.587	.217

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The p value was .018, smaller than the α of $.05/2 = .025$; therefore, the difference between the posttest score and the delayed posttest score was significant and this was true for both groups: each group's performance on type 8 sentences dropped significantly on the delayed posttest,

compared to its performance on the posttest. What is indicated here is that learners' newly gained knowledge that past time might go with the [-*le*] form was largely eroded by past tense grammar: upon the perception of past time, learners tended to erroneously favor the [+*le*] form. The erroneous preference for the [+*le*] form for past time was not significantly different from that shown on the pretest: $p = .353$. Both groups' performances on type 8 verb form selection dropped back to pretest level. The downgrade appears to indicate that the influence of intake from input had severely waned.

In sum, among the eight combination types, only type 2 was subject to the difference between the two treatments, i.e. upon perceiving the [-*le*] form, the inception group was significantly more prone to choose past time than the completion group was. Interestingly, upon perceiving past time, both groups were equally inclined to choose the [-*le*] form on type 4. In this sense, the effects of the treatments were manifested in an asymmetrical fashion—the influence on interpretation and the influence on verb form selection were not the same. Beside the different effects on type 2 structures, the two treatments exerted similar influences on the rest of the seven structure types. Based on the similarities, the effects of the two treatments can be evaluated as the influence of one intervention method, which varied depending on what the structure types were. For instance, a comparison of the groups' performances on type 5 and type 8 structures suggests that the intervention had a more stable influence on present tense grammar than on past tense grammar. This conclusion was supported by the two groups' performances on type 3 and type 8 structures. Specifically, both groups' performances underwent a V shaped change through the three tests on type 3 and a Λ -shaped change on type 8. As analyzed above, if the Λ -shaped change indicates that the effects of intake waned by the time of the delayed posttest, then the V shape must mean that the bounce on type 3 was due to attrition of input. At

the same time, the intervention generally had more positive effects on verb form selection than on interpretation. On the same note, the intervention generally had positive effects on tense-incongruent structures and negative effects on tense-congruent structures on the posttest.

Main Effect of Factors and Significance of Interactions

In addition to the changes on specific scores, the effects of the two treatments were also examined through the main effect of the factors of test format, sentence time and the structures' tense-congruence, as well as the significance of the interactions between these factors and test and group. The research questions of this section were: Were the two groups significantly different from each other in terms of overall performance on *le* sentences? If the treatment each group received functioned, did they function differently or similarly? Was there a significant interaction between group and test?

The Two Groups' Overall Performance. The results of the 3(test) x2(group) x2(format) x2(sentence time) x2 (tense-congruence) repeated-measure analysis of variance evaluated learners' performances on different levels.

Group as a Factor. As mentioned before, the factor of group was somewhat complicated in this study. The two levels of group as a factor were based on different treatments, whose effects were only seen on the posttest and delayed posttest. Considering the possibility that the two groups might have been different before intervention, when the mean score of the three tests was evaluated, the results of "tests of between-subjects effects" was not proper to show the real effects of group (treatment) in this study. In this sense, the main effect of group in this study was mainly evaluated by analyzing the interaction between group, test, and other factors in "tests of within-subjects effects". That is, if the interaction between group, test and other factors was significant, then the factor of treatment had a main effect, which meant the treatment each group received affected the results differently. The significance of interactions with group but without test was not sufficient to indicate the effects of treatments.

Table 15 Main effect of group.

Tests of Between-Subjects Effects

Measure: test_format_time_congruence

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	1261.154	1	1261.154	1041.402	.000	.977
group	2.839	1	2.839	2.344	.138	.086
Error	30.275	25	1.211			

As shown in the table above, the main effect of group was not significant, $F(1, 25) = 2.344, p > .05$, which means that the two groups did not differ from each other just because they were assigned different treatments. Note: the two groups might still be different in the performance of certain factors or interactions, which was not due to the between-subjects effects but, rather, due to the two treatments' influence on each group's performance.

Test as a Factor. The factor of test had three levels: pretest, posttest, and delayed posttest. The main effect of test as a factor, or the significance of an interaction that involved test, indicated whether there were any significant differences between the three tests. In this section, the function of test on the population's overall performance was analyzed to answer whether the population performed significantly differently between the three tests.

Table 16 Main effect of test.

Tests of Within-Subjects Effects³³

Measure: test_format_time_congruence

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_post2	Sphericity	5.562	2	2.781	7.330	.002	.227
	Assumed						
	Greenhouse- Geisser	5.562	1.553	3.582	7.330	.004	.227
	Huynh-Feldt	5.562	1.703	3.267	7.330	.003	.227
	Lower-bound	5.562	1.000	5.562	7.330	.012	.227
pre_post_post2 * group	Sphericity	2.643	2	1.321	3.482	.038	.122
	Assumed						
	Greenhouse- Geisser	2.643	1.553	1.702	3.482	.052	.122
	Huynh-Feldt	2.643	1.703	1.552	3.482	.047	.122
	Lower-bound	2.643	1.000	2.643	3.482	.074	.122
	Huynh-Feldt	18.971	42.566	.446			
	Lower-bound	18.971	25.000	.759			

There was a significant main effect of test, $F(2, 54) = 7.33, p < .05$, indicating the population's performance significantly changed between the three tests. Since there were three tests, pairwise comparisons were used to locate where the effect of test was.

³³ This table is part of the complete table of Tests of Within-Subjects Effects, which was three pages long. For the convenience of presentation, the complete table was divided into smaller tables according to the topics of this section and placed accordingly.

Table 17 Pairwise comparisons between tests.

Pairwise Comparisons

Measure: format_time_congruence

(I)	(J)	Mean Difference (I- J)	Std. Error	Sig. ^b	95% Confidence Interval for Difference ^b	
					Lower Bound	Upper Bound
1	2	.231*	.068	.002	.090	.371
	3	.104	.068	.136	-.035	.244
2	1	-.231*	.068	.002	-.371	-.090
	3	-.126*	.041	.005	-.211	-.042
3	1	-.104	.068	.136	-.244	.035
	2	.126*	.041	.005	.042	.211

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The smallest p value is for the comparison of posttest and pretest of 2.31, and its reported p value of .002 is smaller than the α of $.05/3 = .0167$; therefore, the difference between the means for these two tests was significant. The next smallest p value is for the comparison of delayed posttest and the posttest of -.126, and its reported p value of .005 is smaller than the α of $.05/2 = .025$ and, therefore, this comparison is significant as well. The largest p value of .104 for the comparison of delayed posttest and pretest of .136 is bigger than the α of $.05/1 = .05$; therefore, this comparison is not significant at all.

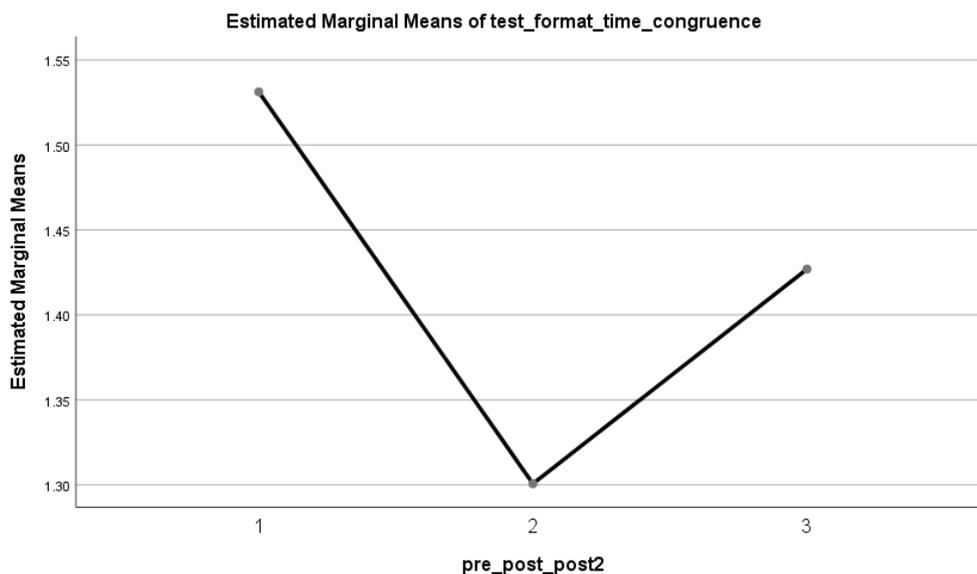


Figure 12. The population's overall performance on the three tests.

As illustrated by the graph above, the population's mean score dropped significantly, which means that the treatments, as a whole, affected the population's performance in a negative way. At the same time, the significant difference between the population's delayed posttest mean score and posttest mean score indicated that the population's performance improved by the time of the delayed posttest, but the score was not as high as it was before treatment. In this sense, we can conclude that the treatments used in this study only had negative effects on ECFL learners' performance on *le* structure acquisition. However, it was premature to argue that learners would do better without the treatments provided in this study. The rationale is that the treatments and tests were designed to evaluate the development of learners' processing strategy on the relationship between time and verb form, i.e. how much they relied on tense grammar in processing *le* structures and to what extent this reliance was changed by the treatments. At this point, the drop of score on the posttest might be viewed as a sign that learners had unlearned some tense-related rules, and the rise in score on the delayed posttest indicated a digestion of the

new rules as a result of competition between the new rules and the tense-related rules. On the other hand, since the overall performance was the mean of eight sentence types based on three sentential factors (i.e. test format, sentence time, and tense-congruence), it would be more meaningful to examine the effects of the treatments on specific factors or combinations.

The Interaction between Test and Group. Regarding the effects of the two treatments, there were three possibilities: 1) The two treatments were equally ineffective; 2) The two treatments were equally effective, and 3) The two treatments affected the groups' performances differently. In this section, the interaction between test and group was examined to answer the question of whether the two groups' performances on the three tests differed from each other or not.

There was a significant interaction between test and group, $F(2, 50) = 3.48, p < .05$, indicating either that the scales of change between tests in one group differed from those in the other group or that the two groups' performances changed in a different fashion among the three tests.

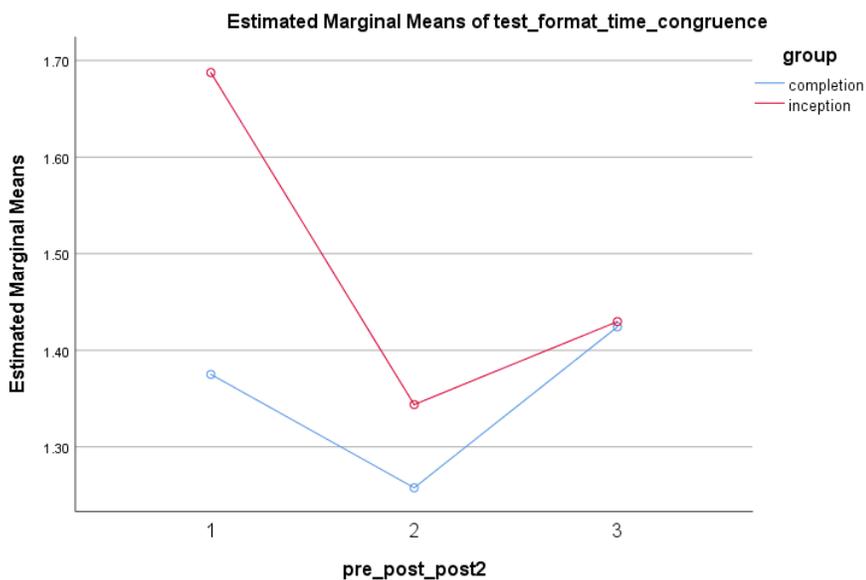


Figure 13. The two groups' overall performances on the three tests.

As illustrated by the graph above, the inception group's mean score dropped more sharply on the posttest and bounced back less than the completion group did on the delayed posttest. In other words, the inception group was affected by the treatment it received more than the completion group was affected by its treatment. Because there were three sentential factors that could be held accountable for the difference, further examination was needed to reveal where the difference lay.

Test Format as a Factor. Test format contained two levels: interpretation and elicited verb form selection. The research questions for this section were: Would learners in the two groups perform equally well on interpretation and verb form selection of the target structures? Were the two groups' performances related to the treatments they received? Was the interaction between group, test and test format significant?

Table 18 Test format as a factor.

Tests of Within-Subjects Effects

Measure: format_time_congruence

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
interpn_select	Sphericity	18.478	1	18.478	32.191	.000	.563
	Assumed						
	Greenhouse- Geisser	18.478	1.000	18.478	32.191	.000	.563
	Huynh-Feldt	18.478	1.000	18.478	32.191	.000	.563
	Lower-bound	18.478	1.000	18.478	32.191	.000	.563
interpn_select * group	Sphericity	3.252	1	3.252	5.666	.025	.185
	Assumed						
	Greenhouse- Geisser	3.252	1.000	3.252	5.666	.025	.185
	Huynh-Feldt	3.252	1.000	3.252	5.666	.025	.185
	Lower-bound	3.252	1.000	3.252	5.666	.025	.185
pre_post_post2 * interpn_select	Sphericity	13.454	2	6.727	18.418	.000	.424
	Assumed						
	Greenhouse- Geisser	13.454	1.736	7.750	18.418	.000	.424
	Huynh-Feldt	13.454	1.929	6.975	18.418	.000	.424
	Lower-bound	13.454	1.000	13.454	18.418	.000	.424
pre_post_post2 * interpn_select * group	Sphericity	1.906	2	.953	2.609	.084	.095
	Assumed						

Greenhouse-Geisser	1.906	1.736	1.098	2.609	.092	.095
Huynh-Feldt	1.906	1.929	.988	2.609	.086	.095
Lower-bound	1.906	1.000	1.906	2.609	.119	.095

The Main Effect of Test Format. There was a significant main effect of test format, $F(1, 25) = 32.191, p < .05$, which indicates that the population's performances on interpretation and verb form selection were significantly different. Considering the difference between the two formats, i.e. that interpretation required learners to decide the time for the verb form they saw (either [+le] or [-le]) while verb form selection required learners to decide the verb form for the time they saw (either present or past), it was reasonable that learners performed differently in that the complicity levels of these two formats were different.

Interaction between Test Format and Group. There was a significant interaction between test format and group, $F(2, 50) = 5.666, p < .05$, which signals that the difference between interpretation and verb form selection significantly varied between the two groups.

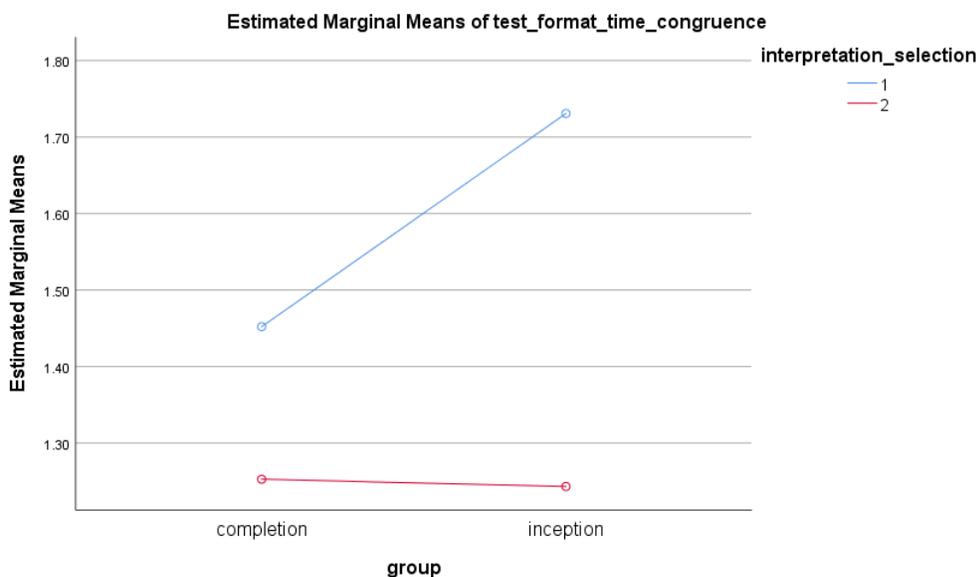


Figure 14. The two groups' overall performances on sentence time interpretation and verb form selection.

As indicated by the graph above, the completion group and the inception group performed equally low on verb form selection. However, the inception group's mean score on sentence time interpretation was significantly higher than that of the completion group. Again, the similar performances on verb form selection might be because the complexity involved in processing was equally challenging for the two groups. On the other hand, there might be two possible causes for the significant difference between the two groups' performance on interpretation: 1) The inception group was somehow better than the completion group, and the two treatments didn't change this difference or, 2) The inception group was not significantly different from the completion group, but the treatment received by inception group improved the group performance significantly. To ascertain the causes, further analysis was needed.

Interaction between Test and Test Format. There was a significant interaction between test and test format, $F(2, 50) = 18.418, p < .05$, meaning that the difference between overall interpretation performance and overall verb form selection performance differed between tests. What is implied is this: 1) The treatments the two groups received functioned, and 2) The treatments may or may not function differently from each other.

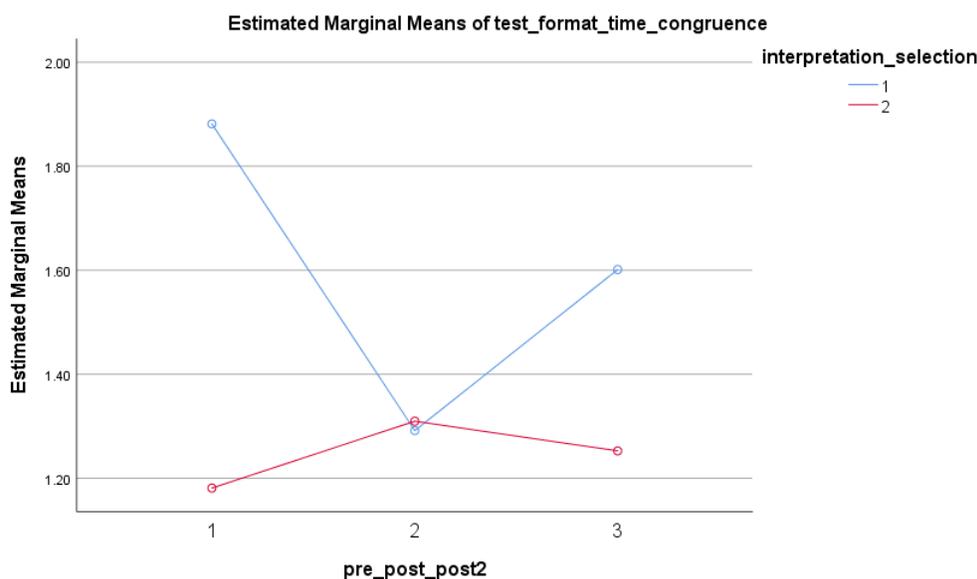


Figure 15. The population's overall performances on interpretation and verb form selection on the three tests. The graph above illustrates how the population's performances on interpretation and verb form selection changed on the three tests. Namely, compared to the groups' performances on the pretest, their posttest performance on interpretation dropped but their performances on verb form selection rose. At the same time, their performance on interpretation and verb form selection reverted to a level that was closer to their pretest counterparts separately on delayed posttest. The drop on interpretation could be interpreted as a sign that the new rules in the target structure overwrote the rules that learners used on the pretest. The slight rise on verb form selection could be understood as a sign that learners had mastered some new rules, but that these rules were not

solid enough for them to significantly improve their performance on verb form selection. Moreover, the overwriting seemed to be temporary—at the time of the delayed posttest, the population’s performances reverted to before-training levels. However, again, there are two reasons that might account for this: 1) The new rules introduced by the target structure were waning without interplaying with pre-existing rules, and 2) The new rules became entangled with the pre-existing rules. To ascertain which case it was, further analysis was needed.

Interaction between Test, Test Format and Group. The interaction between test, test format and group was not significant: $F(2, 50) = 2.609, p > .05$. This indicates the significant variation of the difference between overall interpretation performance and the overall verb form selection performance between tests did not significantly differ between the two groups.

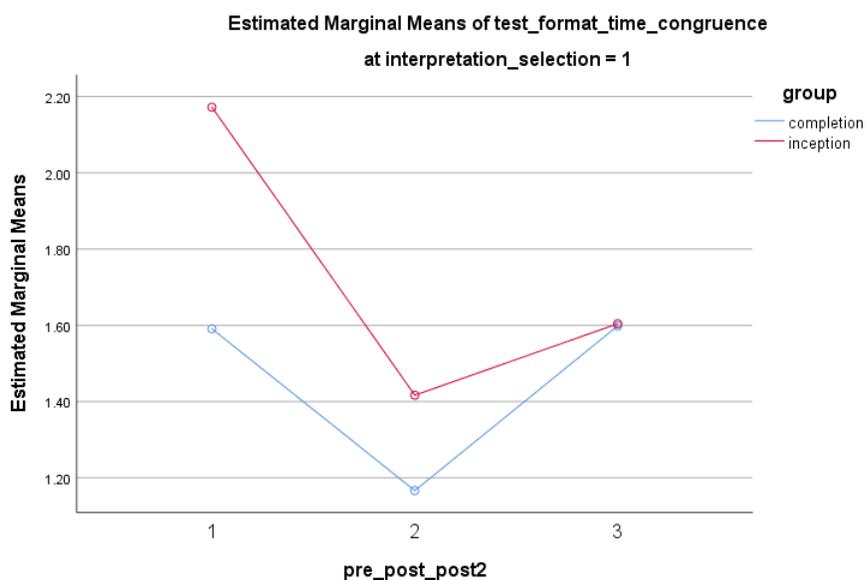


Figure 16. The two groups’ overall performances on interpretation.

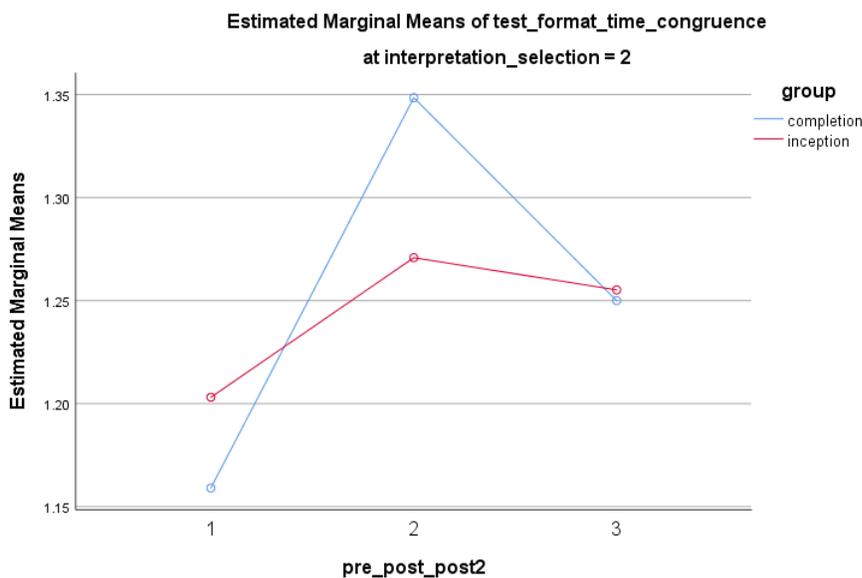


Figure 17. The two groups' overall performances on verb form selection.

As illustrated in the two graphs above, the two groups' performances changed in similar fashion between the tests on both interpretation and verb form selection. What is implied by this result is as follows: 1) The treatment each group received affected the group's performance, and 2) The influences of the two treatments did not significantly differ from each other in the scale of changes among the tests. At the same time, a comparison of the two graphs illustrates that both groups' performance on interpretation underwent a V-shaped change across the three tests and both groups' performance on verb form selection underwent a Λ -shaped change. The difference, while confirming the conclusion in section 2.3, indicates that there could be a difference between the two groups' processing of verb form.

