Using learner corpora to examine L2 acquisition of tense-aspect markings

David Wible
Ping-Yu Huang

English Department: Graduate Programs, Tamkang University,
Tamsui, Taipei Hsien, Taiwan

1. Introduction

This paper describes an application of learner corpus data to research on L2 learners' acquisition of tense-aspect morphology. In the past twenty years, a series of studies in the fields of both first (L1) and second (L2) language acquisition have shown that, in beginning stages, language learners' use of temporal markings are largely determined by *lexical* (or inherent) aspect (e.g. Antinucci and Miller 1976; Bardovi-Harlig and Reynolds 1995; Bloom, Lifter and Hafitz, 1980; Shirai and Anderson 1995). More specifically, these studies suggest that language learners tend to use past and perfective markings on verbs that denote events (e.g. *die* & *jump*) while adding progressive markings to semantically dynamic and durative verbs (e.g. *play* & *swim*). This sort of finding has been expressed in various forms under the name of The Aspect Hypothesis. Though most of the previous studies examining L1 and L2 learners' use of tense-aspect markings generated results consistent with the claims of the Aspect Hypothesis, none of the previous researchers have incorporated L2 learner corpora of unrestricted written texts by L2 learners into their research. The present research serves as an initial study incorporating the data from an L2 learner corpus and aims to see if lexical aspect plays a role in L2 learners' use of tense-aspect markings in these learners' unrestricted *written* texts. More specifically, the data used here was extracted from a machine-readable corpus containing over one and a half million words freely written by English L2 learners in Taiwan, named *English Taiwan Learner Corpus* (*English TLC*). In addition to adding learner corpus data to the research literature on the Aspect Hypothesis, we present a novel use of corpus data to examine learners' use of tense marking. Specifically, we extract tokens of obligatory contexts for non-past forms of verbs to identify cases of overuse of past tense forms. Our results show that, contrary to the predictions of the Aspect Hypothesis, the lexical aspect of the verbs wields virtually no influence on the overuse of past tense marking. The factor which does skew the overuse of past forms is whether the verb has a regular or irregular past form. Irregular past forms are far more likely to be overused than regular past forms.

One point of interest that we address concerns the rather persistent finding in the Aspect Hypothesis literature that past tense forms used by learners appear on telic (or eventive) verbs at a much higher rate than on atelic verbs (states and activities). We suggest that this finding may be of limited interest if the same skewing of temporal markings is found not only in learner production of the target language but in standard written texts in the target language. In fact, in the present study, we have found the so-called standard or target texts show the same tendency of past tense markings to be used

with eventive verbs rather than atelic verbs. This would seem to suggest that this facet of learner usage is a straightforward reflection of the target language rather than a distinctive property of learners' interlanguage or the acquisition process. Hence, we propose investigating, instead, certain usages that are distinctive of L2 learners' temporal markings. Thus, in addition to examining L2 learners' use of temporal markings in a learner corpus of written texts, we also introduced the use of *obligatory contexts* in our research on our learner corpus (See Brown 1973). By looking for overuse of past tense forms in obligatory contexts for base verb forms (e.g. *He should made it*), we could see if the verbs learners are prone to overusing past markings on are eventive verbs, congruent with the claims of the Aspect Hypothesis.

2. English TLC

The research data used in the study was extracted from a L2 learner corpus named English TLC. What is novel about this corpus is its "data capture" (a term used by Granger in 1998) procedures. Unlike other learner corpora whose data capture methods are mainly scanning, keyboarding, or downloading from disks, the learner data inputted to English TLC can be seen as a *byproduct* of a teacher-student interaction from an online writing instruction environment. More specifically, we have an online EFL writing instruction platform, IWiLL, from which students' essays submitted to teachers for corrections are, with these students' permissions, automatically copied into English TLC. As students and teachers use the writing environment, the corpus grows by itself. Through this teacher-student interaction, nearly two million words of running texts have been archived into English TLC.[1] Currently, English TLC can be searched online. A researcher can use key-word-in-context (KWIC) searches to extract a list of sentences that contain a keyword or a phrase from students' essays. In this study, for instance, modal auxiliaries such as *would* and *should* were used as keywords to extract students' overuse of past tense markings in obligatory contexts for base verb forms.

3. Brief background on temporal morpheme acquisition research

The study reported here is essentially intended to contribute to the literature on L2 acquisition of temporal morphology, specifically with respect to the predications of the Aspect Hypothesis. In this section, therefore, some basic relevant studies on temporal morpheme acquisition, particularly concerning corpus research, will be reviewed.