In sum, the population's performances on interpretation and verb form selection differed significantly from each other, and this difference further significantly differed between groups, as well as tests. However, the significant interaction between group and test format was not affected by the factor of test. Since the overall performances of interpretation and verb form

selection may be evaluated through other factors, such as sentence time, tense-congruence, etc., it was too early to conclude that the effects of the treatments did not differ significantly.

Sentence Time as a Factor. Sentence time, as a factor, has two levels: present time and past time. One of the current study's goals is to compare the efficiencies of two instructional treatments in helping learners overcome tense grammar. As acquisition studies revealed, past-tense transfer, in a broader sense, is actually tense grammar transfer, which transfers not only past tense rules but also other tense-related rules such as “past time entails past-time markers and vice versa”, “non-past time rules out past-time markers and vice versa”. In this sense, sentence time, together with different verb forms ([+le] vs. [-le]), becomes a factor that can be used to examine to what extent learners overcome the influence of tense grammar. The rationale is that the accuracy rate on certain combination types reflects learners' understanding of the relationship between sentence time and verb form, and the change in these types will reflect the influence of treatments. The research questions in this section are as follows: Does sentence time have a main effect on the population's overall performance? Do the treatments affect learners' performance differently? Is there an interaction between sentence time and group, sentence time and test, and sentence time, test, and group?

Table 19 Sentence time as a factor.

Tests of Within-Subjects Effects

Measure: format_time_congruence

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared

present_past	Sphericity	17.457	1	17.457	49.877	.000	.666
	Assumed						
	Greenhouse-Geisser	17.457	1.000	17.457	49.877	.000	.666
	Huynh-Feldt	17.457	1.000	17.457	49.877	.000	.666
	Lower-bound	17.457	1.000	17.457	49.877	.000	.666
present_past * group	Sphericity	.855	1	.855	2.444	.131	.089
	Assumed						
	Greenhouse-Geisser	.855	1.000	.855	2.444	.131	.089
	Huynh-Feldt	.855	1.000	.855	2.444	.131	.089
	Lower-bound	.855	1.000	.855	2.444	.131	.089
pre_post_post2 * present_past	Sphericity	2.505	2	1.253	3.363	.043	.119
	Assumed						
	Greenhouse-Geisser	2.505	1.748	1.433	3.363	.050	.119
	Huynh-Feldt	2.505	1.944	1.289	3.363	.044	.119
	Lower-bound	2.505	1.000	2.505	3.363	.079	.119
pre_post_post2 * present_past * group	Sphericity	.020	2	.010	.027	.973	.001
	Assumed						
	Greenhouse-Geisser	.020	1.748	.012	.027	.960	.001
	Huynh-Feldt	.020	1.944	.010	.027	.971	.001
	Lower-bound	.020	1.000	.020	.027	.870	.001

Main Effect of Sentence Time. Sentence time had a significant main effect: $F(1, 25) = 49.877, p < .05$. That means that the population performed significantly differently on sentences involving present time and sentences involving past time.

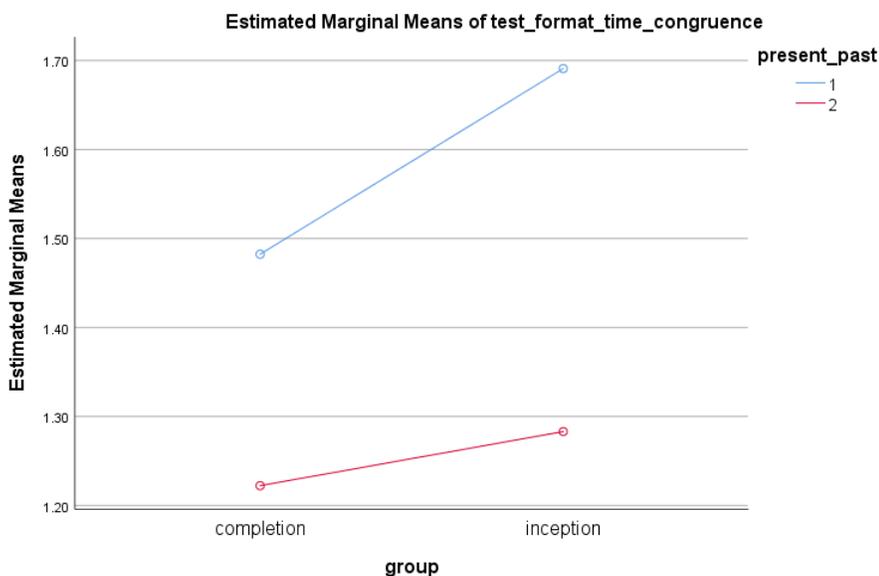


Figure 18. The two groups' overall performances on present time sentences and past time sentences.

The graph above illustrates that the overall present time performance was significantly better than the overall past time performance.

Interaction between Sentence Time and Group. There was no significant interaction between sentence time and group, $F(1, 25) = 2.444, p > .05$, meaning that the difference between present time performance and past time performance did not vary significantly between the two groups.

Looking at the graph in figure 19, it can be seen that both groups performed similarly in terms of the four conditions entailed by the sentence time and group interaction. What is implied is that the interaction was not significantly affected by the treatments the two groups received.

Interaction between Sentence Time and Test. The interaction between test and sentence time was significant, $F(2, 50) = 3.363, p < .05$, meaning that the difference between present time performance and past time performance varied between tests. This indicates that the treatment each group received functioned on the tests. However, again, the effects on the two groups' performances might or might not be different.

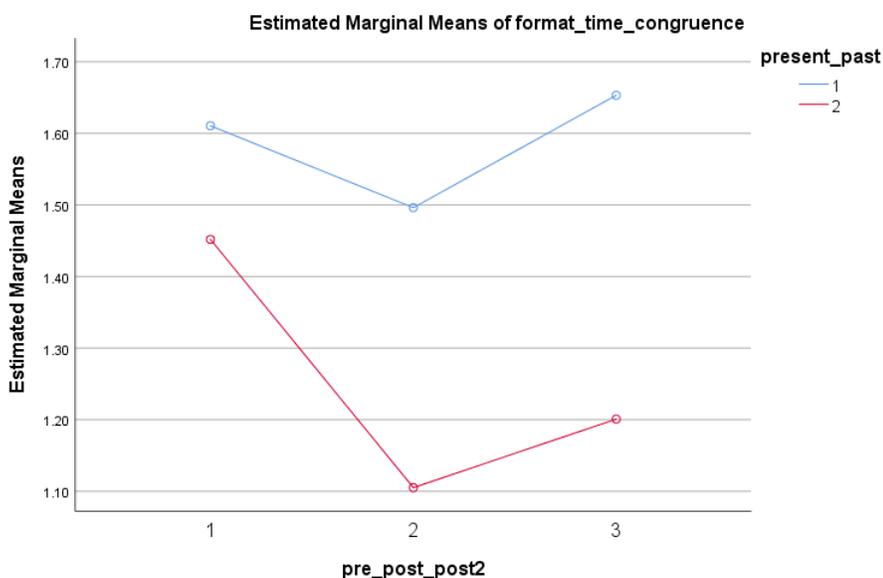


Figure 19. The population's performances on present time and past time.

Looking at the graph above, we can see that the population's performances on present time and past time dropped right after the treatment, which means that the treatments changed learners' processing of present time sentences and past time sentences. Again, this influence bounced back at the time of the delayed posttest, which reflected the competition between the new rules introduced through the target structure and the old rules in learners' native language or

interlanguage. On the other hand, making the argument that the similar performances on the pretest and delayed posttest meant that the effects of treatments had waned was still premature³⁴.

Interaction between Test, Sentence Time and Group. The interactions between test, sentence time and group were not significant, $F(2, 50) = .027, p > .05$, signaling that the differences between the present time performance and past time performance across the tests were shared by both groups. Therefore, the treatment each group received had an effect, but these effects were not significantly different from each other.

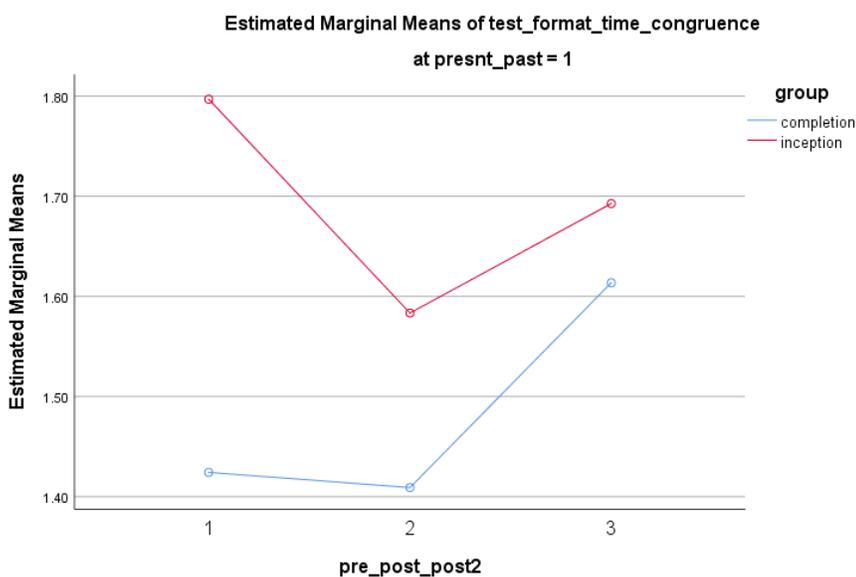


Figure 20. The two groups' performances on present time sentences.

³⁴ There are two facts that support this argument: 1) There were cases where the mean score on the delayed posttest was significantly different from that of the pretest, indicating that the effects of the treatments remained fairly strong on the delayed posttest, and 2) When the score on the delayed posttest was not significantly different from that on the pretest, there might still be descriptive statistics that show that learners' performance actually improved (standard deviation became smaller on the delayed posttest than on the pre-test).

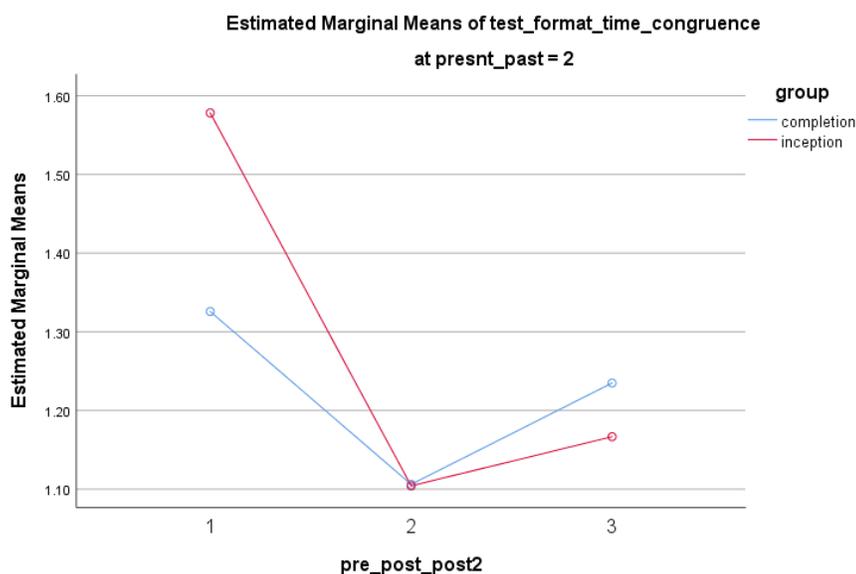


Figure 21. The two groups' performances on past time sentences.

The graphs above illustrate that the two groups' performance on present time sentences and past time sentences dropped on the posttest and bounced back slightly on the delayed posttest. The two treatments, although they had different focuses, did not significantly differ from each other in affecting learners' performance on present time sentences or on their performance on past time sentences. On the other hand, the graphs also show that the completion group's performance changed little between the pretest and the posttest when it came to present time sentences. This stability was not statistically significant but could indicate that the completion group might have been influenced differently by its particular treatment.

In sum, the population's performances on present time sentences and past time sentences were significantly different from each other. The population's performances on present time sentences and past time sentences were changed by the treatments used in this study. However, the scale of the changes caused by the treatments did not differ significantly between the two groups.

Tense-congruence as a Factor. Tense-congruent sentences and tense-incongruent sentences are the two levels of the factor of tense-congruence. As mentioned in the previous section, sentence time is viewed differently in Chinese than it is in English, namely, sentence time does not hint at the form of the verb in a sentence in Chinese, whereas, for the most part, it does in English. Related to this phenomenon is the relationship between sentence time and verb form. In this study, combinations of sentence time and verb form that are congruent to tense grammar are named as tense-congruent structures (e.g. past time with [+le] form), and combinations of sentence time and verb form that are incongruent to tense grammar are named as tense-incongruent structures (e.g. present time [+le] form). Although some combination types overlap, tense-congruence and sentence time are different factors. The research questions about tense-congruence were these: Does tense-congruence have a main effect on the population's overall performance? Is there an interaction between sentence time and group, sentence time and test, and sentence time, test, and group?

Table 20 Tense-congruence as a factor.

Tests of Within-Subjects Effects

Measure: format_time_congruence

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
con_incon	Sphericity	11.589	1	11.589	16.502	.000	.398
	Assumed						
	Greenhouse- Geisser	11.589	1.000	11.589	16.502	.000	.398
	Huynh-Feldt	11.589	1.000	11.589	16.502	.000	.398

	Lower-bound	11.589	1.000	11.589	16.502	.000	.398
con_incon * group	Sphericity	4.187	1	4.187	5.961	.022	.193
	Assumed						
	Greenhouse-Geisser	4.187	1.000	4.187	5.961	.022	.193
	Huynh-Feldt	4.187	1.000	4.187	5.961	.022	.193
	Lower-bound	4.187	1.000	4.187	5.961	.022	.193
pre_post_post2 * con_incon	Sphericity	19.702	2	9.851	24.854	.000	.499
	Assumed						
	Greenhouse-Geisser	19.702	1.687	11.680	24.854	.000	.499
	Huynh-Feldt	19.702	1.868	10.549	24.854	.000	.499
	Lower-bound	19.702	1.000	19.702	24.854	.000	.499
pre_post_post2 * con_incon * group	Sphericity	.553	2	.276	.697	.503	.027
	Assumed						
	Greenhouse-Geisser	.553	1.687	.328	.697	.480	.027
	Huynh-Feldt	.553	1.868	.296	.697	.494	.027
	Lower-bound	.553	1.000	.553	.697	.412	.027

Main Effect of Tense-congruence. There was a significant main effect of tense-congruence $F(1, 25) = 16.502, p < .05$, indicating that the population's performances on tense-congruent structures and tense-incongruent structures were significantly different from each other.

Interaction between Tense-congruence and Group. There was a significant interaction between tense-congruence and group, $F(1, 25) = 5.961, p < .05$, signaling that the difference between the population's tense-congruent structure performance and tense-incongruent structure performance varied between the two groups, that is, the performances on tense-congruent sentences and tense-incongruent sentences in one group was significantly different from those of the other group.

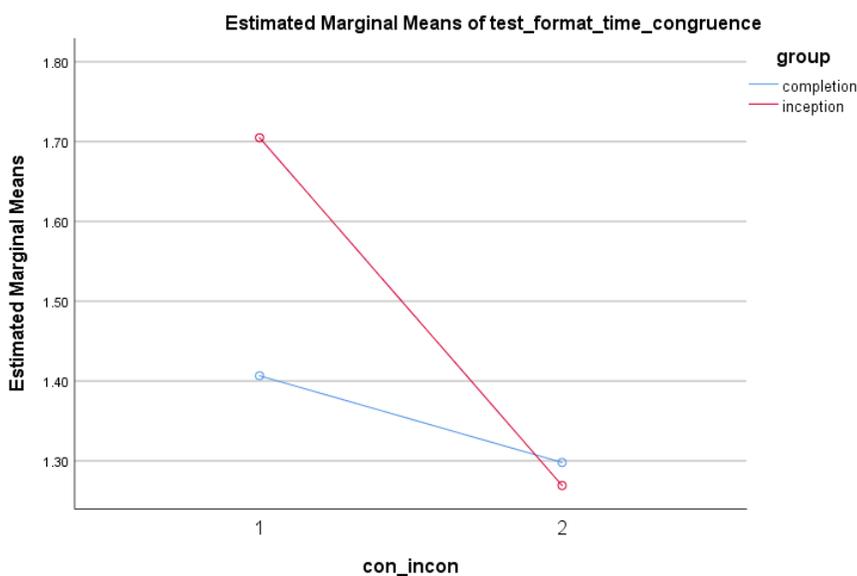


Figure 19. The two groups' performances on tense-congruent sentences and tense-incongruent sentences. The graph above showed that the two groups were similar on the performance of tense-incongruent sentences, but the inception group scored significantly higher on tense-congruent sentences than the completion group did.

Interaction between Tense-congruence and Test. There was a significant interaction between tense-congruence and test: $F(1, 25) = 24.854, p < .05$. What was indicated was that the overall difference between the population's performance on tense-congruent sentences and tense incongruent sentences varied between tests.

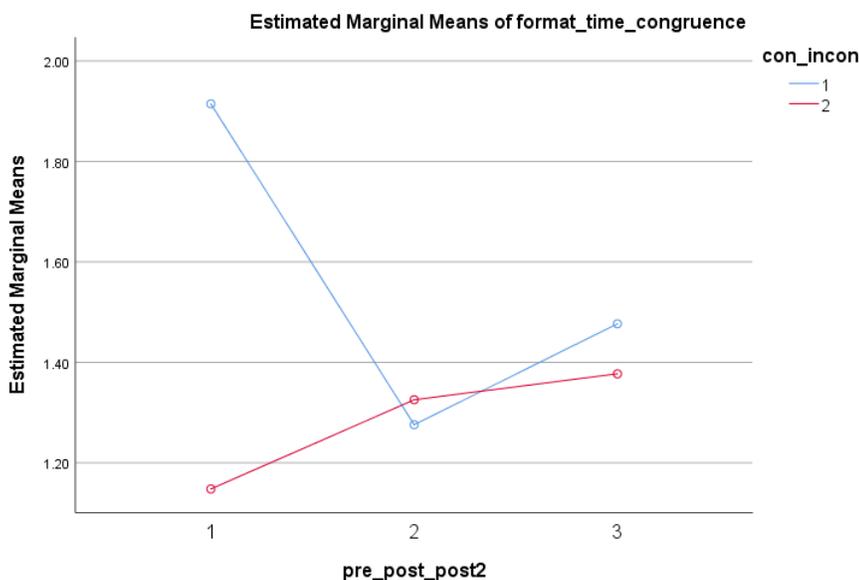


Figure 20. The population's performances on tense-congruent sentences and tense-incongruent sentences.

As the graph shows, learners' performance on tense-incongruent structures was much lower than it was on tense-congruent structures in pretest. The population's performance on tense-congruent sentences dropped right after treatments, whereas the performance on tense-incongruent sentences rose after treatments. These results indicate that learners were strongly influenced by tense-grammar in English before treatment and this influence was weakened by the treatments. On the other hand, while countering the influence of old rules from the learners' native language or interlanguage, the treatments did not provide rules that were strong enough to guide learners to make right decisions on either tense-congruent or tense-incongruent structures.

Interaction between Tense-congruence, Test and Group. The interaction between test, tense-congruence and group was not significant, $F(2, 50) = .697, p > .05$, which means that the tense-congruent and tense-incongruent difference between groups did not vary among the three tests. In other words, the varying difference between performance on tense-congruent structures and performance on tense-incongruent structures among the tests, didn't significantly change between the two groups.

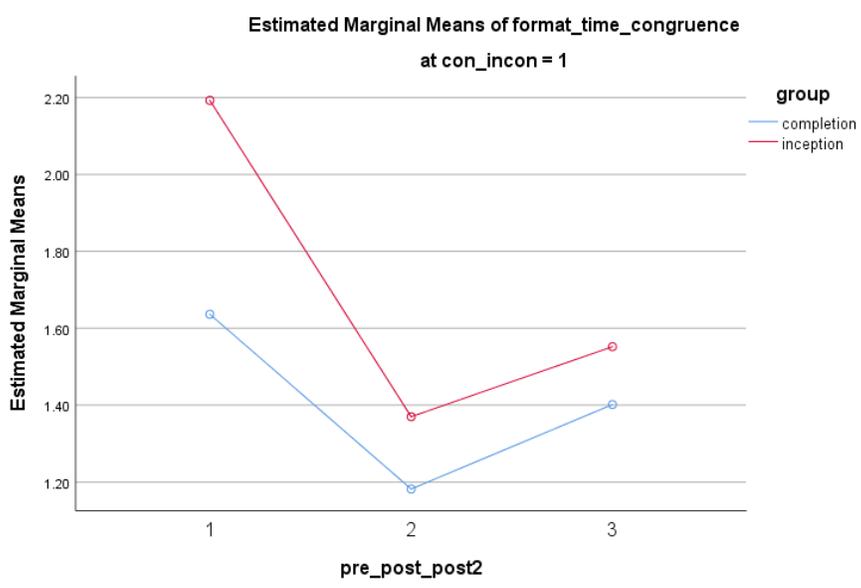


Figure 21. The two groups' performance on tense-congruent sentences.

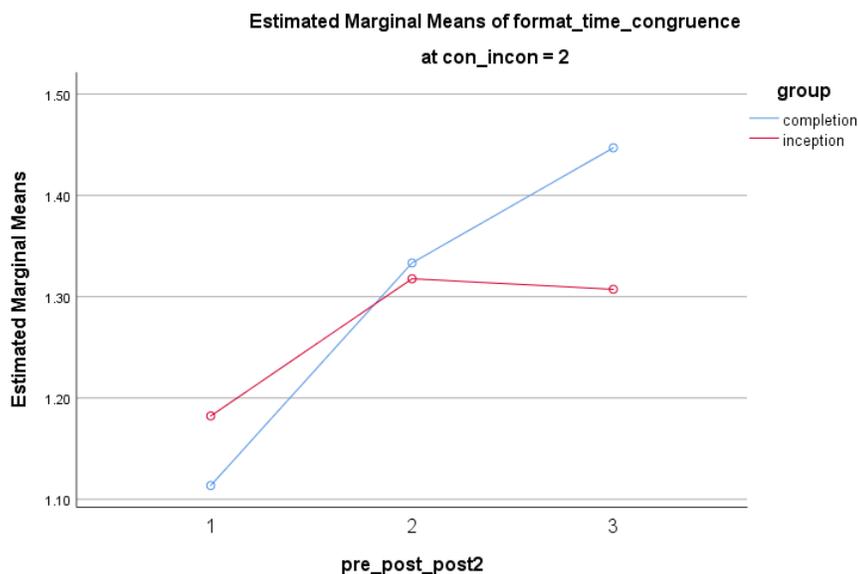


Figure 22. The two groups' performances on tense-incongruent sentences

As shown in the graphs, the two groups were similar in terms of tense-congruent structure performance and tense-incongruent structure performance across the three tests separately. On the other hand, both groups' performances on the pretest were strongly influenced by tense grammar. Because of the predominant role tense grammar played, both groups' tense-congruent sentence scores were much higher than their tense-incongruent sentence scores. However, the preexisting rules were significantly overwritten by the new rules contained in the target structure. Subsequently, the performance on tense-congruent sentences showed a drop and the performance on tense-incongruent sentences showed a rise. On the delayed posttest, both groups showed an attrition on tense-congruent sentences, and strong retention, and even an increase, on tense-incongruent sentences. Although the results were not statistically significant, this difference might indicate that the treatments in this study were effective in establishing new rules in the learners' interlanguage.