The term "aspect" as it appears in the name of the Aspect Hypothesis refers basically to lexical rather than grammatical aspect.[2] According to Comrie (1976), lexical aspect refers to "inherent aspectual (i.e. semantic aspectual) properties of various classes of lexical items" (p. 41). For example, the verb *know* is inherently stative while *die,* which denotes an event which takes place instantly, is semantically a punctual verb. Moreover, to clarify the differences in lexical aspectual meaning entailed

[1] See Wible et. al (2001) for a detailed description of the on-line writing environment and the corpus design.

[2] A basic distinction assumed in this literature concerns the semantic categories of lexical or verbal aspect. Generally, there are two types of aspect. The first one is *grammatical aspect*, which refers to "ways of viewing the internal temporal constituency of a situation" (Comrie 1976, p.3). The second one is *lexical aspect*.

in verbs, Vendler (1967) proposed a classification of lexical aspect, dividing verbs into four semantic categories: states, activities, accomplishments, and achievements. According to this classification, stative verbs such as *know, want,* and *love* denote non-dynamic states of affairs which entail no inherent change or end-point in their meaning. Activity verbs, like states, also denote an eventuality that persists over time with no inherent endpoint entailed though they do entail change and are therefore semantically dynamic. In English, *play, run,* and *swim* are activity verbs. Both accomplishments and achievements entail inherent endpoints (i.e. *telic*, a term used by Verkuyl 1996, p. 323, inter alia) while activities and states do not (i.e. *atelic)*. They differ in that accomplishments are durative while achievements are punctual or instantaneous. In English, accomplishment predicates includes *run a mile* and *make a card* while *jump, win,* and *die* belong to achievement verbs.

To further describe the semantic aspects inherent in verbs, Dowty (1979) made clear the differences among the four categories of verbs. First, *states* differ from other types of verbs in that non-states can occur in progressive, be used as imperatives, and appear in pseudo-cleft constructions. Next, activities and accomplishments are distinguished by the adverbials they take. Specifically, accomplishment verbs can take *in* adverbials (e.g. He ran a mile in an hour) but not adverbials with *for* (e.g. *He ran a mile for an hour) while activity verbs can take *for* adverbials (e.g. He ran for an hour) but not *in* adverbials (e.g. *He ran in an hour). Finally, although both accomplishments and achievements entail inherent endpoints, achievements differ from accomplishments in that they do not take *for* adverbials (e.g. *John died for two days) since they occur punctually.

From the early 1980s, a number of studies have examined patterns in language learners' acquisition of temporal markings, and most of them supported the Aspect Hypothesis. Basically, according to Anderson and Shirai (1996), the Aspect Hypothesis consists of four central claims:

1. Learners initially use past and perfect markers with telic verbs and then spread these markers to activity and state verbs.
2. Imperfect markings (in languages such as Russian and Spanish) are first added to atelic verbs, and extended to accomplishments and achievements later.
3. Progressive markers are first restricted to activity verbs and then spread to accomplishments and achievements.
4. Progressive markers are not incorrectly used with stative verbs.

We focus on the first claim, and specifically on past tense marking.

From the early 1970s to 1980s, most studies concerning the correlation between learners' use of temporal markers and the inherent aspect of verbs were restricted to L1 acquisition research. For instance, Antinucci and Miller (1976) and Bronckart and Sinclair (1973) observing Italian L1learners' and French L1 learners' oral production, respectively, found children tended to use tense-aspect markers to mark lexical aspect rather than express temporal notions. Bloom, Lifter and Hafitz (1980) found that in English-speaking children's spontaneous speech, past tense inflections were mostly added to accomplishments and achievements while the progressive marker *–ing* was predominantly used with activities. More recently, since the 1990s, second language learners' acquisition of temporal morphemes

was investigated by several researchers. For example, Bardovi-Harlig and Reynolds (1995) used a cloze test showing ESL students were "sensitive to lexical aspectual class with respect to tense use" in these learners' elicited written responses (p. 119). In addition, in Lee's (2001) research on 2 Korean children's acquisition of English as an L2, the subjects' unrestricted oral productions also demonstrated a strong connection between lexical aspect and temporal inflections.