In sum, the results indicate that: 1) the treatments had effects on the processing of tense-congruent sentences and tense-incongruent sentences, but the effects of treatments for the two groups were not significantly different from each other; 2) The population's performance on tense-congruent sentences was higher than that on tense-incongruent sentences before treatments. However, the performances on tense-congruent sentences and tense-incongruent sentences reached the same level after the treatments, and 3) the population's performance on tense-congruent sentences bounced back at the time of the delayed posttest, whereas the performance on tense-incongruent sentences remained the same. What is implied by these results is that the new rules were more easily established where there had been no preexisting opposite rules in learners' native language or interlanguage.

Co-function of Test Format and Sentence Time. To evaluate the population's performances on the interaction of test format and sentence time, four interactions were analyzed in this section: test format * sentence time, test format*sentence time*group, test format*sentence time*test, and test format*sentence time*test*group. The research questions were these: How would test format interact with sentence time to affect the population's performance? How would this interaction be affected when group was introduced as a factor? How would this interaction be affected by the factor of test? How would this interaction be affected by the interaction of group and test?

Table 21 Interactions involving test format and sentence time.

Tests of Within-Subjects Effects

Measure: format_time_congruence

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
interpn_select *	Sphericity	1.934	1	1.934	5.285	.030	.175
present_past	Assumed						
	Greenhouse- Geisser	1.934	1.000	1.934	5.285	.030	.175
	Huynh-Feldt	1.934	1.000	1.934	5.285	.030	.175
	Lower-bound	1.934	1.000	1.934	5.285	.030	.175
interpn_select *	Sphericity	.169	1	.169	.463	.503	.018
present_past * group	Assumed						
	Greenhouse- Geisser	.169	1.000	.169	.463	.503	.018
	Huynh-Feldt	.169	1.000	.169	.463	.503	.018
	Lower-bound	.169	1.000	.169	.463	.503	.018
pre_post_post2 *	Sphericity	5.972	2	2.986	8.939	.000	.263
interpn_select * present_past	Assumed						
	Greenhouse- Geisser	5.972	1.536	3.888	8.939	.002	.263
	Huynh-Feldt	5.972	1.682	3.550	8.939	.001	.263
	Lower-bound	5.972	1.000	5.972	8.939	.006	.263
	Sphericity	2.461	2	1.230	3.684	.032	.128
	Assumed						

pre_post_post2 *	Greenhouse-	2.461	1.536	1.602	3.684	.045	.128
interpn_select *	Geisser						
present_past * group	Huynh-Feldt	2.461	1.682	1.463	3.684	.041	.128
	Lower-bound	2.461	1.000	2.461	3.684	.066	.128

The Interaction between Test Format and Sentence Time. The interaction between test format and sentence time was significant, $F(1, 25) = 5.285, p < .05$. That is, the significant difference between overall present time performance and past time performance varied between interpretation performance and verb form selection performance. In other words, the significant difference between the population's interpretation performance and its verb form selection performance differed significantly again between present time and past time.

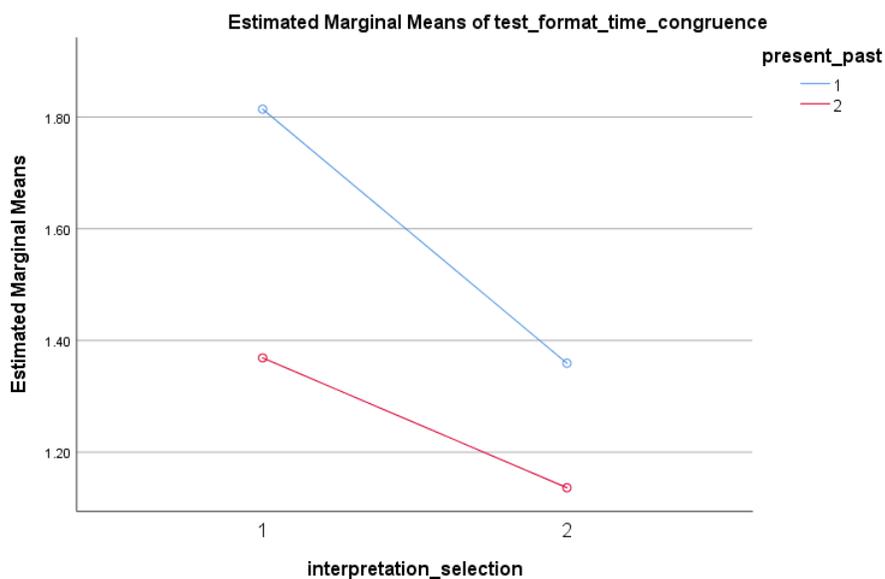


Figure 23. The population's performances on the interaction of sentence time and test format.

The graph above shows that the difference between the population's performances on present time sentences and past time sentences in interpretation were different from those in verb form selection.

The Interaction between Test Format, Sentence Time and Group. The interaction between test format, sentence time and group was not significant: $F(1, 25) = .463, p > .05$. That indicates that the significant interaction between test format and sentence did not significantly differ between the two groups.

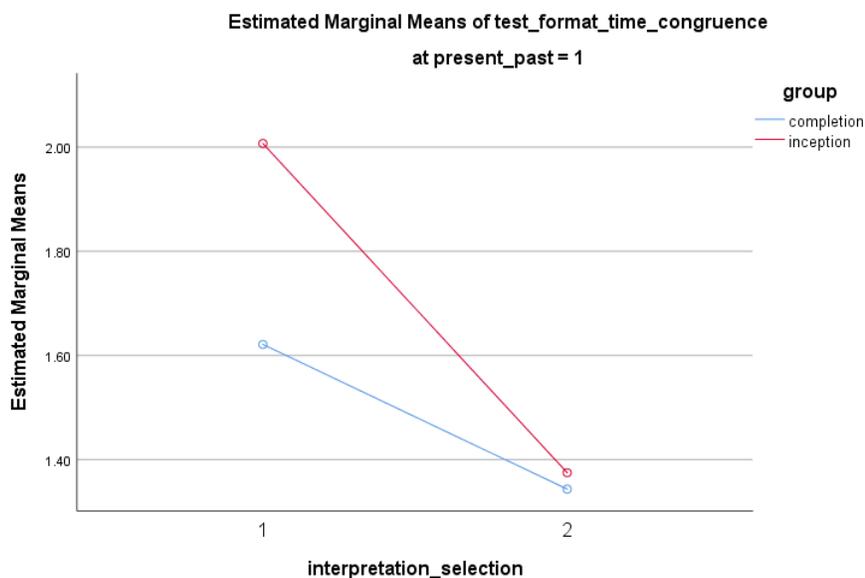


Figure 24. The two groups' performances on present time interpretation and verb form selection.

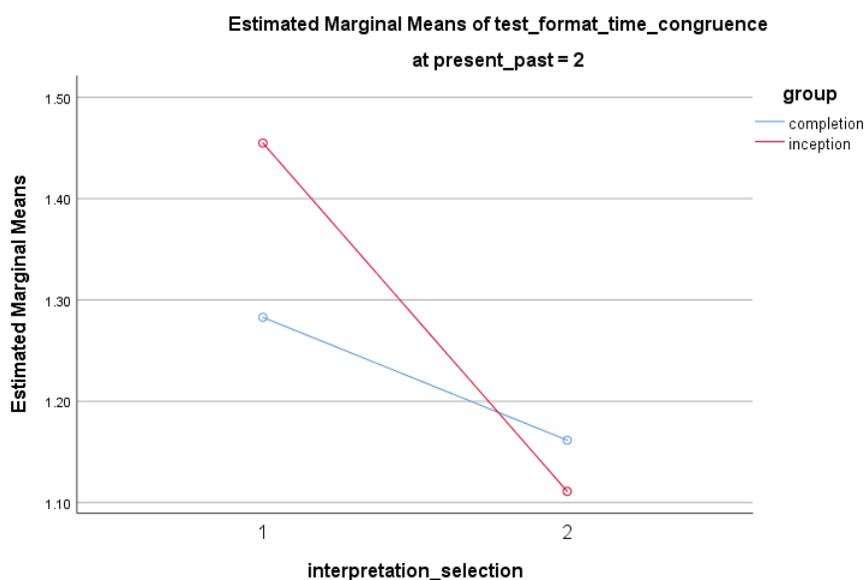


Figure 25. The two groups' performances on past time interpretation and verb form selection.

As shown in the graphs above, the two groups' performances on present time interpretation and verb form selection were similar; the two groups' performances on past time interpretation and verb form selection were similar as well.

The Interaction between Test, Format and Sentence Time. The interaction between test, format and sentence time was significant, $F(2, 50) = 8.939, p < .05$. That is, the significant interactions between format and sentence time varied among tests, which means that the treatments functioned in each group's performance. However, again, the functions of the two treatments may or may not be significantly different.

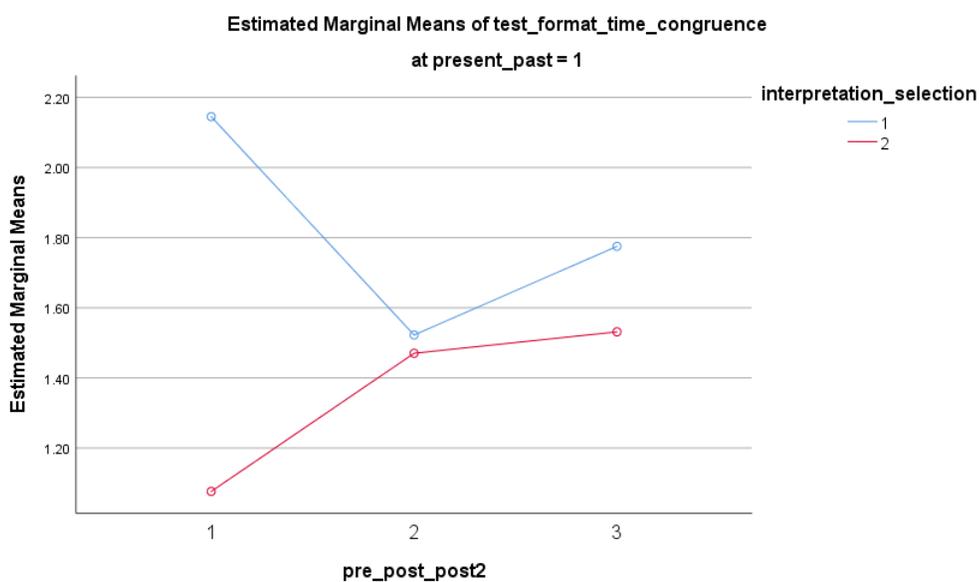


Figure 29. The population's performances on present time interpretation and verb form selection on the three tests.

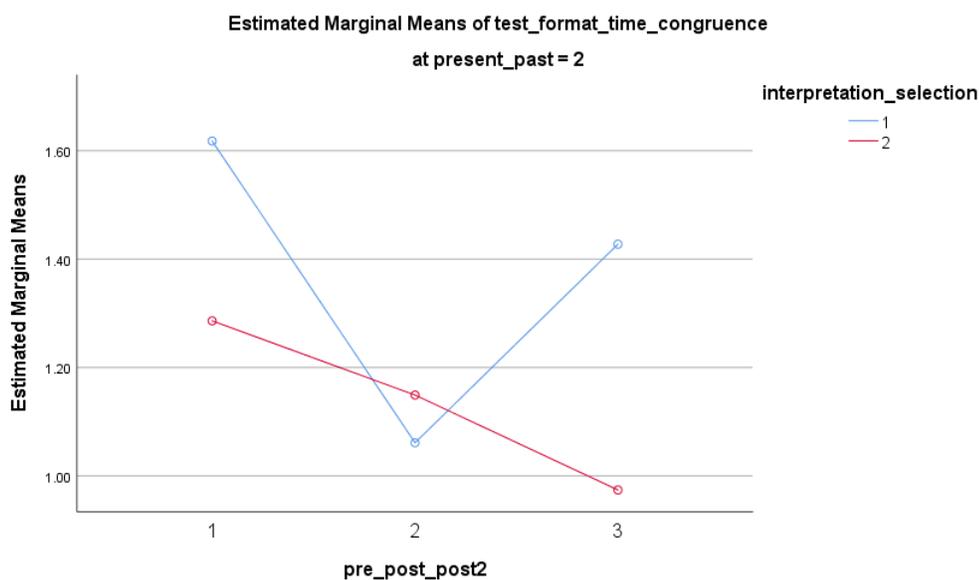


Figure 26. The population's performances on past time interpretation and selection on the three tests.

The graphs of the interactions show that the population's performance on present time interpretation was negatively affected by the treatments, whereas their performance on present time verb form selection was positively affected at the time of posttest. By contrast, the population's performances on past time interpretation and past time verb form selection were both negatively affected by the treatments as indicated by the posttest scores. Performances on present time interpretation, present verb form selection and past time interpretation all improved on the delayed posttest; the performance on past time verb form selection did not improve.

The Interactions between Test, Test Format, Sentence Time and Group. The interactions between test, test format, sentence time and group were significant: $F(2, 50) = 3.684, p < .05$. That is, the difference between interpretation and selection differed between present time and past time, and this difference varied between the tests, and, ultimately, the two groups significantly differed from each other on the results of the interactions. In other words, at least one of the four conditions (present time interpretation, past time interpretation, present time verb form selection and past time verb form selection) of one group had changed significantly differently from that of the other group among the three tests. To locate where the significant interaction was, a 2x3 Mixed ANOVA was conducted on present time interpretation, past time interpretation, present time verb form selection and past time verb form selection separately. The results are as follows:

Present Time Interpretation. The interaction between present time interpretation and group was not significant: $F(2, 54) = 2.976, p > .05$. This means that the two groups did not differ on the performance on present time sentence interpretation.

Table 22 Results on present time sentence interpretation.

Tests of Within-Subjects Effects

Measure: interpretation_present

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_post2	Sphericity	.541	2	.271	2.976	.059	.099
	Assumed						
	Greenhouse- Geisser	.541	1.677	.323	2.976	.070	.099
	Huynh-Feldt	.541	1.841	.294	2.976	.064	.099
	Lower-bound	.541	1.000	.541	2.976	.096	.099
pre_post_post2 * group	Sphericity	.227	2	.114	1.249	.295	.044
	Assumed						
	Greenhouse- Geisser	.227	1.677	.136	1.249	.291	.044
	Huynh-Feldt	.227	1.841	.123	1.249	.293	.044
	Lower-bound	.227	1.000	.227	1.249	.274	.044

The changes between the tests for one group were not significantly different from those of the other. As shown on the graph below, although the inception group's performance is significantly higher than the completion group's on the pretest, the treatments the two groups received affected them in a similar manner.

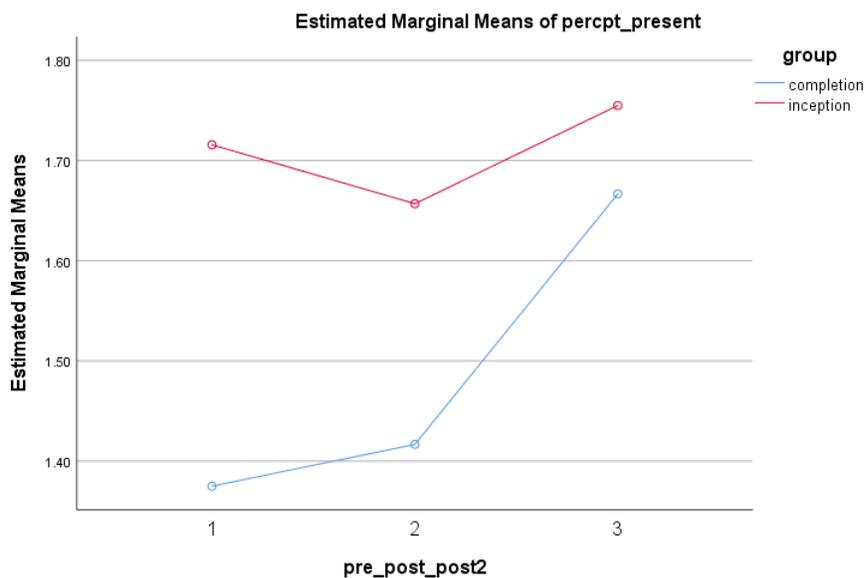


Figure 27. The two groups' performances on present time interpretation on the three tests.

Past Time Interpretation. The interaction between past time interpretation and group was not significant: $F(2, 54) = 1.43, p > .05$. This means that the two groups did not differ on the performance on past time sentence interpretation.

Table 23 Results on past time sentence interpretation.

Tests of Within-Subjects Effects

Measure: interpretation_past

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_post2	Sphericity	1.847	2	.923	8.650	.001	.243
	Assumed						
	Greenhouse- Geisser	1.847	1.968	.939	8.650	.001	.243
	Huynh-Feldt	1.847	2.000	.923	8.650	.001	.243
	Lower-bound	1.847	1.000	1.847	8.650	.007	.243
pre_post_post2 * group	Sphericity	.305	2	.153	1.430	.248	.050
	Assumed						
	Greenhouse- Geisser	.305	1.968	.155	1.430	.248	.050
	Huynh-Feldt	.305	2.000	.153	1.430	.248	.050
	Lower-bound	.305	1.000	.305	1.430	.242	.050

As shown in the graph below, the changes between the tests for one group were not significantly different from those of the other. What is implied is that the two treatments functioned in a similar way for the two groups. In addition, both groups' scores dropped on the posttest, and bounced back to the pretest level on the delayed posttest. The V shape indicates that there was an attrition of the influence of the treatments, which might be attributed to the competition between the new rules contained in the target structure and the old rules in learners' native language or interlanguage.

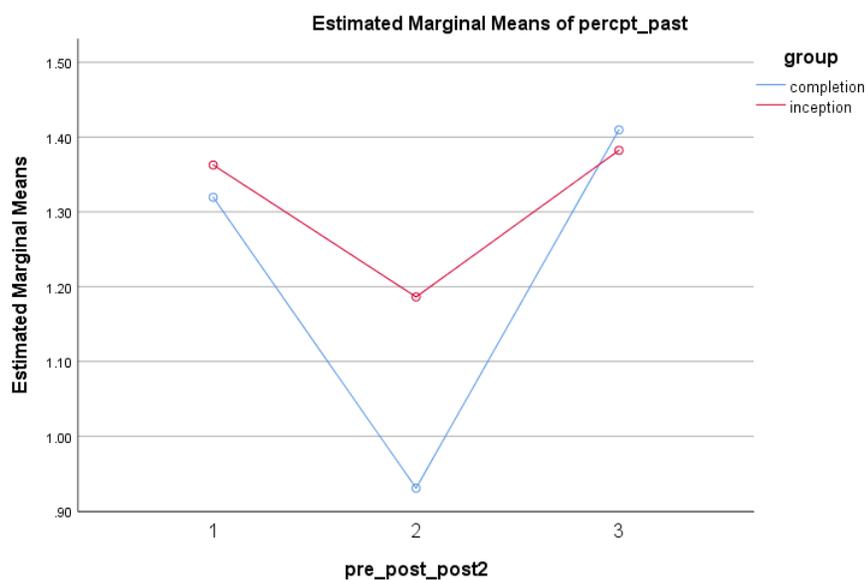


Figure 27. The two groups' performances on past time sentence interpretation.

Present Time Verb Form Selection. The interaction between present time verb form selection and group was not significant: $F(2, 54) = .726, p > .05$. This means that the two groups did not differ on the performance on present time verb form selection.

Table 24 Results on present time verb form selection.

Tests of Within-Subjects Effects

Measure: formselection_present

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_post2	Sphericity	3.496	2	1.748	13.965	.000	.341
	Assumed						
	Greenhouse- Geisser	3.496	1.946	1.796	13.965	.000	.341
	Huynh-Feldt	3.496	2.000	1.748	13.965	.000	.341
	Lower-bound	3.496	1.000	3.496	13.965	.001	.341
pre_post_post2 * group	Sphericity	.182	2	.091	.726	.489	.026
	Assumed						
	Greenhouse- Geisser	.182	1.946	.093	.726	.485	.026
	Huynh-Feldt	.182	2.000	.091	.726	.489	.026
	Lower-bound	.182	1.000	.182	.726	.402	.026

The changes between the tests for one group were not significantly different from those of the other. As shown on the graph below, the two groups performed similarly across all the three tests on present time verb form selection. In addition, both groups showed improvement on their posttest performance as well as on the delayed posttest. Posttest scores indicate that the population's present time verb form selection was positively influenced by the treatments. The increase in the population's posttest score indicates that the treatments helped the two groups equally in choosing the right verb form when present time was provided.

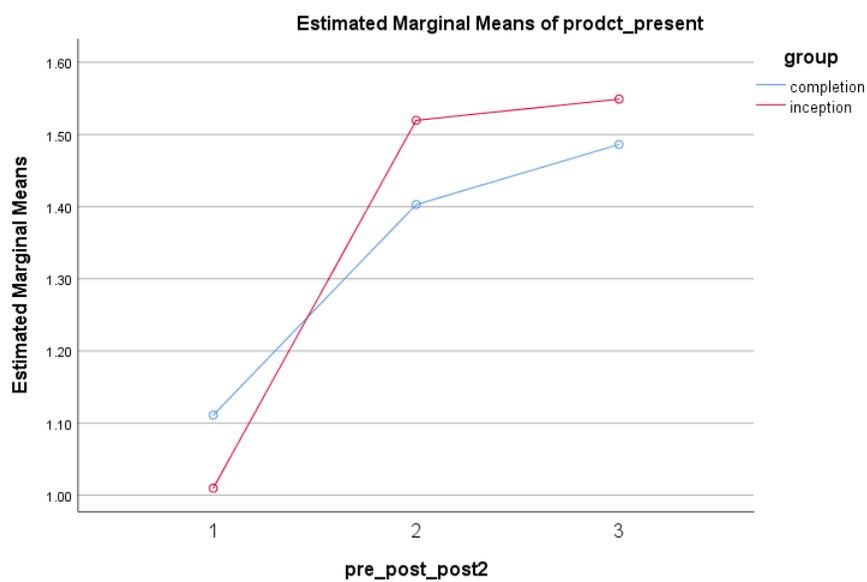


Figure 28. The two groups' performances on present time verb form selection on the three tests.

Past Time Verb Form Selection. The interaction between past time verb form selection and group was significant, $F(2, 54) = 3.763, p < .05$, which means that the two groups differed significantly on the performance on past time verb form selection.

Table 25 Results on past time verb form selection.

Tests of Within-Subjects Effects

Measure: formselection_past

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post_post2	Sphericity	.524	2	.262	3.207	.048	.106
	Assumed						
	Greenhouse- Geisser	.524	1.000	.524	3.207	.085	.106
	Huynh-Feldt	.524	1.038	.504	3.207	.083	.106
	Lower-bound	.524	1.000	.524	3.207	.085	.106
pre_post_post2 * group	Sphericity	.614	2	.307	3.763	.030	.122
	Assumed						
	Greenhouse- Geisser	.614	1.000	.614	3.763	.063	.122
	Huynh-Feldt	.614	1.038	.592	3.763	.061	.122
	Lower-bound	.614	1.000	.614	3.763	.063	.122

Looking at the graph, we can see that the inception group's performance on past time verb form selection was negatively influenced, whereas the completion group's performance was almost not influenced at all on the posttest. Furthermore, both groups' scores on the delayed posttest were almost the same as their scores on the posttest.

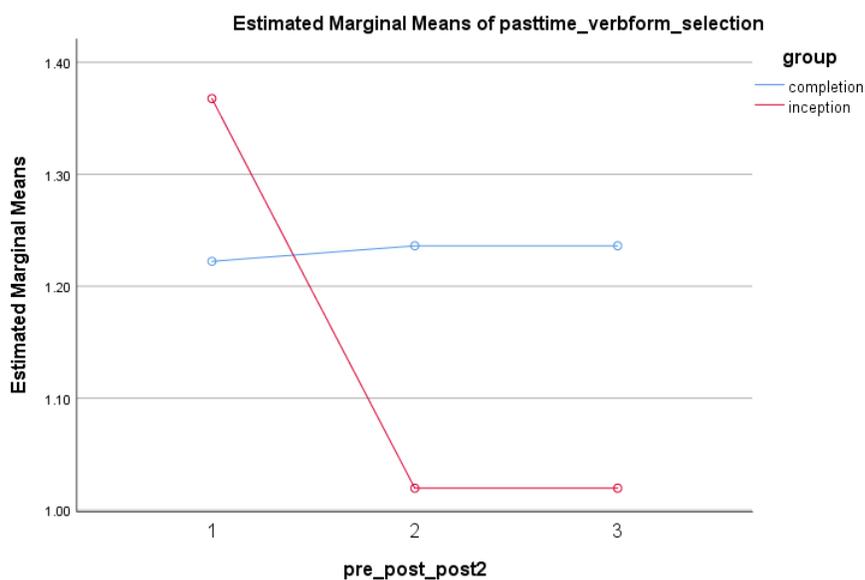


Figure 29. The two groups' performances on past time verb form selection on the three tests.

In sum, so far, among the four conditions of the interaction of test format and sentence time, past time verb form selection was the one in which results on the three tests were different for the two groups.

The Effect of Verb Form on the Interaction. Since past time verb form selection consists of two sentence sub-types, namely, [+le] sentence and [-le] sentence, we went further to examine whether this significant interaction was related to the factor of verb form. To do so, this study added the factor of verb form to the current interaction. The new interaction to be examined was test*group*test format* sentence time*verb form. A 3x2x2x2x2 Mixed ANOVA was conducted, and the results are as follows:

Table 26 The interaction of test*format*time*verb form*group

Tests of Within-Subjects Effects

Measure: test*format*time*verb form*group

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	
pre_post_post2 *	Sphericity	.170	2	.085	.227	.798	.009
interpn_select*	Assumed						
presnt_past *	Greenhouse-	.170	1.994	.085	.227	.797	.009
le_nonle * group	Geisser						
	Huynh-Feldt	.170	2.000	.085	.227	.798	.009
	Lower-bound	.170	1.000	.170	.227	.638	.009

The interaction of test*group*test format* sentence time*verb form was nonsignificant, $F(2, 50) = .227, p > .05$, therefore, the factor of verb form did not significantly affect the significance of the interaction between test, group, test format and sentence time.

The Interactions with the Factor of Test. Since there were three levels (pretest, posttest, delayed posttest) of the test factor, in order to locate where the significant interaction was we compared the effect of test as a two-level factor, namely, posttest vs. pretest, delayed posttest vs. posttest, and delayed posttest vs. pretest. A 2x2x2x2 Mixed ANOVA was conducted accordingly.

Posttest vs. Pretest. The results of the Mixed ANOVA were shown in the figure below:

Table 27 Pretest posttest comparison on the two groups' present time sentence performance and past time sentence performance.

Tests of Within-Subjects Effects

Measure: pre_post_format_time

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post *	Sphericity	.701	1	.701	7.926	.009	.227
interpn_select *	Assumed						
presnt_past * group	Greenhouse- Geisser	.701	1.000	.701	7.926	.009	.227
	Huynh-Feldt	.701	1.000	.701	7.926	.009	.227
	Lower-bound	.701	1.000	.701	7.926	.009	.227

The results of the Mixed ANOVA show that the interaction between test, group, format and sentence time was significant when the groups' performances on the posttest and pretest were compared: $F(1, 27) = 7.926, p < .05$. This indicates that the change in one group's performance from pretest to posttest was significantly different from that of the other group. Looking at the graph in figure 29, specifically, the inception group's performance significantly deteriorated on posttest while the completion group's performance remained roughly the same as it was on the pretest.

Delayed Posttest vs. Pretest. The results of the Mixed ANOVA show that the interaction between test, group, format and sentence time was significant when the groups' performances on the delayed posttest and pretest were compared: $F(1, 27) = 4.925, p < .05$.

Table 28 Pretest delayed posttest comparison on the two groups' present time sentence performance and past time sentence performance.

Tests of Within-Subjects Effects

Measure: pre_post2_format_time

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
pre_post2 *	Sphericity	.441	1	.441	4.925	.035	.154
interpn_select *	Assumed						
presnt_past * group	Greenhouse- Geisser	.441	1.000	.441	4.925	.035	.154
	Huynh-Feldt	.441	1.000	.441	4.925	.035	.154
	Lower-bound	.441	1.000	.441	4.925	.035	.154

This means that the change in one group's performance from pretest to delayed posttest was significantly different from that of the other group. As the graph in section 5.4.4 illustrates, the inception group's performance significantly deteriorated on the delayed posttest from pretest while completion group's performance remained roughly the same as it was on the pretest.

Delayed Posttest vs. Posttest. The results of the Mixed ANOVA show that the interaction between test, group, format and sentence time was not significant when the groups' performances on the delayed posttest and posttest were compared: $F(1, 27) = .588, p > .05$.

Table 29 Posttest and delayed posttest comparison on the two groups' present time sentence performance and past time sentence performance.

Tests of Within-Subjects Effects

Measure: post_post2_format_time

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
post_post2 *	Sphericity	.030	1	.030	.588	.450	.021
interpn_select *	Assumed						
presnt_past * group	Greenhouse- Geisser	.030	1.000	.030	.588	.450	.021
	Huynh-Feldt	.030	1.000	.030	.588	.450	.021
	Lower-bound	.030	1.000	.030	.588	.450	.021

This means that the difference in one group's performance between posttest and delayed posttest was not significantly different from that of the other group. As the graph in section 5.4.4 illustrates, the two groups' performances were roughly the same on the delayed posttest as it was on the pretest.

In sum, the two groups performed significantly differently on the interaction of test*group*test format*sentence time. Specifically, the inception group's performance on past time verb form selection was negatively affected by the treatment it received. By contrast, the completion group's performance on past time verb form selection was not significantly

influenced by the treatment it received. Furthermore, the effects of the treatments remained almost the same from the posttest to the delayed posttest.

The implications are as follows: 1) Both groups became aware that past time doesn't necessarily entail the use of *le*, which might be attributed to the teaching of what-*le*-is-not-about to both groups, and 2) The inception-based account didn't help learners as much in producing past time sentences as the completion-based account did. Tracing back to the syntactic accounts underlying the treatments, the difference in past time verb form selection might be attributed to the "foreignness" of the two treatments to the learners' processing mechanism. That is, the "inception of a situation" interpretation of the function of *le* was not only a strange concept that had no counterparts in English, syntactically or morphologically, but also a concept relying on rules that run against tense grammar. On the other hand, even though the completion-oriented account relied more on form than on meaning, which was not ideal according to PI, the rules in the target structure could still be positively related to time grammar in English. In this sense, the concept of "inception", although was based on meaning, might be more difficult to perceive than the grammar-based account of completion. As such, the inception group's relatively lower accuracy on past time verb form selection was reasonable.

Co-function of Test Format and Tense-congruence. Another set of interactions studied in this project revolved around the co-occurrence of test format and tense-congruence. The significance of the interaction between test format and tense-congruence indicated whether the relationship between the population's interpretation performance and verb form selection performance was significantly influenced by tense-congruence or if the relationship between the population's tense-congruent sentence performance and tense-incongruent sentence performance was significantly influenced by test format. To evaluate the relationship between the two groups, three more interactions were analyzed in this section: test format*tense-congruence*group, test format* tense-congruence *test, and test format* tense-congruence *test*group. The research questions were these: How would test format interact with tense-congruence on the population's performance? How would this interaction be affected when group was introduced as a factor? How would this interaction be affected by the factor of test? How would this interaction be affected by the interaction of group and test? The results of the interactions are as follows:

Table 30 The interactions involving testformat and tense-congruence.

Tests of Within-Subjects Effects

Measure: format_congruence

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
interpn_select * con_incon	Sphericity	5.285	1	5.285	17.251	.000	.408
	Assumed						
	Greenhouse- Geisser	5.285	1.000	5.285	17.251	.000	.408
	Huynh-Feldt	5.285	1.000	5.285	17.251	.000	.408

	Lower-bound	5.285	1.000	5.285	17.251	.000	.408
interpn_select *	Sphericity	.104	1	.104	.340	.565	.013
con_incon * group	Assumed						
	Greenhouse-Geisser	.104	1.000	.104	.340	.565	.013
	Huynh-Feldt	.104	1.000	.104	.340	.565	.013
	Lower-bound	.104	1.000	.104	.340	.565	.013
pre_post_post2 *	Sphericity	.125	2	.063	.168	.846	.007
interpn_select *	Assumed						
con_incon	Greenhouse-Geisser	.125	1.994	.063	.168	.845	.007
	Huynh-Feldt	.125	2.000	.063	.168	.846	.007
	Lower-bound	.125	1.000	.125	.168	.686	.007
pre_post_post2 *	Sphericity	.170	2	.085	.227	.798	.009
interpn_select *	Assumed						
con_incon * group	Greenhouse-Geisser	.170	1.994	.085	.227	.797	.009
	Huynh-Feldt	.170	2.000	.085	.227	.798	.009
	Lower-bound	.170	1.000	.170	.227	.638	.009

Interaction between Test Format and Tense-congruence. There was a significant interaction between test format and tense-congruence: $F(f, 25) = 17.251, p < .05$. This means that the population performed significantly differently on the interaction between test format and tense-congruence. In other words, the relationship between overall interpretation performance and overall verb form selection performance significantly varied between tense-congruent sentences and tense-incongruent sentences. Or, put differently, the relationship between overall tense-congruent sentence performance and tense-incongruence sentence performance differed between interpretation and selection.

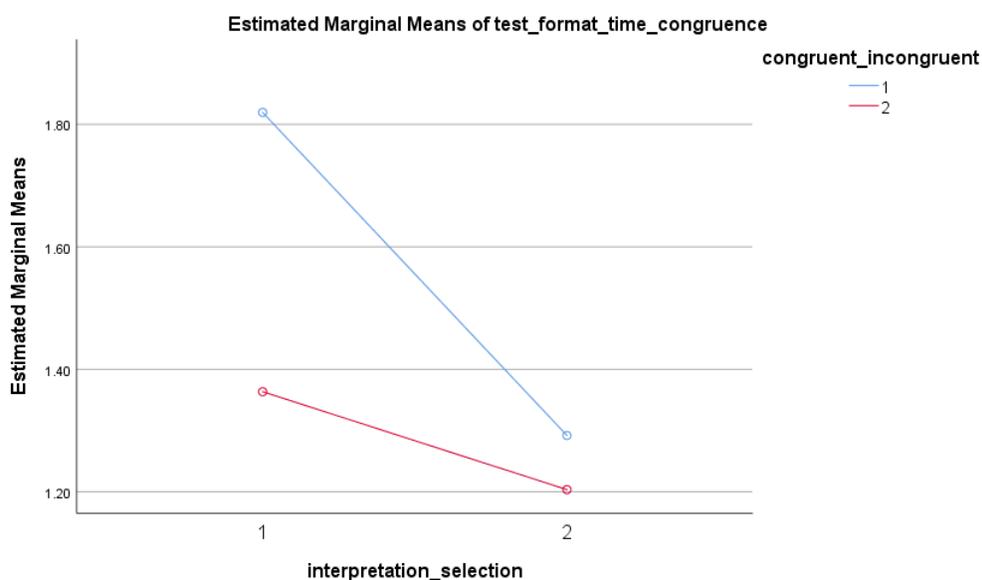


Figure 30. The population's performances on the interaction of test format and tense-congruence.

The graph above shows that the population's performance on tense-congruent sentences was much higher than their performance was on tense-incongruent sentences in interpretation, which was a reflection of the influence of tense grammar in the population. On the other hand, the population's performance on tense-congruent verb form selection and performance on tense-incongruent verb form selection were very close. The implication of the results on processing

was 1) learners did better on interpretation than on verb form selection, and 2) learners did better on tense-congruent sentences than on tense-incongruent sentences.

Interaction between Test Format, Tense-congruence and Group. The interaction between test format, tense-congruence and group were not significant, $F(1, 25) = .340, p > .05$, signaling that the significant interaction between tense-congruence and test format did not vary between groups. In other words, the two groups didn't significantly differ from each other on the interaction between test format and tense-congruence. The implication is that the different treatment each group received did not influence either of them differently in terms of the interaction between test format and tense-congruence.

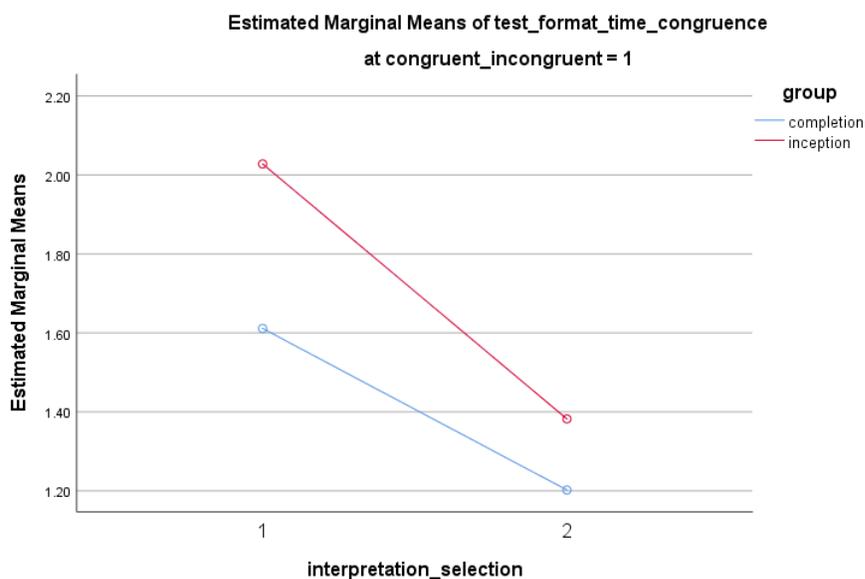


Figure 31. The two groups' performances on tense-congruent sentence interpretation and selection.

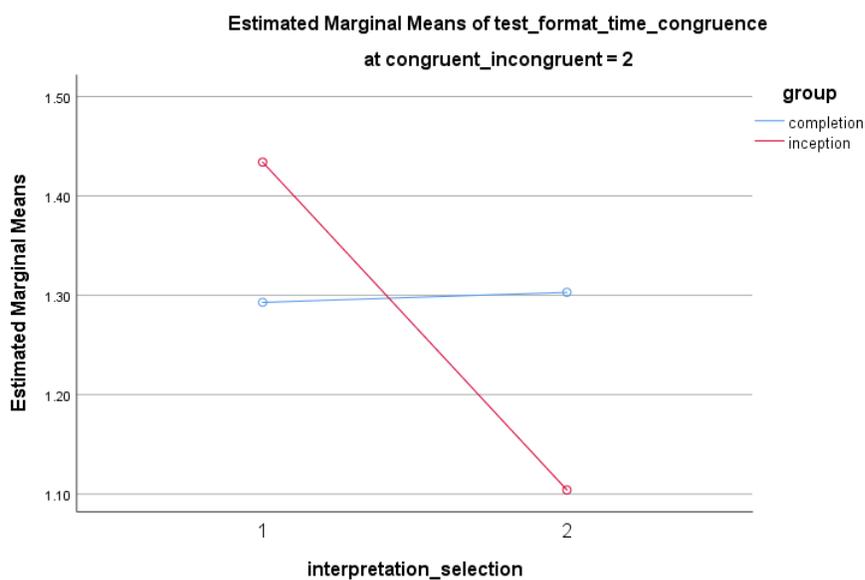


Figure 32. The two groups' performances on tense-incongruent sentence interpretation and selection.

Other than that similarity between the two groups on the interaction of test format and tense-congruence, the graphs indicate that the difference between interpretation and selection of the inception group might reflect how the inception group was different from the completion group in terms of the influence of treatments. That is, the treatment the inception group received might have caused more confusion in verb form selection than the treatment the completion group received.³⁵

³⁵ This hypothesis was proven through the results reported in the previous section.

Interactions between Test, Test Format and Tense-congruence. There were no significant interactions between test, test format and tense-congruence, $F(2, 50) = .168, p > .05$, meaning that the significant interaction between test format and tense-congruence did not vary significantly between tests. What was implied by this result was that the differences in the performances between tests were not significant.

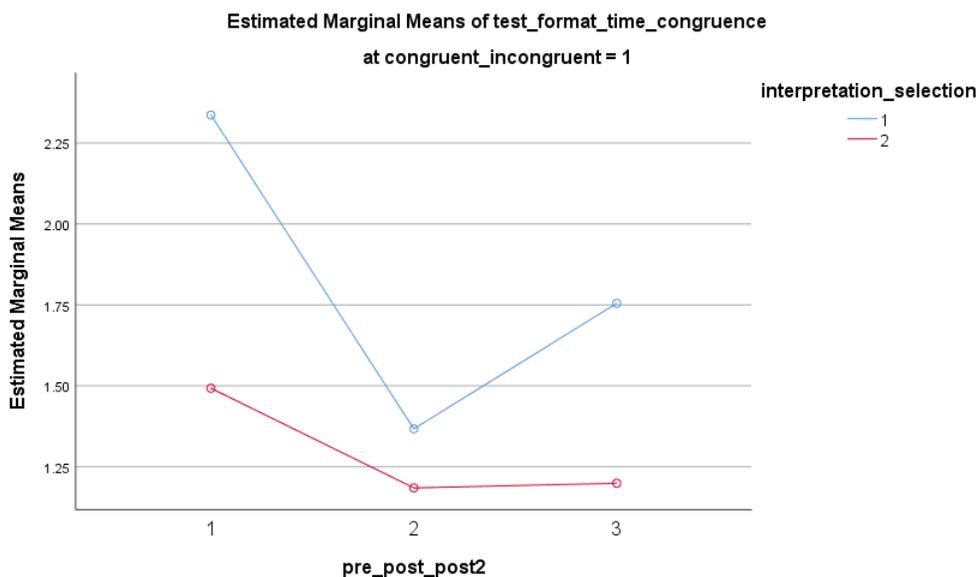


Figure 33. The population's performances on tense-congruent sentence interpretation and selection.

As shown in the graph above, the population's performance on tense-congruent sentences on interpretation and selection was negatively influenced by the treatments. Looking at the shapes in the graph, it seems that the influence of treatments on the population's performance on tense-congruent sentence interpretation was less "stable" than it was on verb form selection. In other words, learner's interpretation might be more susceptible to the influences of treatments and pre-existing rules.

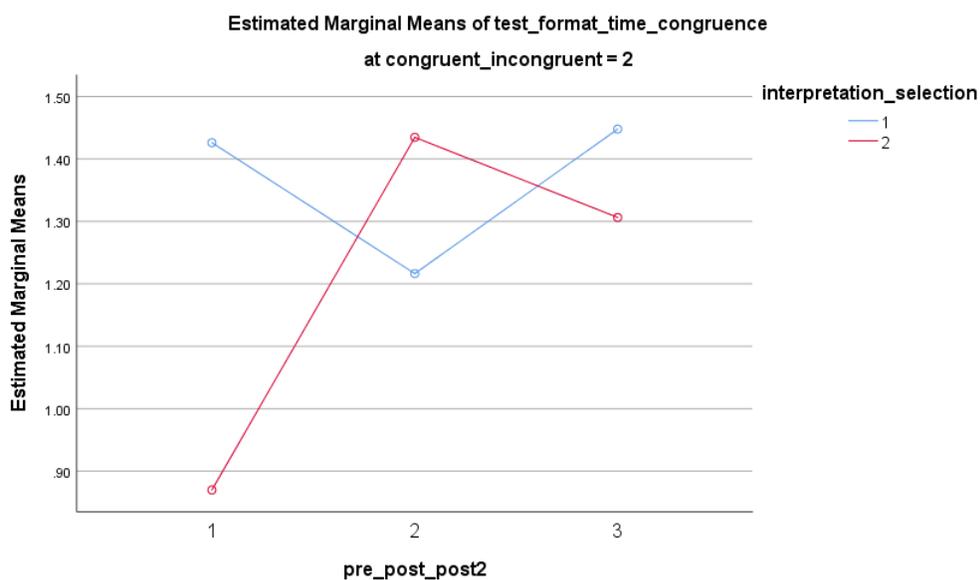


Figure 34. The population's performances on tense-incongruent sentence interpretation and selection.

Based on the graph's illustration of the population's performance on tense-incongruent sentences, it seems that interpretation was negatively affected by the treatments and verb form selection was positively affected. Considering the pretest was given at a time when the target structure had not been taught to learners, it is understandable that they would do poorly on verb form selection but relatively well on interpretation, relying only on guesses based on pre-existing tense grammar knowledge. The changes in scores on the posttest indicate that learners had learned some new rules, which improved their performance on tense-incongruent sentences. At the same time, some preexisting rules that guided learners to make right decisions were damaged by the treatments.

The Interaction between Test, Test Format and Tense-congruence and Group. The interaction between test, test format and tense-congruence and group was not significant: $F(2, 50) = .227, p > .05$. That is, the significant interaction of test format and tense-congruence remained the same between the two groups, across the three tests. The two groups did not differ on the interaction between test format and tense-congruence across the three tests. What was implied was that the two treatments didn't affect the two groups significantly differently in terms of the interaction between test, test format and tense-congruence.

In sum, the changes and stagnations illustrated in this section revealed some characteristics of ECFL learners in acquiring the Chinese particle *le*: 1) Learners' performance on *le* structures relied on the "foreignness" of the task. Namely, the score on interpretation (seeing the verb form in Chinese and choosing the related time) was higher than that on verb form selection (seeing the sentence time and deciding whether [+*le*] or [-*le*] should be chosen); the score on tense-congruent sentences was higher than that on tense-incongruent sentences; 2) "foreignness" was defined by the degree of overlap between the rules involved in the target structure and the preexisting time grammar in learners' native language or interlanguage; 3) The easier a structure was, the higher the attrition rate was, and 4) The degree of "foreignness" of the target structure might be related to the effects of treatments. That is, the difference in the effect of the two treatments might be hard to identify in the extreme cases being either too similar or too foreign to ECFL learners. For instance, in this section, the effect difference between the two groups on tense-congruent structures might be too subtle, and tense-incongruent structures might be "too big" for the current tests to catch³⁶.

³⁶ Again, this hypothesis was supported by the results reported in previous sections and in the next two sections.

Co-function of Sentence Time and Tense-Congruence. Another set of interactions studied in this project revolved around the co-occurrence of sentence time and tense-congruence. The significance of the interaction between sentence time and tense-congruence indicated whether the relationship between the population's present time sentence performance and past time sentence performance was significantly influenced by tense-congruence or whether the relationship between the population's tense-congruent sentence performance and tense-incongruent sentence performance was significantly influenced by sentence time. To evaluate the relationship between the two groups, three more interactions were analyzed in this section: sentence time *tense-congruence*group, sentence time * tense-congruence *test, and sentence time * tense-congruence *test*group. The research questions were the following: How would sentence time interact with tense-congruence on the population's performance? How would this interaction be affected when group was introduced as a factor? How would this interaction be affected by the factor of test? How would this interaction be affected by the interaction of group and test? The results of the interactions are as follows:

Table 31 The interactions involving sentence time and tense-congruence.