Some researchers have used corpus data to test the Aspect Hypothesis. For instance, in studies done by Anderson and Shirai (1994) and Shirai and Anderson (1995), the data extracted from CHILDES showed that when children learn English as an L1 they first use past tense inflections with achievements and progressive markings with activity verbs. In addition, Robison (1995) working with a corpus with over 3,600 predicates found in 26 ESL Puerto Rican college students' oral production, *PAST* markings (including past tense and perfect inflections) were used to describe punctual events and –ing was associated with activity verbs, as the Aspect Hypothesis predicts. More recently, Bardovi-Harlig (1998) constructed a specific and restricted sort of corpus with both spoken and written narratives gathered through a story re-telling procedure. She reports that the verbal morphology in L2 learners' interlanguage was indeed initially determined by lexical aspect.

Based on the review above, generally, most studies concerning L1 and L2 acquisition of temporal morphemes confirmed the Aspect Hypothesis. However, most of the data examined in this and other previous research were *oral* (e.g. Antinucci and Miller 1976; Bloom, Lifter and Hafitz, 1980; Bronckart and Sinclair 1973; Lee 2001; Robison 1995; Shirai and Anderson 1995). In those studies which did use written data, the data examined were gathered from *elicited* or *controlled* tasks, but not freely produced by language learners (e.g. Bardovi-Harlig and Reynolds 1995; Bergstrom 1995). In addition, those studies which have incorporated corpus data of running text have used standard target language corpora rather than learner corpora (e.g. Anderson and Shirai 1994; Shirai and Anderson 1995). The purpose of this paper is to use data extracted from an L2 learner corpus, English TLC, to see if lexical aspect still plays a role in L2 learners' unrestricted written production. Moreover, as mentioned in Section 1, in addition to examining the distribution of L2 learners' temporal markings, which may be a mirroring of standard uses, in this study we also investigated non-target uses (i.e. overuse of past tense markings in contexts within which base forms are obligatory) in order to uncover certain distinctive L2 learners' uses of temporal markings. The results of the two approaches to testing the Aspect Hypothesis are reported in the following section.

4. Examining temporal markings in English TLC

The preceding section offered a brief introduction of lexical aspect and its correlation with language learners' use of tense-aspect morphology found in previous studies. In this section, results are reported from two approaches used to extract data relevant to the Aspect Hypothesis from English TLC. First, we consider the temporal markings used by Taiwan EFL students in 50 articles chosen from the learner corpus.

4.1. Distribution of temporal markings in Taiwan EFL students' writings

To see if the distribution of verbal morphology used by Taiwan EFL students was influenced by lexical

aspect, as the Aspect Hypothesis predicts, 50 articles whose contexts are mainly in the past tense were randomly chosen from English TLC and the verbs (or predicates) with their inflections used in these articles were analyzed. The reason why we chose articles whose contexts are in past tense was because most recent studies concerning the Aspect Hypothesis investigated temporal markings "in past-time contexts," as Bardovi-Harlig indicated (1998, p. 475). More specifically, with the verbal morphology used in these 50 articles, we would like to see if past tense markings were predominantly added to telic verbs rather than atelic verbs, consistent with the claims of the Aspect Hypothesis.

From the fifty articles, all finite verb forms with temporal markings were collected and grouped into two main categories: atelic and telic verbs. A further distinction was made among atelic verbs, specifically, states and activities. The method we used in the present study to code verbs with respect to lexical aspect was based on Shirai and Anderson's (1995) *operational tests* which were applied to 958 predicates in the 50 articles to determine their inherent aspect. These 958 partitioned as follows: 376 telic verbs, 137 activities, and 445 stative ones. Next, we focus on each type of verb separately and examine the tense-aspect markings attached to them. First, we consider stative verbs. Table 1 below displays the tokens and percentages of each temporal marker used with stative verbs.

	Tokens	Percentage
present	236	53%
progressive	0	0%
past	201	45%
perfect	8	2%

Table 1. Temporal markings used with STATIVE verbs

As Table 1 shows, about half stative verbs were used in present tense (53%) and the other half were used with past tense markings (45%). In addition, we can find, as the Aspect Hypothesis predicts, none of the stative verbs in the 50 articles was incorrectly used with the English progressive marking *–ing*. One might want to claim that the data presented here are inconsistent with the claims of the Aspect Hypothesis since about half stative verbs were used in past tense. However, not until we consider the other two types of verbs and their inflections can we conclude temporal markings in English TLC did not correlate with lexical aspect. Next, we examined the other atelic category: activity verbs and their inflections, as displayed in Table 2.