Tests of Within-Subjects Effects

Measure: setnece time_congruence

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
present_past *	Sphericity	1.048	1	1.048	2.403	.134	.088
	Assumed						
con_incon	Greenhouse- Geisser	1.048	1.000	1.048	2.403	.134	.088

	Huynh-Feldt	1.048	1.000	1.048	2.403	.134	.088
	Lower-bound	1.048	1.000	1.048	2.403	.134	.088
present_past *	Sphericity	.275	1	.275	.630	.435	.025
con_incon * group	Assumed						
	Greenhouse-	.275	1.000	.275	.630	.435	.025
	Geisser						
	Huynh-Feldt	.275	1.000	.275	.630	.435	.025
	Lower-bound	.275	1.000	.275	.630	.435	.025
pre_post_post2 *	Sphericity	2.190	2	1.095	4.204	.021	.144
present_past *	Assumed						
con_incon	Greenhouse-	2.190	1.819	1.204	4.204	.024	.144
	Geisser						
	Huynh-Feldt	2.190	2.000	1.095	4.204	.021	.144
	Lower-bound	2.190	1.000	2.190	4.204	.051	.144
pre_post_post2 *	Sphericity	.272	2	.136	.522	.596	.020
present_past *	Assumed						
con_incon * group	Greenhouse-	.272	1.819	.150	.522	.580	.020
	Geisser						
	Huynh-Feldt	.272	2.000	.136	.522	.596	.020
	Lower-bound	.272	1.000	.272	.522	.477	.020

Interaction between Sentence Time and Tense-congruence. The interaction between tense-congruence and sentence time was not significant, $F(1, 25) = 2.403, p > .05$, meaning that the significant difference between tense-congruent sentences and tense-incongruent sentences was not different between present time and past time. That is, sentence time does not affect learners' performance on congruent structures and incongruent structures, as illustrated in the graph below.

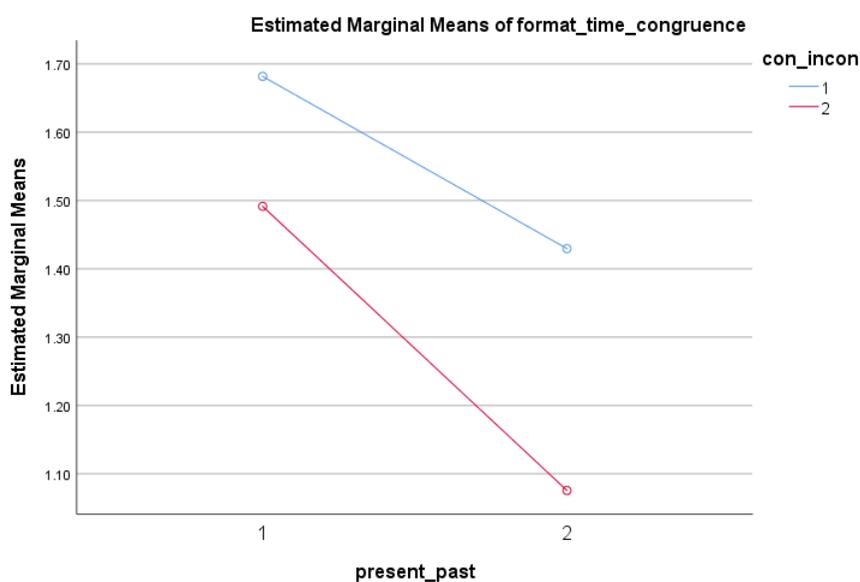


Figure 35. The population's performances on the interaction between tense-congruence and sentence time.

Interaction between Sentence Time, Tense-congruence and Group. The interaction between sentence time, tense-congruence, and group was not significant, $F(1, 25) = .630, p > .05$, meaning that the significance of the nonsignificant interaction between sentence time and tense-congruence remained unchanged between the two groups.

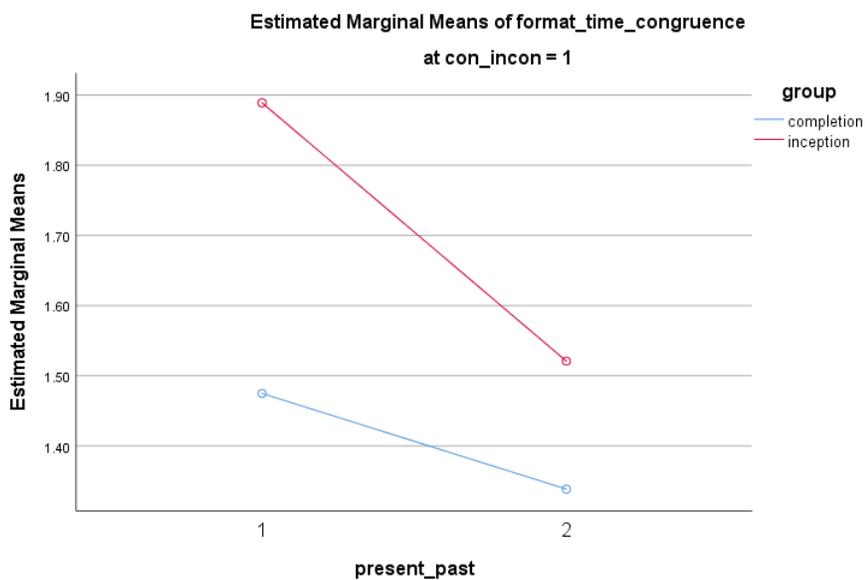


Figure 36. The two groups' performances on present time and past time tense-congruent sentences.

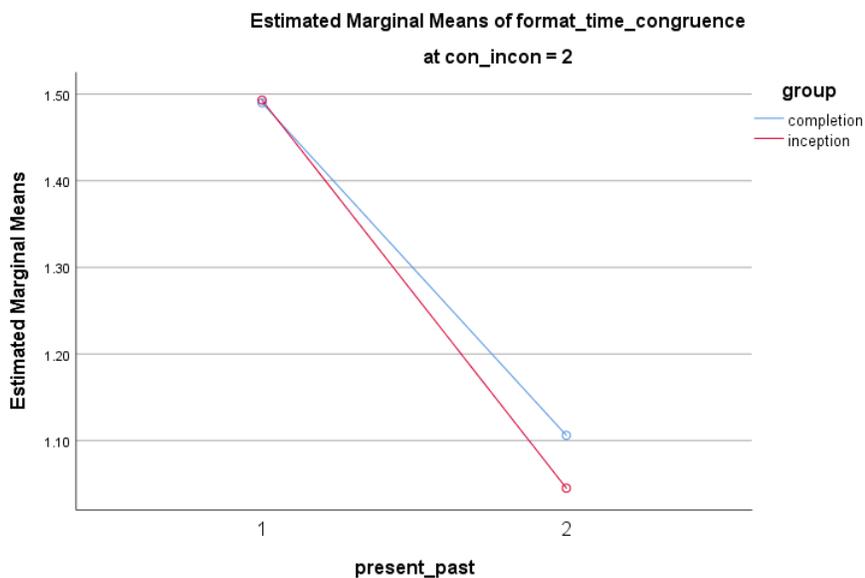


Figure 37. The two groups' performances on present time and past time tense-incongruent sentences.

As illustrated by the two graphs, the two groups' performances were not significantly different from each other on present time tense-congruent sentences, present time tense-incongruent sentences, past time tense-congruent sentences and past time tense-incongruent sentences.

Interaction between Sentence Time, Tense-congruence and Test. The interaction between sentence time, tense-congruence, and test was significant, $F(2, 50) = 4.204, p < .05$, meaning that the interaction of sentence time and tense-congruence varied between tests. Therefore, the treatments the two groups received affected the population's performance.

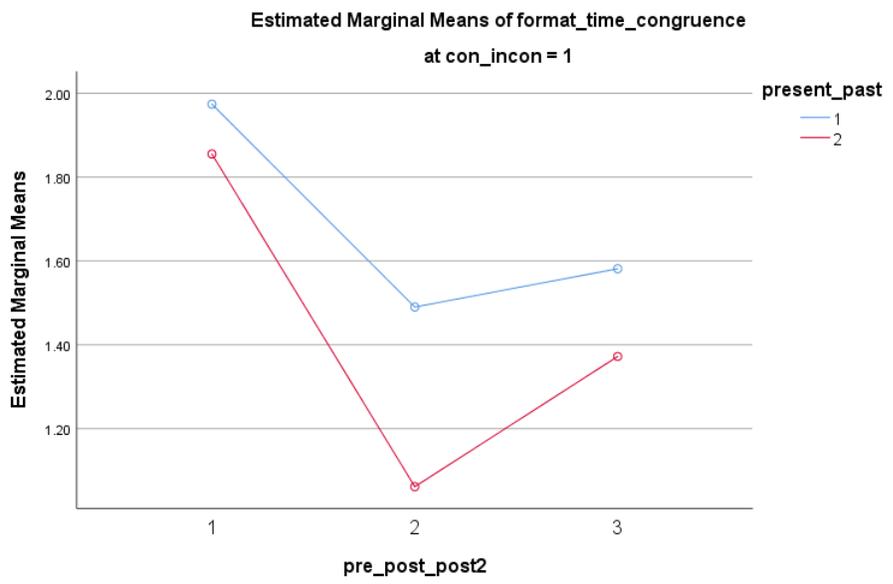


Figure 38. The population's performances on present time and past time tense-congruent sentences.

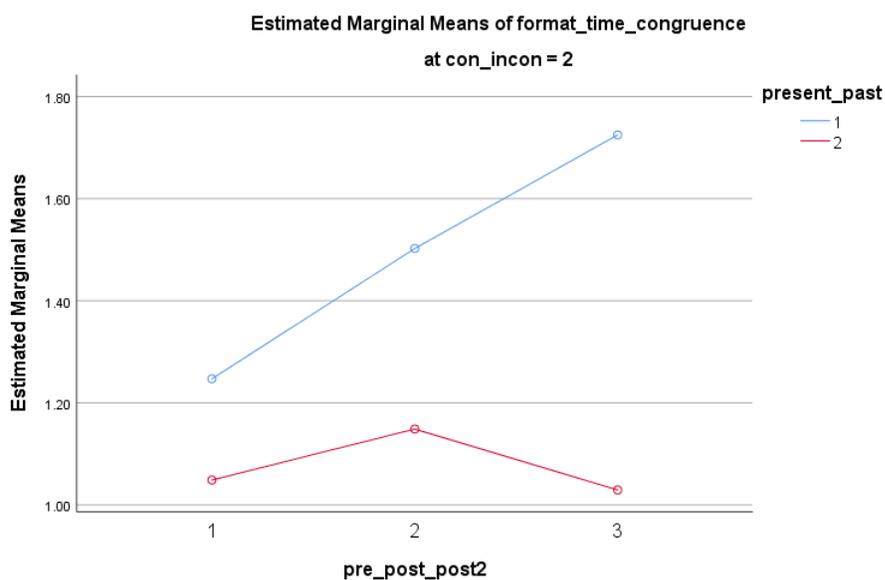


Figure 39. The population's performances on present time and past time tense-incongruent sentences.

The graphs above show that the two population's tense-congruent structure performances with present time and past time were similar across the tests, but the tense-incongruent structure performances with present time and past time were different across the tests. Specifically, the performance with past time fluctuated, whereas the performance with present time kept rising after the intervention. That means that the intervention facilitated ECFL learners' acquisition of *le* in tense-incongruent present time structures.

Interaction between Sentence Time, Tense-congruence, Test and Group. The interaction between sentence time, tense-congruence, test and group was not significant, $F(2, 50) = .522, p > .05$, which means that, although the interaction of sentence time, tense-congruence did vary between tests, the two groups did not performance significantly differently. In this sense, the treatments functioned, but they functioned similarly on the two groups.

In sum, the interaction between tense-congruence and sentence time was significant, and the significance of the interaction between tense-congruence and sentence time did not change

between the two groups but varied across the tests. That means that 1) the intervention had significant influence on the interaction, and 2) the influence was manifested in the improvement of present time tense-incongruent structure processing.

Co-function of Test Format, Sentence Time and Tense-Congruence. The last set of interactions studied in this project revolved around the co-occurrence of test format, sentence time and tense-congruence. The significance of the interaction between test format, sentence time and tense-congruence indicates whether the significant interaction between sentence time and tense-congruence was significantly influenced by test format. To evaluate the main effect of group, three more interactions were analyzed in this section: test format*sentence time *tense-congruence*group, test format, *sentence time * tense-congruence *test, and test format*sentence time * tense-congruence *test*group. The research questions were these: How would test format interact with the interaction of sentence time*tense-congruence on the population's performance? How would this three-factor-interaction be affected when group was introduced as a factor? How would this three-factor-interaction be affected by the factor of test? How would this three-factor-interaction be affected by the interaction of group and test? The results of the interactions are as follows:

Table 32 The interactions involving testformat, sentence time and tense-congruence.

Tests of Within-Subjects Effects

Measure: format_time_congruence

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
	Sphericity	12.106	1	12.106	33.186	.000	.570
	Assumed						

interpn_select *	Greenhouse-	12.106	1.000	12.106	33.186	.000	.570
present_past *	Geisser						
con_incon	Huynh-Feldt	12.106	1.000	12.106	33.186	.000	.570
	Lower-bound	12.106	1.000	12.106	33.186	.000	.570
interpn_select *	Sphericity	.447	1	.447	1.224	.279	.047
present_past *	Assumed						
con_incon * group	Greenhouse-	.447	1.000	.447	1.224	.279	.047
	Geisser						
	Huynh-Feldt	.447	1.000	.447	1.224	.279	.047
	Lower-bound	.447	1.000	.447	1.224	.279	.047
pre_post_post2 *	Sphericity	.787	2	.393	1.141	.328	.044
interpn_select *	Assumed						
present_past *	Greenhouse-	.787	1.538	.512	1.141	.318	.044
con_incon	Geisser						
	Huynh-Feldt	.787	1.684	.467	1.141	.321	.044
	Lower-bound	.787	1.000	.787	1.141	.296	.044
pre_post_post2 *	Sphericity	.133	2	.066	.193	.825	.008
interpn_select *	Assumed						
present_past *	Greenhouse-	.133	1.538	.086	.193	.767	.008
con_incon * group	Geisser						
	Huynh-Feldt	.133	1.684	.079	.193	.788	.008
	Lower-bound	.133	1.000	.133	.193	.664	.008

Interaction between Test format, Sentence Time and Tense-congruence. The interaction between test format, sentence time and tense-congruence was significant, $F(1, 25) = 33.186$, $p < .05$, meaning that there were significant difference between the eight conditions of the interaction of test format*sentence time*tense-congruence³⁷, without tests and groups being considered.

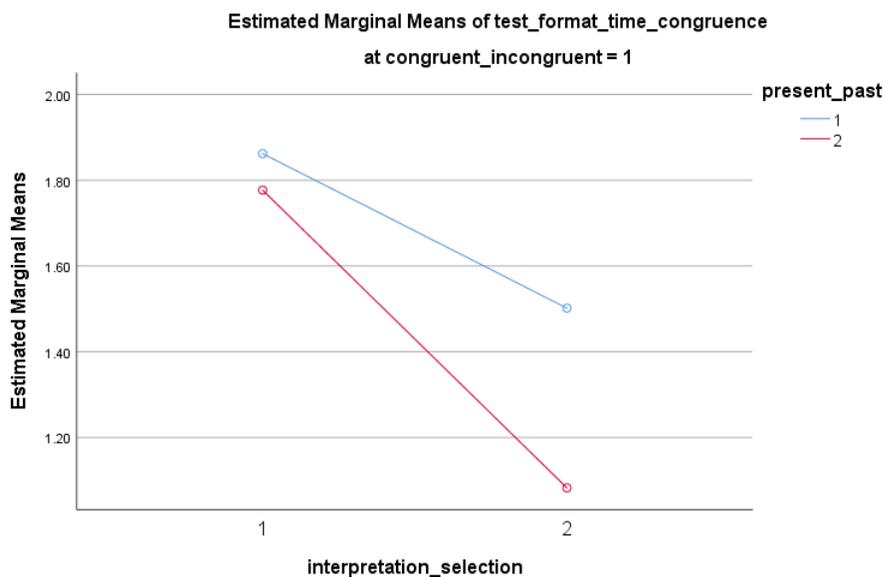


Figure 40. The population's performances on tense-congruent sentences interpretation and selection.

³⁷ The eight conditions were represented by the eight combination types listed at the beginning of this chapter.

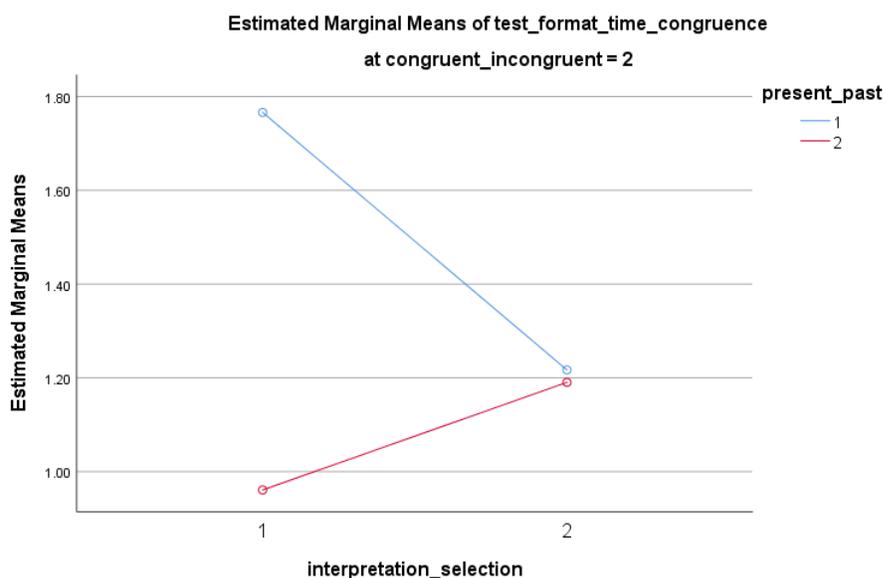


Figure 41. The population's performances on tense-incongruent sentences interpretation and selection.

As shown by the graphs above, in terms of tense-congruent sentences, the population did not show significantly different performances under the four conditions of the interaction of test format*sentence time. In terms of tense-incongruent sentences, the population performed significantly differently under the four conditions of the interaction of test format*sentence time. Specifically, among the four conditions entailed by the interaction of test format and sentence time in tense-incongruent sentence processing, the population did best on present time interpretation, worst on past time interpretation, and similarly on present time verb form selection and past time verb form selection. What is implied by the graphs here completes the conclusion drawn in section 7.4: the intervention facilitated ECFL learners' acquisition of present time tense-incongruent structures.

Interaction between Test Format, Sentence Time, Tense-congruence and Group. The interaction between test format, sentence time, tense-congruence and group was not significant: $F(1, 25) = 1.224, p > .05$. This means that the two groups' performances were not significantly different with regards to the interaction between test format, sentence time, and tense-congruence.

Interaction between Test Format, Sentence Time, Tense-congruence and Test. The interaction between test format, sentence time, tense-congruence and test was not significant: $F(2, 50) = 1.141, p > .05$. That is, the significance of the interaction of test format*sentence time*tense-congruence did not significantly vary among the three tests. What is implied by this result is that the difference between the conditions of the interaction of test format*sentence time*tense-congruent was not a function of the treatments. That is, the difference between the conditions of the interaction didn't significantly change between the tests.

Interaction between Test Format, Sentence Time, Tense-congruence, Test and Group. The interaction between test format, sentence time, tense-congruence and test was not significant, $F(2, 50) = .193, p > .05$, which means that the nonsignificant interaction between test format, sentence time, tense-congruence and test was not significantly influenced by the factor of group. That is, the two groups' performances were not significantly different from each other on the interaction of test format, sentence time, tense-congruence and test.

In sum, the three-factor-interaction of test format, sentence time and tense-congruence was significant. However, the significance of this three-factor-interaction was not affected by the factor of group, test, or the interaction between group and test. In other words, the instructional intervention did not have significant influence on the population's performance on the interaction of test format, sentence time and tense-congruence.

Correlations among the Performances on the Eight Structures.

To confirm whether the learners were under the influence of tense grammar after the treatments, the current study examined the correlations between two categories of combinations, namely, tense-congruent and tense-incongruent as they applied to interpretation and selection separately, as shown in the table below:

Table 33 Correlations within tense-congruent structure and tense-incongruent structure.

Test format	Tense-congruence	Combination Type
Sentence Time	Tense-incongruent	type 1 and type 4
Interpretation	Tense-congruent	type 2 and type 3
Verb form	Tense-incongruent	type 5 and type 8
Selection	Tense-congruent	type 6 and type 7

The rationale was that, if learners were under the influence of tense grammar, there would be separate correlations between tense-congruent structures and tense-incongruent structures, i.e. correlations between type 1 and type 4, type 2 and type 3, type 5 and type 8, type 6 and type 7. On the other hand, as illustrated by the analysis above, the effects might have changed by the time of the delayed posttest, and so, to evaluate the immediate effects of the two treatments, the correlation test was not conducted on the scores of the delayed posttest.

Correlations between Tense-incongruent Structures in Interpretation. The completion group did not show a significant correlation between type 1 and type 4 on the pretest, but showed a significant correlation between type 1 and type 4 on the posttest: $r(10) = .716$, $p < .05$.

Table 34 Completion group pretest type 1 and type 4 correlation.

		Completion Group	
		Pretest type1_type4 Correlations	
		pre_type1_percpt	pre_type4_percpt
pre_type1_percpt	Pearson Correlation	1	-.117
	Sig. (2-tailed)		.718
	N	12	12
pre_type4_percpt	Pearson Correlation	-.117	1
	Sig. (2-tailed)	.718	
	N	12	12

Table 35 Completion group posttest type 1 and type 4 correlation.

		Completion Group	
		Posttest type1_type4 Interpretation Correlations	
		post_type1_percpt	post_type4_percpt
post_type1_percpt	Pearson Correlation	1	.716**
	Sig. (2-tailed)		.009
	N	12	12
post_type4_percpt	Pearson Correlation	.716**	1
	Sig. (2-tailed)	.009	
	N	12	12

** . Correlation is significant at the 0.01 level (2-tailed).

The completion group's performances on tense-incongruent sentences (present time [+le] and past time [-le]) were not correlated on the pretest but became correlated on the posttest due to the influence of the treatment.

Table 36 Inception group pretest type 1 and type 4 correlation.

Inception Group			
Pretest type1_type4 Interpretation Correlations			
		pre_type1_percpt	pre_type4_percpt
pre_type1_percpt	Pearson Correlation	1	.517*
	Sig. (2-tailed)		.028
	N	18	18
pre_type4_percpt	Pearson Correlation	.517*	1
	Sig. (2-tailed)	.028	
	N	18	18

*. Correlation is significant at the 0.05 level (2-tailed).

Table 37 Inception group posttest type 1 and type 4 correlation.

Inception Group			
Posttest type1_type4 Interpretation Correlations			
		post_type1_percpt	post_type4_percpt
post_type1_percpt	Pearson Correlation	1	.058
	Sig. (2-tailed)		.824
	N	17	17
post_type4_percpt	Pearson Correlation	.058	1
	Sig. (2-tailed)	.824	
	N	17	17

The inception group showed a significant correlation between type 1 and type 4: $r(16) = .52$, $p < .05$. However, there was nonsignificant correlation between type 1 and type 4 on the posttest: $r(15) = .058$, $p > .05$. That means that tense grammar had an effect on the inception group's performance on the pretest, but the treatment the inception group received changed the group's processing mechanism so that the tense-incongruent types were not processed in the same way they had been processed prior to the treatment.

Comparing the two groups' performances on tense-incongruent sentence interpretation, we can see that the treatments caused opposite changes in the two groups. That is, the completion group's performances on type 1 and type 4 sentences became correlated on the posttest, whereas the inception group's performances lost their correlation on the posttest. The cause for the differences on the pretest was not clear, but the opposite changes illustrate that the two treatments' effects were different. Specifically, the completion-focused treatment caused the tense-grammar-driven effects for the completion group while the inception-focused treatment did not have such effects.

Correlations between Tense-congruent Structures in Interpretation. The completion group showed nonsignificant correlations between type 2 and type 3 in interpretation on the pretest, $r(10) = .51$, $p > .05$, but showed a marginally significant correlation on the posttest: $r(10) = .716$, $p = .051$.

Table 38 Completion group pretest type 2 and type 3 correlation.

		Completion Group	
		Pretest type2_type3 Correlations	
		pre_type2_percpt	pre_type3_percpt
pre_type2_percpt	Pearson Correlation	1	.510
	Sig. (2-tailed)		.090
	N	12	12
pre_type3_percpt	Pearson Correlation	.510	1
	Sig. (2-tailed)	.090	
	N	12	12

Table 39 Completion group posttest type 2 and type 3 correlation.

		Completion Group	
		Posttest type2_type3 Correlations	
		post_type2_percpt	post_type3_percpt
post_type2_percpt	Pearson Correlation	1	.573
	Sig. (2-tailed)		.051
	N	12	12
post_type3_percpt	Pearson Correlation	.573	1
	Sig. (2-tailed)	.051	
	N	12	12

That means that the completion group's processing of type 2 sentences and type 3 sentences were not equally tense-grammar-driven on the pretest but were on the posttest.

Table 40 Inception group pretest type 2 and type 3 correlation.

		Inception Group	
		Pretest type2_type3 Correlations	
		pre_type2_percpt	pre_type3_percpt
pre_type2_percpt	Pearson Correlation	1	-.212
	Sig. (2-tailed)		.398
	N	18	18
pre_type3_percpt	Pearson Correlation	-.212	1
	Sig. (2-tailed)	.398	
	N	18	18

Table 41 Inception group posttest type 2 and type 3 correlation.

		Inception Group	
		Post type2_type3 Correlations	
		post_type2_percpt	post_type3_percpt
post_type2_percpt	Pearson Correlation	1	.361
	Sig. (2-tailed)		.155
	N	17	17
post_type3_percpt	Pearson Correlation	.361	1
	Sig. (2-tailed)	.155	
	N	17	17

The inception group showed nonsignificant correlations between type 2 and type 3 on both the pretest, $r(16) = -.21$, $p > .05$, and the posttest, $r(15) = .36$, $p > .05$. This means that the inception group's processing of type 2 sentences and type 3 sentences was not tense-grammar-driven. Or, more accurately, the possibility that the inception group would be tense-grammar-driven in the

processing of type 2 and type 3 sentences was significantly lower than that of the completion group.

Comparing the two groups' performances on tense-congruent sentence interpretation, we can see that they underwent changes after the treatments. That is, the treatments the two groups received had different effects on the two groups' processing of tense-congruent sentence interpretation. Specifically, under the influence of the completion-focused treatment, the completion group's performance on type 2 and type 3 became correlated. By contrast, after receiving the inception-focused treatment, the inception group's performance on type 2 and type 3 did not become significantly correlated.

Correlations between Tense-incongruent Structures in Verb Form Selection. The completion group's performances on type 5 and type 8 on the pretest showed no significant correlation: $r(10) = -.48$, $p > .05$. However, the performances on the two sentence types showed a significant correlation on the posttest: $r(10) = .575$, $p = .050$.

Table 42 Completion group pretest type 5 and type 8 correlation.

		Completion Group	
		Pretest type5_type8 Correlations	
		pre_type5_prodc	pre_type8_prodc
pre_type5_prodc	Pearson Correlation	1	-.478
	Sig. (2-tailed)		.116
	N	12	12
pre_type8_prodc	Pearson Correlation	-.478	1
	Sig. (2-tailed)	.116	
	N	12	12

Table 43 Completion group posttest type 5 and type 8 correlation.

		Completion Group	
		Posttest type5_type8 Correlations	
		post_type5_prodct	post_type8_prodct
post_type5_prodct	Pearson Correlation	1	.575
	Sig. (2-tailed)		.050
	N	12	12
post_type8_prodct	Pearson Correlation	.575	1
	Sig. (2-tailed)	.050	
	N	12	12

This means that learners in the completion group were not clear about the combination principles on the pretest but became better informed of the rules of both structure types after the treatment was received.

Table 44 Inception group pretest type 5 and type 8 correlation.

		Inception Group	
		Pretest type5_type8 Correlations	
		pre_type5_prodct	pre_type8_prodct
pre_type5_prodct	Pearson Correlation	1	-.223
	Sig. (2-tailed)		.374
	N	18	18
pre_type8_prodct	Pearson Correlation	-.223	1
	Sig. (2-tailed)	.374	
	N	18	18

Table 45 Inception group posttest type 5 and type 8 correlation.

		Inception Group	
		Posttest type5_type8 Correlations	
		post_type5_prodct	post_type8_prodct
post_type5_prodct	Pearson Correlation	1	.490*
	Sig. (2-tailed)		.046
	N	17	17
post_type8_prodct	Pearson Correlation	.490*	1
	Sig. (2-tailed)	.046	
	N	17	17

*. Correlation is significant at the 0.05 level (2-tailed).

The inception group showed nonsignificant correlations between type 5 and type 8 sentences on the pretest, $r(16) = -.22$, $p > .05$, but showed a significant correlation on the posttest, $r(15) = .490$, $p < .05$. This indicates that the inception group was not clear about the combination principles on the pretest but became better informed on the rules of both types after the treatment was received.

Comparing the two groups' performances on tense-incongruent verb form selection, we can see that the two groups underwent similar changes after the treatments. That is, the treatments the two groups received had similar effects on the two groups' processing of tense-incongruent verb form selection.

Correlations between Tense-congruent Structures in Verb Form Selection. The completion group showed no significant correlation between type 6 and type 7 in verb form selection on the pretest, $r(10) = -.28$, $p > .05$, and a marginally significant correlation on the posttest, $r(10) = -.553$, $p = .062$.

Table 46 Completion group pretest type 6 and type 7 correlation.

		Completion Group	
		Pretest type6_type7 Verb form selection Correlations	
		pre_type6_prodct	pre_type7_prodct
pre_type6_prodct	Pearson Correlation	1	-.280
	Sig. (2-tailed)		.378
	N	12	12
pre_type7_prodct	Pearson Correlation	-.280	1
	Sig. (2-tailed)	.378	
	N	12	12

Table 47 Completion group posttest type 6 and type 7 correlation.

		Completion Group	
		Posttest type6_type7 Verb form selection Correlations	
		post_type6_prodct	post_type7_prodct
post_type6_prodct	Pearson Correlation	1	-.553
	Sig. (2-tailed)		.062
	N	12	12
post_type7_prodct	Pearson Correlation	-.553	1
	Sig. (2-tailed)	.062	
	N	12	12

This means that tense grammar was not equally applied by learners in the completion group when processing type 6 and type 7 sentences on the pretest. However, the processing strategies for both type 6 and type 7 sentences had become more tense-grammar-reliant by the time the posttest was administered.

Table 48 Inception group pretest type 6 and type 7 correlation.

		Inception Group	
		Pretest type6_type7 Correlations	
		pre_type6_prodt	pre_type7_prodt
pre_type6_prodt	Pearson Correlation	1	.084
	Sig. (2-tailed)		.749
	N	17	17
pre_type7_prodt	Pearson Correlation	.084	1
	Sig. (2-tailed)	.749	
	N	17	18

Table 49 Completion group posttest type 6 and type 7 correlation.

		Inception Group	
		Posttest type6_type7 Verb form selection Correlations	
		post_type6_prodt	post_type7_prodt
post_type6_prodt	Pearson Correlation	1	.037
	Sig. (2-tailed)		.887
	N	17	17
post_type7_prodt	Pearson Correlation	.037	1
	Sig. (2-tailed)	.887	
	N	17	17

The inception group showed a nonsignificant correlation between type 6 and type 7 sentences on the pretest, $r(15) = .084$, $p > .05$, as well as on the posttest, $r(15) = .037$, $p > .05$. What is implied is that the inception group's processing strategies for type 6 and type 7 sentences were not equally tense-grammar-reliant on the pretest and did not become so after the treatment.

Comparing the two groups' performances on tense-congruent verb form selection, we can see that the two groups underwent different changes after the treatments. That is, the treatment the completion group received made them tense-grammar-reliant on type 6 and type 7 verb form selection, whereas the inception group did not show similar tense-grammar reliance.

Chapter 5: Conclusion

Based on the test results and discussions in the previous chapter, we will evaluate the effects of the two treatments from the perspectives of acquisition studies, pedagogy, and syntactic studies. We will also discuss the limitations and the implications of this study.

Effects of the Two Treatments

The effects of the two treatments in this study were evaluated in three respects: 1) through the change in learners' scores on the eight structure types, i.e. whether there was significant difference in the scores from test to test; 2) through the change of coherence of processing strategies, i.e. whether there was a difference in consistence on correlations between processing strategies on related structure types, before and after the treatments, and 3) through the changes in the dominance of tense grammar, i.e. whether the influences of tense grammar on certain structure types changed, before and after the intervention.

Effects on Performances on Different Structure Types. As the results in the previous chapter indicate, the effects of these two treatments on the eight structure type scores only differed on type 2 sentences. This means that the effect difference between the two treatments was generally not reflected in the two groups' score on specific structure types³⁸. On the other hand, the common effects of the two treatments varied among the seven types. Specifically, along the division between [+le] sentences and [-le] sentences, past time sentences and present time sentences, tense-congruent sentences and tense-incongruent sentences, the two treatments showed irregular influences on learners' performances: 1) learners' performances improved on type 5 and type 8, both of which were tense-incongruent structure verb form selection; 2) learners' performances deteriorated on type 6 and type 7, which were both tense-congruent structure verb form selection; 3) learners' performances deteriorated on type 1, type 2, and type 3, which were all interpretation; 4) the treatments had more stable influence on present tense grammar than on past tense grammar, as shown by learners' performances on type 2 and type 5 (present time), type 3 and type 8 (past time); 5) learners' present time sentence performance improved significantly on the posttest and remained on the same level on the delayed posttest, whereas their performance on past time sentences changed on the posttest and returned to the pretest level on the delayed posttest, and 6) there were some other factors that affected learners' processing of the target structures, as illustrated by learners' performances on type 2 and type 4.

³⁸ However, it does not follow that the effects of the two treatments did not differ from each other in other respects.

Effects on Processing Strategies. The results of correlation tests show that the two treatments had different effects on ECFL learners' processing strategies in a systematic fashion. Specifically, the completion group showed tense-related correlations between tense-congruent structures (type 2 and type 3, type 6 and type 7), as well as between tense-incongruent structures (type 1 and type 4, type 5 and type 8), in both interpretation and selection, after the instructional intervention. By contrast, the inception group did not show similar correlations after the instructional intervention. The correlations may or may not echo learners' performances in terms of accuracy or tense grammar influence in certain interactions. However, the significant correlations clearly show that tense-congruence was a major factor that consistently affected learners in the completion group across different structure types. On the other hand, while learners in the inception group were still subject to the influence of tense grammar, their performances showed that there was no systematic tense grammar impact either within tense-congruent structures or tense-incongruent structures.

Effects on the Understanding of the Relationship between Time and Verb. In respect to the correlations of processing strategies, the effects of the two treatments can be evaluated through an examination of the changes in the influence of tense grammar, which were reflected in the changes of the significance of different interactions where both group and test were involved³⁹. The rationale was that, if the treatments changed the dominance of tense grammar in a certain structure type, e.g. past time sentence interpretation, then the significance of the interaction of sentence time*test format should change between tests, and vice versa. Conversely, if the treatments did not change the dominance of tense grammar in a certain structure type, then the significance of the interaction consisting of relevant factors and the factor of test would not change. If the treatments changed the dominance of tense grammar differently in a certain structure type, then the significance of interaction consisting of relevant factors, the factor of test, and the factor of group should change. In this sense, the two treatments can be evaluated in their effectiveness in changing the dominance of tense grammar in certain structure types. Based on the test results, the effects of the treatments can be categorized in three ways: 1) the two treatments had no significant effects; 2) the two treatments had similar significant effects, and 3) the two treatments had different effects. Again, note that the dominance change of the influence of tense grammar was only manifest in the change in the significance of interactions, which did not necessarily incur any significant change in score.

39 Since the two groups were divided based on the treatment each group received, the main effect of group was actually the main effect of the factor of treatments. However, since the experiment involved a pretest given before the treatments were given, and it was possible that the two groups comprised different populations, the main effect of group as a fixed factor was not accurate to reflect the effect of treatment, either as between-subjects effect or as within-subjects effect. In this sense, the effects of treatments were evaluated in interactions involving either test alone, or both test and group. On the other hand, since the questions on tests were all based on the relationship between verb form and sentence time, changes in learners' performances reflected the changes of tense grammar influence.

Nonsignificant Effects of the Treatments. The first category contains results that indicate that the treatments were equally ineffective in changing the power of tense grammar, i.e. areas in which there was no significant difference between before and after intervention. This category includes the interaction between test format and tense-congruence as well as the interaction between test format, sentence time and tense-congruence where neither treatment changed the significance of these two interactions. The influence of tense grammar in these interactions was not significantly modified by the treatments. Note: This does not mean that the treatments did not function, only that the treatments failed to change the scale of influence of tense grammar in the interactions. On the same note, the nonsignificant change in score does not indicate that there was no significant change in interactions.

Common Effects of the Treatments on Interactions. The second category contains results that show that the two treatments had similar effects in combating tense grammar reliance, which was indicated by significant changes only between tests and not between groups. This category consists of the factors of test format, sentence time, and tense-congruence as well as interactions of test format*sentence time, and test format*tense-congruence. From learners' performances in this category, we can see how the two groups, as one population, reacted to the intervention treatments as a whole⁴⁰.

⁴⁰ The following analyses were not based on learners' scores, but on the interactions among different factors.

Interpretation vs. Verb Form Selection. The test results showed that learners did better on interpretation than on verb form selection. Learners' overall performance on the three tests showed that the difference between interpretation and selection on the pretest was overcome on the posttest, which means that the treatments effectively changed their processing strategies on interpretation and selection. However, on the delayed posttest, the difference between interpretation and selection recurred. This recurrence can be understood in two ways: 1. it could be a sign that the new rules introduced through the target structure were not retained, or 2. it could signal that learners' interpretation performance literally improved more than their verb form selection performance.

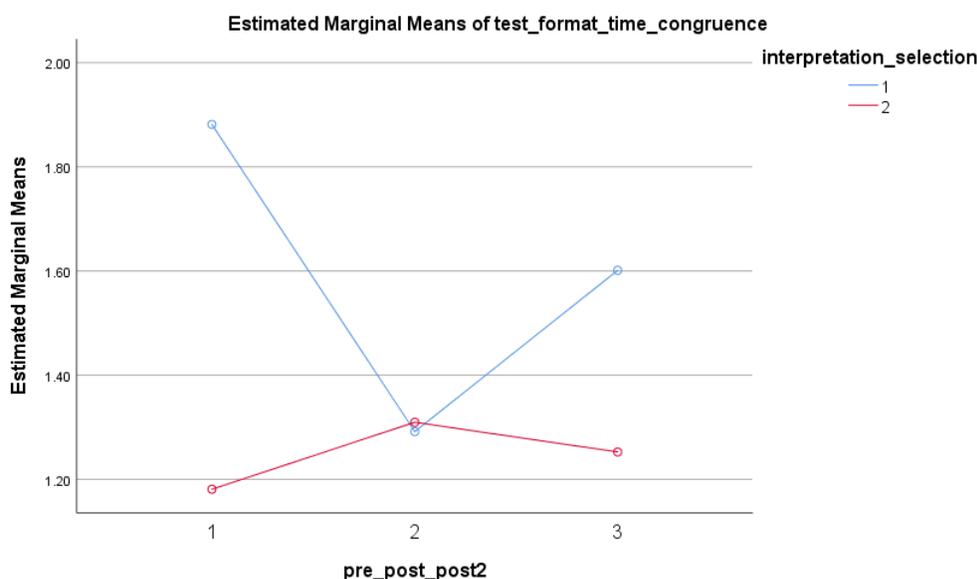


Figure 42. The population's performances on interpretation and selection.

What is implied by the scores on interpretation and selection is that the straightforwardness of the task is directly related to learners' performance. That is, although the combination types were the same for interpretation and selection, learners did better on interpretation than on verb form selection. Keeping all other variables under control, the only factor that could have contributed to this difference was the order of processing: learners saw the verb form ([+le] or [-le]) first and

then decided on the time that should go with the verb in interpretation; whereas they saw the time word first (either present or past), they then decided the verb form in verb form selection. Learners might rely on the context to decide the temporal information of a verb and thus needed not to ponder on the function of [+le] or [-le] in interpretation. However, in verb form selection, the focus of processing switched from time to verb form. That is, learners first needed to figure out the meaning of the verb (either aspectual or non-aspectual) in order to decide which form to choose, which was less straightforward than simply deciding on time.

Present Time vs. Past Time. The test results also showed that learners' processing of *le* sentences was related to sentence time. As shown in the graph below, since both present time sentences and past time sentences contained tense-congruent structures and tense-incongruent structures, learners' performances on present time sentences and on past time sentences were at the same chance level on the pretest. However, learners' performance on present time sentences improved, while their performance on past time sentence deteriorated on the posttest. In other words, the treatments had positive effects on present time sentences and negative effects on past time sentences. What is implied by this result is that the newly-introduced rules were established more successfully with present time, and less successfully with past time. As such, the downgrade in past time sentence performance might be deemed the result of the weakening of pre-existing rules without the effective establishment of the new rules; and the upgrade in present time sentence performance might be the result of an effective establishment of the new rules. Keeping all the other factors under control, the only difference between these two types of processing was time words. In this sense, we can safely argue that past time sentences were more challenging to ECFL learners. Once again, since all the other factors were under control, we may further argue that the influence of tense grammar on past time sentences is much stronger than on present time sentences. In other words, if there is a general tense grammar transfer in learning Chinese, then past tense transfer is more stubborn than present tense transfer or that past time induces more confusion than present time does.

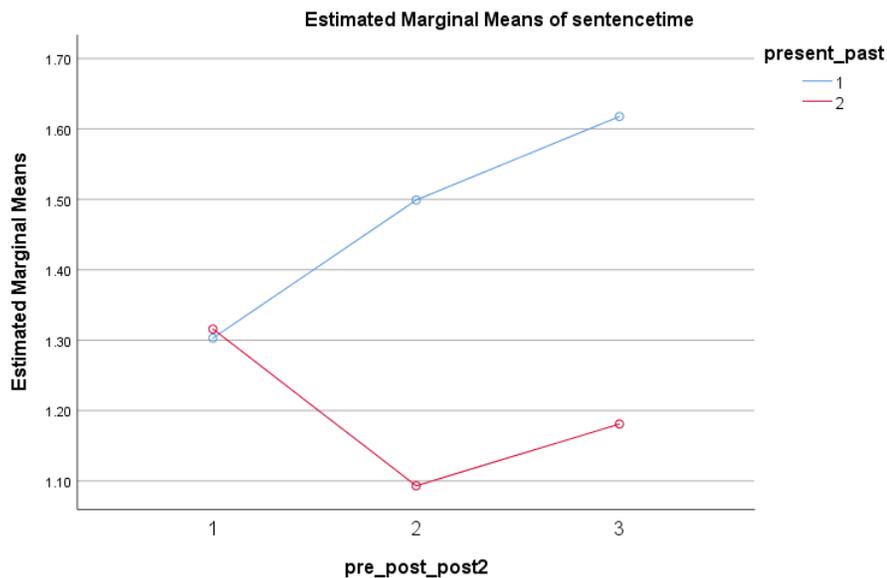


Figure 43. The population's performances present time sentences and past time sentences.

Compared to the performances in section 2.1 and section 2.2, it can be seen that learners' performance on sentence time was almost at the same point on the pretest but diverged on the posttest. This means that present time and past time exerted equal inductive influence on learners' processing prior to treatments. However, after treatments, the performances diverged. What is implied is that present tense transfer is easier to dismiss than past tense transfer is.

ECFL learners' processing of interpretation sentences, past time sentences, and tense-congruent sentences was negatively influenced by the treatments. This implies that the treatments succeeded in overthrowing the preexisting rules without succeeding in establishing new rules of equal effectiveness. By contrast, in the processing of verb form selection, present time sentences and tense-incongruent sentences were all positively influenced by the treatments, which indicates that the treatments were successful in establishing new rules that were more effective than the old rules.

Looking at the scores on the delayed posttest, it can be seen that learners' performances on interpretation, tense-incongruent sentences, and present time sentences showed significant improvement, while their performances on verb form selection, tense-incongruent sentences and past time sentences showed either no significant improvement or scores that were even lower than those on the pretest. Assuming tense transfer is a general phenomenon for ECFL learners, we can conclude that it is more challenging when it comes to verb form selection, past time sentences and tense-congruence sentences. At the same time, the results also indicate that some of the new rules introduced through the target structure were successfully transferred from input to intake, as well as into learners' interlanguage, as they were still highly effective for present time processing and tense-incongruent processing on the delayed posttest. However, the population's performances on interpretation, verb form selection, past time processing and tense-congruent processing on the delayed posttest did not significantly change from those on the pretest. For the processing of these categories, it seems that these rules were only temporarily effective in dismissing the old rules, but not effective enough to install proper rules to replace the old ones.

Tense-congruent Structure vs Tense-incongruent Structure. As stated in previous chapters, Chinese does not have a morphological system to mark tense, and there are no explicit grammatical rules that confine the connection of the verb form and its time. As such, the combination of verb form (either [+le] or [-le]) and sentence time in Chinese may or may not be congruent with tense grammar in English. On the other hand, ECFL learners' performance on target structures, strongly influenced by tense grammar, depended heavily on how close the relationship between verb form and sentence time in target structures was in accordance to the rules of tense grammar. Consequently, as the test results show, learners' performances on tense-congruent sentences and tense-incongruent sentences differed significantly.