	Tokens	Percentage
present	55	40%
progressive	18	13%
past	62	45%
perfect	2	2%

Table 2. Temporal markings used with ACTIVITY verbs

Like the stative verbs, substantial proportions of the activity verbs were used in present (40%) as well as past tense (45%). In addition, the major difference between the inflections attached to states and activities was that students did use progressive markings with activity verbs, but not with stative

ones. However, the proportion of activity verbs using progressive marking was relatively small at 13% of all activity verb tokens.

Having examined the markings used with the atelic (state and activity) verbs, let us turn to the inflections attached to telic verbs. Table 3 displays the numbers of tokens and percentages of each temporal marking used with telic verbs.

	Tokens	Percentage
present	42	11%
progressive	1	1%
past	322	86%
perfect	11	3%

Table 3. Temporal markings used with TELIC verbs

As Table 3 shows, obviously, the most frequent marking EFL students used with telic verbs was *past tense* marking (86%), congruent with the central claims of the Aspect Hypothesis. Moreover, the percentage was much higher than the proportion of past tense marking used with states (45%) and activities (45%). In addition, from Table 1-3, we can find, compared with stative and activity verbs, fewer telic verbs were used in present tense (10%). A detailed discussion of these findings will be provided in Section 5.

In short, the results presented above were generally consistent with the Aspect Hypothesis since Taiwan EFL students were more likely to add past tense markings to eventive (that is, telic) verbs (86%) than to stative (45%) or activity verbs (45%). However, as mentioned in Section 1, the value of these findings may be limited if we can find a similar skewing of temporal markings in standard uses. In what follows, we will provide some evidence to indicate this skewing of distribution of verbal morphology in language learners' production is simply a mirroring of target uses.

4.2. Distribution of temporal markings in standard uses

A point we would like to note concerning the prevalence of past tense marking used by learners on telic predicates, which is predicted by certain versions of the Aspect Hypothesis, is that in the literature on language learners' acquisition of tense-aspect morphology, some researchers have indicated that a similar skewing of temporal markings is found in native speakers' uses. For instance, Anderson (1993) reported the results of two experiments done by his students showing English native speakers, like English learners, tended to associate past tense markings with accomplishments and achievements and progressive markers with activity verbs. Based on the results, he suggested "proficient native speakers will exhibit in relative quantitative terms the same distributional bias found in more absolute terms in the acquisitional data." (p. 320) In addition, Huang (1999) examined three English speakers and five English learners' temporal markings and concluded that in their oral production, "both learners and native speakers demonstrate similar skewed distributions of verb morphology." More specifically, her results showed both of the two groups of subjects were prone to using past tense markings more frequently with achievement verbs and were more likely to associate progressive morphology with activities.

Based on these findings, some researchers have hypothesized that perhaps it is the native speakers' uses of temporal markings serving as language acquirers' input which causes learners to associate one temporal marking with a specific aspectual class of verbs. This view, named *Distributional Bias Hypothesis* by Anderson (1990, p. 58), refers to:

> Native speakers in normal interaction with other native speakers tend to use each verb morpheme with a specific class of verbs, also following the aspect hypothesis. When learners are then exposed to this language of native speakers, they initially interpret this skewed distribution of forms as an absolute characteristic of the forms themselves.

Several studies had been conducted to test the hypothesis as well. For example, in Anderson and Shirai's (1994) and Shirai and Anderson's (1995) studies, the researchers examining the temporal markings in three mothers' speech addressed to children found children's development of tense-aspect morphology could be attributed to their input. Turning to our learners in Taiwan, this suggested to us that we might find a similar skewing as well. We therefore examined the temporal markings used in six lessons in Taiwan high school students' English textbooks and found past tense markings were predominantly associated with telic verbs (52%) rather than with states (38%) or activities (10%). (A more extensive analysis of these texts is given in Huang, in prep.) Consequently, it is not surprising students would tend to associate past tense inflections with verbs that denote events, and language learners' use of temporal morphemes could simply be seen as a mirroring of the distribution found in so-called target or standard English texts that serve as their target language input.

Since the considerations of the Distributional Bias Hypothesis suggest that simply tabulating statistics about past tense markings on telic and atelic verbs is insufficient for revealing distinctive features in learner English, in the present study, we have added a novel consideration by examining non-target *overuse* of past markings in obligatory contexts for base verb forms to further test the Aspect Hypothesis. The results are reported in Section 4.3 below.