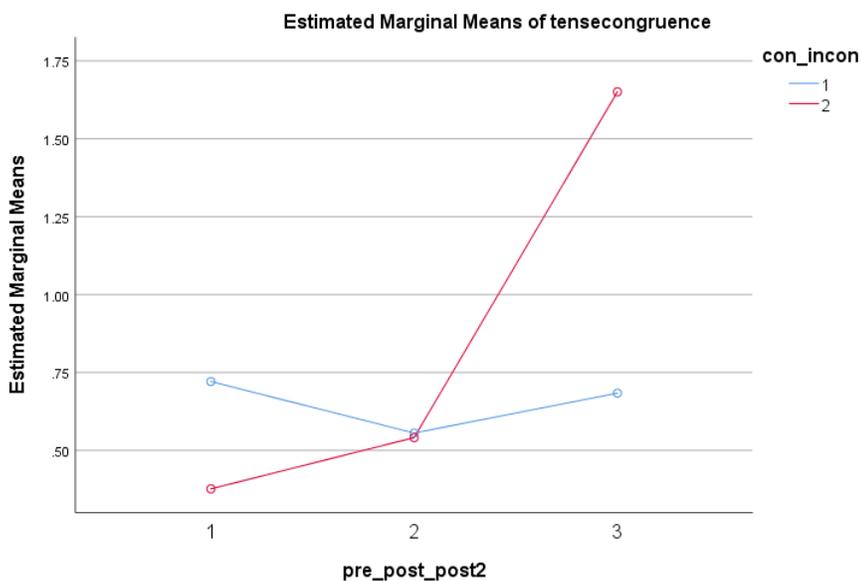


Figure 44. The population's performances on tense-congruent sentences and tense-incongruence sentences.

In light of the structures whose form were close to that of English, the population's performance showed an up-down-up shape on the same level, which indicates that learners' tense grammar might be weakened but new rules had not been effectively developed. On the other hand, in terms of structures whose forms were incompatible to that of English, e.g. tense-incongruent

structures, the population's performance showed an upward trend through the three tests, which means that learners had applied erroneous rules in processing tense-incongruent sentences on the pretest and new rules after the treatments. At this point, it was not clear whether the better performance was due to the fact that new rules had been properly established or learners were just over-exerting the "*le* is not necessarily related to past tense" principle. It is only safe to argue that the intervention had successfully fostered ECFL learners' awareness of the non-tense grammar in processing *le* structures.

More importantly, learners' performances on tense-congruent sentences and tense-incongruent sentences converged on the posttest, which is a sign that the treatments' immediate effect was equal on tense-congruent sentences and tense-incongruent sentences. However, when the delayed posttest was given, the performances diverged in a wider manner, with performance on tense-incongruent sentences higher than performance on tense-congruent sentences. Learners' performances on delayed posttest imply that learners might still be under the influence of tense grammar, in the sense that their the selection of the combination of verb form and sentence was not based on the proper understanding of the target structures but on reversed application of tense grammar ---the combination of verb form and sentence time should be different from that in English. As revealed in other sections, learners' performances varied per factors and interactions, the preference for anti-tense-grammar combinations might be limited to certain structure types.

Different Effects of the Treatments on Tense Grammar. The third category contains results that indicate that the treatments changed the significance of interactions differently. This category consists of the interaction of overall performance and the interaction of test format and sentence time. In other words, the two treatments changed the influence of tense grammar on the interactions and each of these treatments changed that influence differently. Since the interaction between test format and sentence time can be viewed as one of the more detailed versions of the overall performance, the discussion will be about the interaction between test format and sentence time.

As elaborated in the previous chapter, the interaction of test format and sentence time was most susceptible to the treatments and differed significantly between groups and tests, as shown on the graph below.

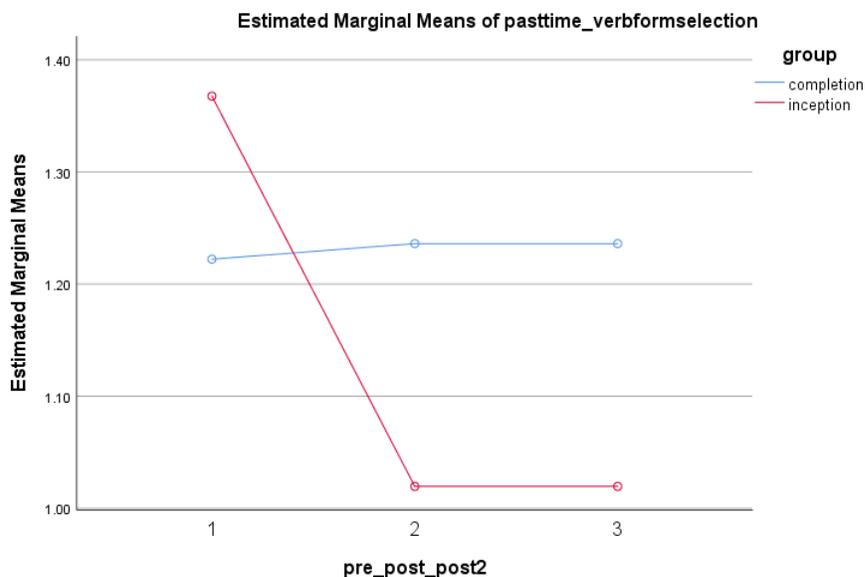


Figure 45. The two groups' performances on past time verb form selection.

Briefly, the inception group's performance on past time verb form selection significantly dropped on the posttest, whereas the completion group's performance on past time verb form selection showed almost no influence from the teaching. However, as past time verb form

selection involved [+le] form and [-le] form, it was possible that the stability between pretest and posttest was a balancing of two different scores. Therefore, it was premature to argue that the completion group's performance on past time verb form selection was not susceptible to the treatment it received.

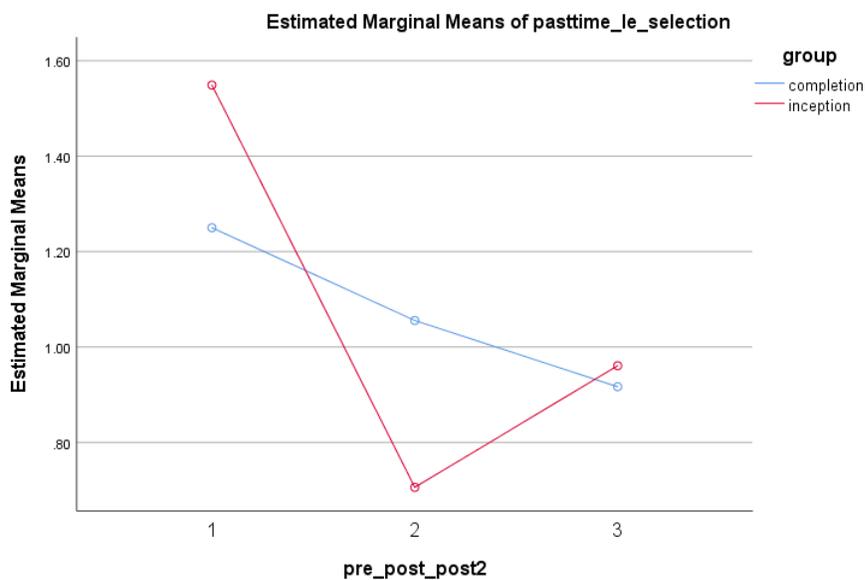


Figure 46. The two groups' performances on past time [+le] form selection.

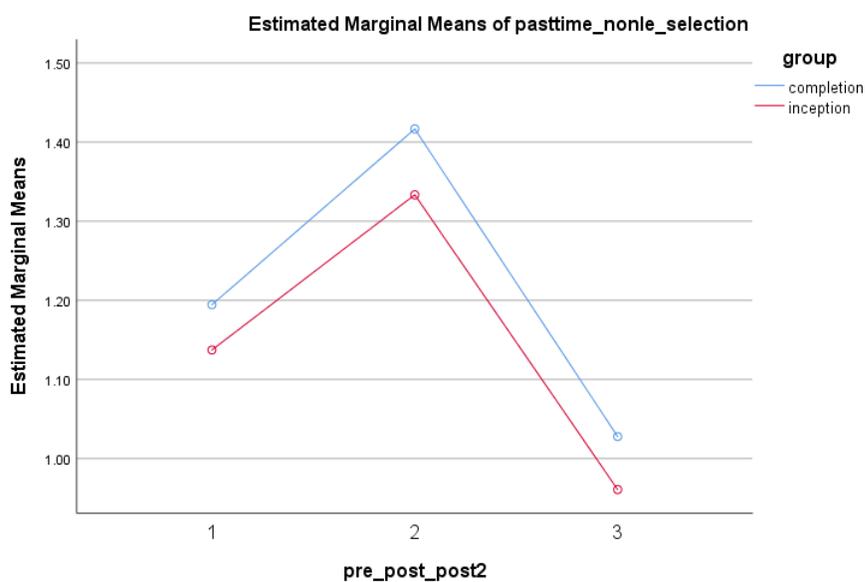


Figure 47. The two groups' performances on past time [-le] form selection.

As the graphs show, both groups underused [+le] in past time verb form selection, and the inception group showed a stronger favoritism for the [-le] form than the completion group did with the presence of past time. Keeping all other variables under control, the inception group's stronger preference for the [-le] form can be traced back to the inception-focused instruction it received, namely, learners' attention was directed to the inceptive point of a specific situation and time grammar was not stressed in teaching. Accordingly, learners in inception group were more willing to choose a tense-incongruent combination. As such, their performance on the [-le] form was improved and their performance on the [+le] form deteriorated on posttest. On the other hand, with the preference for the [-le] form, the inception group still made some correct selections on the [+le] form, which means the inception-oriented account for the inception group engendered a conception of *le* that was narrower than what the account meant. How was this narrower concept of inception conceptualized by ECFL learners? Was there a structure that was precisely caught by the learners? Was what was learned related to tense grammar on a deeper level? Is there any adjustment that can be done on the pedagogical end so that the concept of "inception" can be perceived in a broader manner? These questions were inspired by the test results and are certainly worth further exploration.

The completion group's performance on past time verb form selection reflected a preference for the [-le] form on the posttest as well, but the degree was much lower. Again, keeping all the other variables under control, this lesser degree of favoritism must be related to the account of *le* the completion group received, namely, *le* marks a new situation, whose completedness reading depends on the interaction between topic time and situation time. Paralleling the two accounts with the two groups' performances on [+le] and [-le], as shown by

the graphs, we can conclude that the “new situation” account was relatively more helpful, or less unhelpful, for ECFL learners than the “inception” account was on past time [+le] form selection.

Comparing the two groups’ similar performances on past time [-le] form selection and different performances on [+le] form selection, it is suggested that, for ECFL learners, the inception-oriented treatment and the completion-oriented treatment differ in hinting at the [+le] form but are similar in hinting at the [-le] form when the sentence time is past.

Answers to Research Questions

Bearing on the research questions listed in Chapter 1, the results of the experiment support the following conclusions: 1) the instructional treatments caused differences in three respects: the two groups’ performances on [-le]-cued past time interpretation were significantly different; the two groups’ conceptions of tense grammar changed differently, which was reflected in the changes of the significance of certain interactions; and the two groups’ reliance on tense grammar changed differently, i.e. the completion group developed systematic reliance on tense grammar on the posttest, whereas the inception group did not. 2) The two groups’ performances on the eight types of combinations were largely similar except for type 2. 3) Learners’ performance on interpretation was significantly better than it was on verb form selection. 4) Learners’ performances significantly differed between present time sentences and past time sentences. 5) Learners’ performances significantly differed between tense-congruent sentences and tense-incongruent sentences. 6) Learners in the completion group showed a stronger tense-oriented processing strategy after the intervention, whereas the inception group did not show such an inclination.

Evaluating the Treatments’ Effects through PI

Learners' performances on target structures after the instructional intervention enabled us to analyze the learning of *le* structure through IP theory. According to IP theory, the acquisition of a target structure involves four steps: input, intake, restructuring, and output. Input is what the instructor provides, and intake is what learners incorporate into their linguistic system. The transition from input to intake is especially critical in acquisition because input will interact with pre-existing rules and form unintended rules in learners' interlanguage. When these unintended rules are erroneous, they will result in errors in output. To effectively avoid erroneous or unexpected intake, instructors are supposed to manipulate the input so that learners' attention is directed to the crucial features of the target grammar and thus improve the accuracy of what is acquired. This theory was developed into the Processing Instruction model (VanPatten, 1996, 2002; VanPatten & Cadierno, 1993), which involves five basic principles in teaching practice: sufficient interpretation of the difference between target item and potential miscalculations, structured input that precisely illustrates the difference between the target item and the potential miscalculations, direction of learners' attention, learners' active participation, and lexical items' priority over grammatical items in processing (VanPatten 2002).

This study hypothesized that the attention to different focal points of the target structure would incur different processing strategies and produce a difference in learners' performance in that the inception-based account is meaning-oriented (lexical) and the completion-based account is form-oriented (grammatical). This study also predicted that the inception-based account might outperform the completion-based account in catching learners' attention, thus making it easier for ECFL learners to internalize *le* in a more tense-free manner and perform better in overcoming tense grammar and/or perfective aspect transfer. This prediction was only partially proven by the results in that 1) the effects of the two treatments were only different in some respects and not

universally across all levels and respects, and 2) the two treatments changed learners' understanding of the target structure but did not improve their overall performance.

From the perspective of PI, there are several factors that could lead to these results. First, at the input stage, the interpretation of the difference between tense grammar in English and the grammar (either time-based or time-free) involved in the target structure might not be sufficient for both groups. As such, learners in both groups became aware that past time and the [+*le*] form were not necessarily connected, but this awareness did not last long. Second, the directions of learners' attention to completion or inception had different effects on performance scores, but the difference was limited to one structure type (type 2), which means that the interpretation in the input was not detailed enough to anticipate all potential misunderstandings on all *le* structures. Third, the overall effects of the two treatments were negative---learners only learned to disconnect verb forms and certain sentence times but failed to develop proper substitute rules for tense grammar in their interlanguage. Because of this, their correct rates actually dropped after treatments. This deterioration reflected that the input needs to be refined so that in addition to knowing what *le* was not about, learners would also know what *le* was about. For instance, although the concept of inceptive point was based on a more lexical meaning, the inception group might have performed better if the concept had been introduced in a more perceivable manner. Fourth, the newly learned knowledge encountered strong rejection due to pre-existing rules as indicated by the decrease in accuracy rate on the posttest and the pushback toward the pretest on delayed posttest. The predominance of pre-existing rules in learners varied per structure types as well. Fifth, learners' performance actually was the result of the interactions between the input and pre-existing rules. In terms of the processing of *le*, the interactions were

unexpectedly complicate—some of the rules of *le* structures had been retained well till delayed posttest, whereas others had failed.

Lastly, based on learners' performance on different structure types and drawing upon IP theory, we may further postulate that transition from intake to interlanguage relies on two factors: the perceptibility of the input—how much sense the interpretation and structured input make to learners—and the foreignness of the input to learners' interlanguage—how compatible the target structure is to pre-existing principles. As illustrated by the performances of the inception group in this study, in the structure type where the two groups showed difference, the concept of inception was perceptible to learners, but since it was too “foreign” to learners' extant processing system, it caused a more chaotic understanding for the inception group than the completion account caused for the completion group. On the contrary, the concept of completion was both highly perceptible and familiar to learners, so learners performed better on structure types whose time and verb form relation overlapped with tense in English. However, at the same time, pre-existing rules were actually strengthened rather than being overcome. In sum, it seems that there is a tradeoff between perceptibility and foreignness when introducing a new structure: the ideal strategy to teach it is to make it both properly foreign and perceptible at the same time⁴¹.

The Interplay between *le* Grammar and Tense Grammar

The results of the test in the current study proved the influence of past-tense transfer, which has been proposed by previous studies as a cause for learners' errors on *le* sentences. At the same time, the results of the current study also showed that, in a broader sense, past tense

⁴¹ It only applies to structures that may be interpreted from in an approach “foreign” to learners' interlanguage. It's not meaningful to artificially create “foreignness” when there is no such property in the target structure.

transfer comes paired with present tense transfer—ECFL learners' performance was also affected by present tense grammar. For instance, learners were misled by present time cues as well as past time cues in *le* structure form selection and they were also misled by [+*le*] cues and [-*le*] cues in *le* structure interpretation. To some extent, the processing of *le* structures was an interplay between the grammar carried by *le* and the tense grammar. Specifically, the results showed that 1) the influence of tense grammar is strong and highly inevitable. Learners were constantly under the influence of tense grammar before and after the treatments. The treatments only partially changed how much learners' performances were determined by tense grammar but did not change the fact that tense grammar was the dominant factor in the processing of *le* structures; 2) the influence of tense grammar varied per structure. The degree to which learners were subject to tense grammar varied between structure types. For instance, the dominance of tense grammar was weaker on present time sentences than on past time sentences, stronger on interpretation than on verb form selection, stronger on [-*le*] sentences than on [+*le*] sentences, etc.; 3) the influence of tense grammar on some structure types was subject to treatments. As shown by the results of the tests, the changes in the significance of the interactions between tests indicate that the degree of influence was affected by the treatments on some interactions but was not subject to treatments on other interactions; 4) the persistence of tense grammar may vary depending on how the target structure is introduced. For instance, the completion group used time grammar in English to analyze the completedness of a situation; as a result, tense grammar became the dominant principle after the treatment, while the inception group did not show a similar inclination, and 5) it was much harder to establish a new time grammar than to temporarily remove tense grammar. Tense grammar might be effectively overwritten or suppressed, at least temporarily, if the input and interpretation is accurate enough, as illustrated

by inception groups' performance on type 2, but new rules are hard to install in places where past tense grammar is dominant.

Reevaluating the Syntactic Accounts on *le*

The controversy about whether there is just one *le* or two *les* has been long discussed in syntactic studies. Both the one-*le* account and the two-*le* account have their own strengths and weaknesses in interpreting the function of *le*. When these two accounts were adopted under the PI model in teaching, their effects on learners' learning of *le* structures differed as well. Based on the performances of learners exposed to the one-*le* account (inception group) and the two-*le* account (completion group), we can re-evaluate the power of the two accounts in addressing the relation between time, verb form and verb meaning. Namely, the two-*le* account, concentrating on the temporal relationship between the speaker's time, the situation time and the topic time (whether the situation is completed or on-going), approached the relationship through temporal analysis; the one-*le* account, focusing on how the situation is factually viewed (as a state marked by the occurrence of its inceptive point), addressed the relationship through factual analysis. The former relied on locating of speaker's viewpoint with reference to the situation time; the latter relied on identifying the meaningfulness of the situation as an individual entity. Except for type 2, the two accounts, temporal interpretation and factual interpretation, had similar effects on the scores of EFCL on the remaining seven types. However, they had different influences on the processing strategies, as revealed by the results of correlation tests. In other words, the two groups, under the guidance of the two accounts, developed different rules in their interlanguage separately for the processing of *le* structures. It was not clear whether the differing effects would weaken, strengthen, or be retained over a longer period if the instructions were reinforced for a longer time. However, apparently, what was confirmed by the results was that the two-*le* account

was not superior to the one-*le* account in explanatory power, at least when it is applied in teaching.

Limitations and Suggestions for Future Studies

Both treatments effectively changed ECFL learners' understanding of *le* sentences. However, there were several flaws in this study. First, the instructional designs could have been more balanced between interpretation and structured input. Specifically, the interpretation parts for both groups stressed the difference between past tense and the grammar involved in *le* structures, which inevitably steered learners' attention to tense grammar. This unconscious direction might be the cause for the similarities between the two groups in their after-intervention performances. The exposure to tense grammar at the input stage might be a factor that countered off the effects of the inception-oriented treatment. To better compare the effects of the two treatments in futures studies, the inception group's exposure to tens-hinting interpretations should be minimized in instructional design. Second, as illustrated by the different performances on type 2 and type 4, there were some other factors that contributed to learners processing of verb form and sentence time combination, which might be connected to learners' understanding of the reading material. Although this factor was controlled by using similar materials (patterns, content, vocabulary, etc.) in the two groups and the test design, it could be better addressed if this experiment was conducted at a later time, when learners have acquired enough verbs and time words to eliminate the need to encounter unfamiliar vocabulary. Third, limited by time and curriculum, there was no chance to conduct a second delayed posttest, which would definitely have been meaningful to test the long-term effects of the two treatments. As shown by the results, some of the two groups' performances fluctuated over time, some of them did not. A second delayed posttest would help in determining whether the fluctuations were due to the

attrition of newly acquired grammar and the revival of the old rules, or the development of the transplanted new rules. Fourth, the decrease in ECFL learners' overall performance after intervention indicates that the treatments were not precise enough to establish new rules to replace the pre-existing rules. That means that there is still a place for instructors to develop more precise interpretations and more pointed structured input. Fifth, this study examined the effects of the two treatments through learners' processing of the combination of verb form and sentence time. The effects can also be examined by looking at learners' processing of form-meaning connection, for instance, by looking at the mutual inducing power of a verb's lexical property (stative or instantaneous), its meaning (progressive or completed) and its form ([+le] or [-le]). Again, limited by learners' vocabulary and the curriculum design, the study wasn't able to be done this way.

As illustrated by the results of this study, the meaning of *verb-le* actually consists of many specific structures, the ease of acquiring of which differs between interpretation and selection, present time sentence and past time sentence, etc. Therefore, from a curriculum design standpoint, it might be ideal for textbooks to consider the easiness and complicatedness of these structures and introduce *le* in a more precise, systematic, structure-by-structure manner. At the same time, it would be worthwhile for pedagogical studies and acquisition studies to further investigate the interaction between *le* grammar and tense grammar from more specific perspectives and on a deeper level. It would be meaningful to affirm the value of the inception account in syntactic studies and pedagogical/acquisition studies, in that it could help ECFL learners overcome time grammar and more efficiently acquire other time-free structures in Chinese.

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Appendix A

Completion-oriented Instructional Packet

Powerpoint Slides

Slide 1

The function of 了 to Indicate a New Situation

- 他會說中文。
- He knows how to speak Chinese (plain state).

- 他會說中文了。
- He knows how to speak Chinese now (he could not before).

- Therefore, 了 indicates that V了 is interpreted as revealing a new situation or as revealing information that is new to the listener.

15:06 1

Slide 2

The function of 了
to Indicate a New Situation

General	New situation
Have food 吃飯	吃飯了 Had/having food
Have class 上課	上課了 Had/having class
Learn Chinese 學中文	學中文了 Have learned Chinese Have started learning Chinese

15:06 ■ The new situation marked by 了 is still **tense/development free**.

Slide 3

The function of 了
to Indicate a New Situation

New situation 會說中文了	Possible temporal meanings Have/has started speaking... Had started speaking... Will have started speaking...
是大學生了	Have/has become... Had become... Will have become....

15:06 3

Slide 4

When is 了 necessary in Chinese?

- It depends on whether the topic situation is viewed as NEW or not.

Teacher Pan works in Lawrence.
Pan 老師在Lawrence工作。

Teacher Pan worked in New York.
Pan 老師在紐約工作。

Teacher Pan worked in New York (before), but he **started working** in Lawrence (now).
Pan老師(yiqian)在紐約工作, 可是他 (xianzai) 在Lawrence工作了。

15:06 4

Slide 5

The function of 了 to Indicate a New Situation

- 了 only indicates a new situation or change of state .
- 了 is NOT a marker of the past tense. 了 can be used with any tense. Past tense is implied by an overt time phrase in a sentence, or hinted at by context.
- The development of the situation, as for whether it is completed or on-going relies on the organic meaning of the sentence, **NOT** on the use of 了.

15:06 5

Slide 6

New Situation as the Focus

This cat is sleeping now .
這只貓睡覺了。

With了, this sentence indicates the cat's new situation, compared to a moment ago.



15:06 6

Slide 7

New Situation as the Focus

This cat has slept.
這隻貓睡覺了。



With了, this sentence also indicates a new situation that is introduced by the 了 structure.

15:06 7

Slide 8

New Situation as the Focus



- The two sentences are different in terms of completion; but they are the same in the sense that both can be viewed as introducing a "new situation".
- Introducing a "new situation" is the function of the 了 structure; the completion of the activity is open to influence by other factors in the sentence.

15:06 8

Slide 9

Completion of the New situation Indicated by 了

- Q: How did you know what happened ON "The Apprentice"?
- Because **I have watched TV.**
- 我看電視了。



- In this case, the activity is completed.

15:06 9

Slide 10

Completion of the New Situation Indicated by 了

- He won't go out for a walk with me because **he has started watching TV.**



- 他看電視了。
- In this case, the activity has begun and is ongoing.

15:06 10

Slide 11

Completion of the New Situation Indicated by 了



- The completion of the situation implied by the 了 structure relies on the verb type and/or the context. So the activity indicated by a 了 structure can be either completed or ongoing.
- However, the completion of the activity is not the concern of the 了 structure.

Slide 12

Practice

- Canada is not your friend.
■ 加拿大不是你的朋友。

- Canada is no longer your friend.
■ 加拿大不是你的朋友了。



15:06 12

Slide 13

Practice

- They (The Africans and Indians) are also Chinese Friends.
他們也是中國的朋友。
- They are China's friends now.
- 他們是中國的朋友了。



15:06 13

Appendix B

Inception-oriented Instructional Packet

Powerpoint Slides

Slide 1

The Function of 了
to Temporally **Individualize** a General Situation
(VP)

- 他會說中文。
- He know(s) how to speak Chinese (general situation).
- 他會說中文了。
- He know(s) how to speaker Chinese NOW (temporally specific situation----he could not before, but from some point, he acquired the ability to speak Chinese).

- Without specified clues, the verbs in Chinese are time free----you can not tell whether it's a specific event or general practice/concept, let alone the tense or phase of the development.
- 了 is one of the particles, which marks the situation is viewed as a **temporally individual entity**.

15:05 1

Slide 2

The Function of 了
to Temporally **Individualize** a General Situation
(VP)

了 indicates that a situation is viewed as a **Individual Entity**.

General	Individual
Have food 吃飯	吃飯了 Had/having food
Have class 上課	上課了 Had/having class
Learn Chinese 學中文	學中文了 Have learned Chinese Have started learning Chinese

15:05 ■ The Individuality marked by 了 is still **tense/development free**.

Slide 3

Individualization: Based on the OCCURRENCE of the INCEPTION of the Situation

The individualization marked by 了 is based on the meaningfulness of the occurrence of the inceptive point of the topic situation (V).

<p>Occurrence of the inceptive point 會說中文了 Starting being able to</p>	<p>Possible temporal meanings Have/has started speaking... Had started speaking... Will have started speaking...</p>
<p>是大學生了 Becoming</p>	<p>Have/has become... Had become... Will have become....</p>

15:05 3

Slide 4

When is 了 necessary in Chinese?

- It depends on whether the starting point of the situation is important in the intended meaning or not.

Teacher Pan works in Lawrence.
Pan 老師在Lawrence工作。

Teacher Pan worked in New York.
Pan 老師在紐約工作。

Teacher Pan worked in New York (before), but he **started working** in Lawrence (now).
Pan老師(yiqian)在紐約工作, 可是他 (xianzai) 在Lawrence工作了。

15:05 4

Slide 5

The Function of 了: IOI

- 了 only indicates the **Individualization** of a situation, which is based the **Occurrence** of the **Inceptive point** of the situation.
- 了 is **NOT** about tense. 了 can be used with any tense. Tense is implied by the presence of an overt time phrase in a sentence, or hinted at by context.
- The development of the situation, as for whether it is completed or on-going relies on the organic meaning of the sentence, **NOT** on the use of 了.

Slide 6

The Function of 了: IOI

This cat often sleeps.
這只貓常睡覺。

This cat is sleeping (now).
這只貓睡覺了。



Compare:
With 了, we are talking about the cat's sleeping as a temporally individual event.
Without 了, it's general.
The development (on-going, in this case) is indicated by the context.

15:05 6

Slide 7

The Function of 了: IOI

This cat has slept.
這只貓睡覺了。



With 了, we are talking about the cat's sleeping as a temporally individual event. The development (completion, in this case) is indicated by the context.

15:05 7

Slide 8

The Function of 了: IOI



- The "IOI" is a "universal" structure for further tense or developmental information in Chinese.
- The development of the situation, whether on-going or completed, is contingent on the context, NOT indicated by 了.

15:05 8

Slide 9

The Function of 了: IOI



- Q: How did you know what happened in "The Apprentice"?
- Because I have watched TV.
- 我看電視了。
- In this case, the event is completed.

15:05

9

Slide 10

The Function of 了: IOI

- He won't go out for a walk with me because **He has started watching TV.**



- 他看電視了。
- In this case, the activity HAS BEGUN AND is ongoing.

Slide 11

Practice

- Canada is not your friend.
■ 加拿大不是你的朋友。

- Canada is no longer your friend.
■ 加拿大不是你的朋友了。



15:05 11

Slide 12

Practice

- They (The Africans and Indians) are also Chinese Friends.
他們也是中國的朋友。
- They are China's friends now.
- 他們是中國的朋友了。



15:05 12

Appendix C

Reading Comprehension Test

Pretest

我叫小美，我家在紐約。我家有四個人：爸爸，媽媽，姐姐和我。我的爸爸是中國人，媽媽是法國人，所以我們都會說英文，中文和法文。我們常常一起看中國電影(movie)，美國電影和法國電影。我們也常常一起去吃法國菜。我的姐姐叫小英，她也是我最好的朋友。以前(before)，我們一起上學，一起玩兒。可是現在(now)我們不能(can't)一起上學，一起玩兒了。因為小英不住在紐約了，她今年(this year)九月去 Kansas 了。她在 Lawrence 上大學。小英住宿舍。她有兩個室友，都是日本人。今年(this year)秋假(fall break)，我和爸爸媽媽去 Lawrence 看她了。參觀了 KU 以後，我們一起去吃日本菜了。小英告訴(to tell)我們，她很喜歡(to like)她的室友，所以她上日文課了，她會說一點兒日文了。小英說學日文以後想去日本，她每天都跟室友說日文。

- () 1. Based on the context, how many languages can 小英 speak?
 a. 3 b. 4 c. not sure
- () 2. “所以”in“所以我們都會說英文，中文和法文”probably means:
 a. Therefore b. although c. Not sure
- () 3. Based on the information in the passage, 小美,小英和爸爸媽媽一起看電影 means:
 a. They often watch movies together.
 b. They often watched movies together.
 c. either a or b
- () 4. Based on the information in the passage, 小美,小英和爸爸媽媽常常一起去吃法國菜 means:
 a. They often go to have French food together.
 b. They often went to have French food together.
 c. either a or b
- () 5. If 上課 means “go to class”, based on the information in the passage, 小英和小美一起上學 means:
 a. They go to school together. b. They went to school together. c. either a or b

- () 6. Based on the information in the passage, 小英不和小美一起上學了 means:
a. 小英 does not go to school with 小美.
b. 小英 did not go to school with 小美.
c. either a or b
- () 7. Based on the information in the passage, “小英不住在紐約了” means:
a. 小英 did not live in New York。
b. 小英 does not live in New York。
c. either a or b
- () 8. Based on the information in the passage, “小英去 Kansas 了” means:
a. 小英 went to Kansas.
b. 小英 often goes to Kansas.
c. either a or b
- () 9. Based on the information in the passage, 小英的室友是日本人 means:
a. 小英’s roommates were Japanese.
b. 小英’s roommates are Japanese.
c. either a or b
- () 10. Based on the information in the passage, 小美和爸爸媽媽去看小英了 means:
a. 小美 went to visit 小英 with parents.
b. 小美 often visits 小英 with parents.
c. either a or b
- () 11. Based on the context, “參觀”in“參觀了 KU 以後”probably means:
a. leave b. look around c. not sure
- () 12. Based on the information in the passage, 我們吃日本菜了 means:
a. We ate Japanese food. b. We eat Japanese food. c. either a or b
- () 13. What language might 小英 have used when she ordered food in the Japanese restaurant?
a. Japanese b. English c. Either a or b
- () 14. Based on the information in the passage, 小英每天都跟室友說日文 means:
a. 小英 spoke Japanese with her roommates every day.
b. 小英 speaks Japanese with her roommates every day.
c. either a or b
- () 15. Based on the information in the passage, 小英喜歡她的室友 means:
a. 小英 likes her roommates. b. 小英 liked her roommates. c. either a or b
- () 16. Based on the information in the passage, 小英會說一點兒日語了 means:
a. 小英 can speak a little Japanese。

- b. 小英 could speak a little Japanese。
c. either a or b
- () 17. What could 小美's profession possibly be?
a. 小學生 b.中學生 c.大學生
- () 18. If telephone is 電話, movie is 電影, what are the possible characters for TV in Chinese?
a. 電機 b.電視 c.電看
- () 19. 小英 learned how to speak Chinese probably because_____
a.小英的爸爸跟小英說中文。 b. 小英的爸爸跟小英說中文了。 c. either a or b
- () 20. 小英's family used to watch French movies together because _____.
a. 他們都會說法文。 b. 他們都會說法文了。 c. either a or b
- () 21.小英 and her family used to go out to have French food probably because_____
a. 他們都喜歡(to like)法國菜了。 b. 他們都喜歡(to like)法國菜。 c. either a or b
- () 22. We know 小英 moved out of her home because_____
a. 小英來 Lawrence. b. 小英來 Lawrence 了。 c. either a or b
- () 23. 小英 is not the person she used to be any more probably because_____
a. 小英是大學生。 b. 小英是大學生了。 c. either a or b
- () 24. If 今年 in the passage is 2018, what school year would 小英 possibly be as of now?
a. 一年級 b.二年級 c. not sure
- () 25. If 小美 started missing 小英, that's probably because_____
a. 小英住在 Kansas 了。 b. 小英住在 Kansas。 c. either a or b
- () 26. If 小美's house has one extra room now, it's probably because_____
a. 只(only)有三個人在家了。 b. 只(only)有三個人在家。 c. either a or b
- () 27. If 小英 speaks Japanese very well, that's probably because_____
a. 小英常跟室友說日文。 b. 小英常跟室友說日文了。 c. either a or b
- () 28. 小英 works hard at learning Japanese because_____
a. 小英喜歡(to like)她的日本室友。
b. 小英喜歡(to like)她的日本室友了。
c. either a or b
- () 29. If 小英's Japanese class has the same schedule as your Chinese class, then_____
a. 小英星期五 (Friday) 考試(to take test) 了。
b. 小英星期五 (Friday) 考試(to take test)。
c. either a or b

- () 30. 小美 was updated about 小英's situation because_____.
- a. 小英告訴 (to tell) 小美了。 b. 小英告訴(to tell)小美。 c. either a or b
- () 31. 小美's family was not in New York this fall break because_____.
- a. 他們去 Lawrence 了。 b. 他們去 Lawrence。 c. either a or b
- () 32. If “上個學期”means “last semester”, “下個學期”means “next semester”, then “this semester” should be which of the following phrase:
- a. 這個學期 b. 一個學期 c. not sure

Appendix D

Reading Comprehension Test

Posttest

我叫小明，我的哥哥叫大明。我們的爸爸媽媽都是從日本來的。我家在洛杉磯(Los Angeles)。我們在家的時候，爸爸媽媽跟我們說日文，所以我和大明的日文都很好。大明上大學以前(before)，我們都喜歡看書，不喜歡上網。大明的同學都有 iPhone，可是大明沒有。去年大明上大學了，爸爸給大明買手機了，是 iPhone 7。大明不喜歡 iPhone7，他想要 iPhone X，可是他沒有錢。

今年暑假(the past summer break)，大明沒有回家。他去 Kansas City 的日本飯館(restaurant)打工(work part-time)了，他還輔導(tutor)KU 的學生學日文。現在(now)大明有 iPhoneX 了。大明很喜歡他的新(new)手機。他不常打電話，可是他常常看他的手機。大明用他的手機看 email，看 facebook，看電影，看電視...，他喜歡上網了，可是不喜歡看書了。大明說，下一個(next)暑假(summer break)他也不回家，他還要去打工，因為他的同學都有 iPhone XS 了。

- () 1. How many people are there in 小明's family?
a. 4 b. 3. c. neither
- () 2. Why are 大明 and 小明 so good at Japanese?
a. They took Japanese classes at school.
b. Their parents are from Japan.
c. neither.
- () 3. Based on the information in the passage, “去年大明上大學了” means:

- a. 大明 went to college. b. 大明 is about to go to college. c. either a or b
- () 4. Based on the information in the passage, “爸爸給大明買手機了” means:
- a. Dad bought 大明 a phone. b. Dad is about to buy 大明 a phone. c. either a or b
- () 5. Which grade is 小明 now?
- a. 12th b. 10th c. not sure
- () 6. Based on the information in the passage, “大明不喜歡 iPhone7” means:
- a. He does not like iPhone7. b. He didn't like iPhone7. c. either a or b
- () 7. Based on the information in the passage, “他想要新 iPhone X, 可是沒有錢” means:
- a. He wanted a new iPhone but didn't have the money.
b. He wants a new iPhone but doesn't have the money.
c. either a or b
- () 8. Based on the information in the passage, “他去 Kansas City 的日本飯館(restaurant) 打工 (work part-time) 了” means:
- a. He worked in a Japanese restaurant in KC.
b. He works in a Japanese restaurant in KC.
c. either a or b
- () 9. Based on the information in the passage, “他还輔導(tutor)KU 的學生學日文” means:
- a. He also tutored some KU students in Japanese.
b. He also tutors some KU students in Japanese.
c. Either a or b
- () 10. Based on the information in the passage, “大明很喜歡他的新 (new) 手機” means:

- a. 大明 likes his new phone. b. 大明 liked his new phone. c. either a or b
- () 11. Based on the information in the passage, “他常常看他的手機” means:
- a. He often looks at his phone. b. He often looked at his phone. c. either a or b
- () 12. Based on the information in the passage, “大明用他的手機看 email” means:
- a. 大明 uses his phone to check email.
b. 大明 used his phone to check email.
c. either a or b
- () 13. Based on the information in the passage, “他喜歡上網了” means:
- a. 大明 likes to 上網。 b. 大明 liked to 上網。 c. either a or b
- () 14. Based on the information in the passage, “他不喜歡看書了” means:
- a. 大明 didn't like to read books. b. 大明 doesn't like to read books. c. either a or b
- () 15. Based on the information in the passage, “他的同學都有 iPhone XS 了” means:
- a. 大明's classmates have upgraded to iPhone XS.
b. 大明's classmates have upgraded from iPhone XS.
c. either a or b
- () 16. 大明's dad and mom speak Japanese at home because _____.
- a. 他們都是從日本來的。 b. 他们都是从日本來的了。 c. either a or b
- () 17. Based on the information in the passage, which of the following sentence is correct?
- a. 小明的爸爸在洛杉磯工作。 b. 小明的爸爸在日本工作。 c. either a or b
- () 18. 大明 and 小明 were not bored during their free time although they didn't have smart

phones, because_____.

- a. 他們喜歡看書。 b. 他們喜歡看書了。 c. either a or b

() 19. 大明 admired his classmates when he was in high school because_____.

- a. 大明的同學都有手機。 b. 大明的同學都有手機了。 c. either a or b

() 20. 大明's dad didn't buy a fancy iPhone for 大明 probably because people say that smart phones are a source of distraction for youth and his dad _____.

- a.知道。 b.知道了。 c. either a or b

() 21. If 小明 misses 大明, it's probably because_____.

- a. 大明不在家住了。 b. 大明不在家住。 c. either a or b

() 22. 大明 did not go back home last summer break, because_____.

- a. 大明去打工(work)了。 b. 大明去打工(work)。 c. either a or b

() 23. Where do you think 大明 lived when he worked last summer?

- a. 大明住在 Kansas city. b. 大明住在洛杉磯 c. either a or b

() 24. How did 大明 benefit from his fluency in Japanese?

a. 他輔導(tutor)KU 的學生學日文了。

b. 他輔導(tutor)KU 的學生學日文。

c. either a or b

() 25. 大明 can tutor others to learn Japanese because_____.

- a.大明的日文很好。 b. 大明的日文很好了。 c. either a or b
- () 26. 大明 spent a lot of the money he made last summer because_____.
- a. 大明買 iPhone X 了。 b. 大明買 iPhoneX。 c. either a or b
- () 27. Based on “大明用他的手機看 email, 看 Facebook” in the passage, “用手機” probably means:
- a. use cell phone b. put cell phone away c. neither
- () 28. Why didn't 大明 buy an iPhone XS when he first went to college?
- a. He did not have enough money
b. He was not at all interested in having an iPhone.
c. Neither
- () 29. 大明 likes to use a phone now probably because _____.
- a. 大明有 iPhone X 了。 b. 大明有 iPhone X 。 c. either a or b
- () 30. If 大明's friends update their status on Facebook, 大明 will almost immediately know because_____.
- a. 大明常常看他的手機。 b. 大明常常看他的手機了。 c. either a or b
- () 31. 大明 does not go to the library as often as before because_____.
- a. 大明不喜歡看書。 b. 大明不喜歡看書了。 c. either a or b
- () 32. If 大明 planed to go to New York next summer break, how will you say that in Chinese?
- a. 大明下一個暑假想去紐約。 b. 大明想下一個暑假去紐約 c. either a or b

Appendix E

Reading Comprehension Test

Delayed Posttest

我叫大中，我的家在 St Joseph, Missouri。我是美國人，我的朋友也都是美國人。我們都喜歡美國菜，不喜歡中國菜，所以我們常去美國飯館吃飯。去年(last year)我來 Lawrence 了。在 Lawrence，我認識了一個中國朋友，叫小文。小文家有一個中國飯館，所以，小文會做中國菜。小文做的炒麵、炒飯和餃子都很好吃。現在我喜歡吃中國菜了。我常常去中國飯館吃飯。中國飯館的服務員都很好，他們教我怎麼用筷子。他們都是中國人，可是他們跟我說英文。我也想跟他們說中文，可是我不會。所以，這個學期我在 KU 上中文課了。我每天下課以後都跟小文練習中文。現在我可以跟中國飯館的服務員說中文了。

- () 1. Based on the information in the passage, “大中住在 Missouri” means:
- a. 大中 lived in Missouri. b. 大中 lives in Missouri. c. either a or b
- () 2. Based on the information in the passage, 大中不喜歡中國菜 means:
- a. 大中 didn't like Chinese food. b. 大中 doesn't like Chinese food. c. either a or b
- () 3. “所以” in 所以我們常去美國飯館吃飯 probably means:
- a. Therefore b. Because c. not sure
- () 4. Based on the information in the passage, 大中常去美國飯館吃飯 means:
- a. 大中 often goes to American restaurants to eat.
b. 大中 often went to American restaurants to eat.
c. either a or b
- () 5. Based on the information in the passage, 大中的朋友不喜歡中國菜 means:
- a. 大中's friends didn't like Chinese food.

- b. 大中's friends don't like Chinese food.
c. either a or b
- () 6. Based on the information in the passage, 大中來 Lawrence 了 means:
a. 大中 came to Lawrence. b. 大中 comes to Lawrence. c. either a or b
- () 7. Based on the information in the passage, what was the reason 大中 came to Lawrence?
a. to learn Chinese b. to work in 小文's family's restaurant c. not sure
- () 8. Based on the information in the passage, 大中喜歡吃中國菜了 means:
a. 大中 likes Chinese food now. b. 大中 liked Chinese food. c. either a or b
- () 9. Based on the information in the passage, 大中常常去中國飯館吃飯 means:
a. 大中 often goes to Chinese restaurants to eat.
b. 大中 often went to Chinese restaurants to eat.
c. either a or b
- () 10. Based on the information in the passage, 大中可以跟中國飯館的服務員說中文了 means:
a. 大中 is able to speak Chinese with the waiters/waitresses in Chinese restaurants.
b. 大中 was able to speak Chinese with the waiters/waitresses in Chinese restaurants .
c. either a or b
- () 11. Based on the information in the passage, 大中不住在 Missouri 了 means:
a. 大中 doesn't live in Missouri any more. b. 大中 didn't live in Missouri. c. either a or b
- () 12. Based on the information in the passage, 大中認識新朋友了 means:
a. 大中 just made some new friends. b. 大中 always makes new friends. c. either a or b
- () 13. Could 大中 speak Chinese before he took class at KU?
a. yes. b. no c. not sure
- () 14. “好吃” in “小文做的炒麵、炒飯和餃子都很好吃” probably means:
a. love to eat b. good to eat c. not sure

- () 15. The reason that 小文 is able to make Chinese food is probably that_____.
- a. 小文's family owns a Chinese restaurant. b. 小文 is Chinese. c. not sure
- () 16. Based on the information in the passage, 這個学期大中在 KU 上中文課了 means:
- a. 大中 began taking Chinese class this semester.
b. 大中 finished taking Chinese class this semester.
c. either a or b
- () 17. Based on the information in the passage, “大中每天都跟小文練習中文” means:
- a. 大中 practices Chinese with 小文 every day.
b. 大中 practiced Chinese with 小文 every day.
c. either a or b
- () 18. Before 大中 came to Lawrence, where did he live?
- a. 大中住在 Missouri. b. 大中住在 Missouri 了. c. either a or b
- () 19. If 大中 did not know any waiters or waitresses in the Chinese restaurants in St. Joseph, Missouri, that was probably because_____.
- a. 大中不去中國飯館。 b. 大中不去中國飯館了。 c. either a or b
- () 20. Based on the information in the passage or your judgement, before 大中 learned Chinese, what would happen when he ate out at a Chinese restaurant?
- a. 大中用 (to use) 英文点菜。 b. 大中用(to use)英文点菜了。 c. either a or b
- () 21. Based on the information in the passage or your judgement, it is more convenient for 大中 to take Chinese class at KU than it was, because_____.
- a. 大中住在 Lawrence 了。 b. 大中住在 Lawrence。 c. either a or b
- () 22. “教” in “他們教我怎麼用筷子” means:
- a. to give b. to teach c. not sure
- () 23. Based on the information in the passage, “可是我不會” means:
- a. But I couldn't b. But I can't c. not sure

- () 24. Based on the information in the passage or your judgement, 大中 knows more about Chinese culture than before, because_____.
- a. 大中有中國朋友了。 b. 大中有中國朋友。 c. either a or b
- () 25. Now, when 大中 goes to a Chinese restaurant, what he probably would do is_____.
- a. 跟服務員說中文。 b. 跟服務員說中文了。 c. either a or b
- () 26. Based on what is hinted by the passage, 小文 learned how to make Chinese food probably because_____.
- a. 小文的爸爸教(to teach)小文了。 b. 小文的爸爸教(to teach)小文。 c. either a or b
- () 27. If 小文 has a job in the restaurant that his family owns, what might he do?
- a. 小文在中國飯館做中國菜。 b. 小文在中國飯館做中國菜了。 c. either a or b
- () 28. 大中 could not speak Chinese with 小文 before, but now he can, because_____.
- a. 大中會說中文了。 b. 大中會說中文。 c. either a or b
- () 29. Based on what is hinted by the passage or your knowledge, the Chinese waiters and waitresses in Chinese restaurants can speak English because before they started working in the restaurants, _____.
- a. 他們學英文了。 b. 他們學英文。 c. either a or b
- () 30. Although 大中's friends do not speak Chinese, they can still order food in a Chinese restaurant because_____.
- a. 服務員會說英文。 b. 服務員會說英文了。 c. either a or b
- () 31. Which of the following Chinese dish is not mentioned in the passage?
- a. 餃子 b. 包子 c. not sure
- () 32. Based on what is hinted by the passage or your knowledge, when 小文 went to 大中's apartment yesterday, he saw a takeout container with Chinese characters on it, so 小文 knew that_____.

- a. 大中吃中國菜了。 b. 大中吃中國菜。 c. either a or b

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