4.3. Checking obligatory contexts in learner corpora

The concept of *obligatory context* (Brown, 1973) is used frequently by language acquisition researchers to determine whether a certain morpheme or structure has been acquired by a learner. For instance, in Kuczaj's (1981) research, 16 English L1 learners' use of *be* in obligatory contexts was examined to see if these learners acquired the copula and auxiliary *be* verbs in English. None of the previous studies consider obligatory contexts in a corpus, either standard or learner. We do precisely this in order to overcome the limitations of studies in the literature reviewed above which tabulate statistical data on morpheme usage regardless of whether the morpheme is correctly used. We introduce a novel approach to check obligatory contexts for base forms of verbs in a learner corpus by KWIC concordancing. More specifically, keywords including (1) modal auxiliaries such as *can, could, will, would, shall, should, may, might, do, does,* and *did* and (2) infinitive *to* which take a base form verb as complement were used to search English TLC to extract Taiwan English learners' *overuse* of past tense forms following these keywords (e.g. *He should made it)*. That is, we hoped to see if the verbs learners were prone to overusing past markings on are eventive verbs, congruent with the claims of the Aspect Hypothesis. Totally, 82

verbs with which students overused past markings were extracted from the learner corpus and were grouped into two main categories: atelic (states and activities) and telic verbs, based on the *operational tests* we used in Section 4.1. Table 4 shows the distribution of students' overuse of past tense forms with respect to lexical aspect.

	Tokens	Percentage
atelic	40	49%
telic	42	51%

Table 4. Lexical aspect with overuse of past forms

Based on the numbers shown in Table 4, it seemed our hypothesis was *not* confirmed since almost the same percentages of past tense markings were overused with telic (51%) and atelic verbs (49%). In addition, while we examined these past tensed verbs, we found an interesting fact. That is, we found among these verbs students incorrectly inflected for past tense, many had *irregular* past tense forms (e.g. *send: sent* & *know: knew*). Therefore, we further divided these verb tokens into two groups: regular and irregular ones, and the results are displayed in Table 5.

	Tokens	Percentage
regular	27	33%
irregular	55	67%

Table 5. Regular/irregular distinction with overuse of past forms

Table 5 shows about 67% of the verbs students overused past tense markings with had *irregular* past tense forms, a percentage even higher than the proportion of telic verbs (51%) among the tokens of overused past forms. Therefore, based on the results here, it seems the main determinant of learners' overuse of past forms was whether the verbs had regular or irregular past forms, but not their lexical aspectual class (stative, activity, or telic).

In this section, we have presented data extracted from English TLC showing (1) Taiwan English L2 learners' use of temporal markings in these learners' unrestricted written texts conformed to the Aspect Hypothesis findings that past tense markings were significantly more prevalent on telic (event) predicates than on atelic (activity or state) predicates and (2), by checking obligatory contexts in a learner corpus, a much stronger determinant on the overuse of past forms than lexical aspect was found to be whether the past form was regular (-ed) or irregular. A more detailed discussion of these finding is provided in the following section.

5. Discussion

When investigating the temporal markings used in a learner corpus of English L2 learners' unrestricted writings, we found, consistent with the claims of the Aspect Hypothesis, the use of temporal markings was indeed influenced by the semantic features of the verbs in English. Specifically, telic verbs were predominantly marked with past tense (86%), unlike states and activities, which attached past tense markings to a significantly smaller proportion of their total tokens (45% and 45%, respectively).[3]

[3] In addition, we also found most progressive markings were used with activity verbs (95%), though there were not many progressive markings used in the 50 articles for us to investigate since the contexts

However, the finding, while confirming the Aspect Hypothesis, did not, we argue, reveal anything distinctive about learners' English. In the present study, we provided evidence showing the target texts exhibited basically the same tendency of temporal markings reported for learners in the Aspect Hypothesis literature. Language learners' use of tense-aspect markings, however, can be plausibly seen as simply a mirroring of the distribution that can be found in standard uses and in their target language input. Therefore, in this study, we introduced the use of *obligatory contexts* in our analysis of the learner corpus. By checking L2 learners' overuse of past tense forms in contexts within which base verb forms are obligatory, we could examine whether these non-target uses were influenced by lexical aspect as well. However, in these obligatory contexts, we found the main determinant of learners' overuse of past forms was whether the verbs had regular or irregular past forms.[4] The regular/irregular distinction wielded much stronger influence on learners' overuse of past forms than did the verbal aspect. In fact, the indication that regular/irregular distinction might determine language learners' use of temporal markings is not new in the language acquisition research literature. After examining the verbal inflections used by English L2 learners, Salaberry (2000) has claimed what influenced L2 learner' use of past tense morphology should be the *frequency of the past tense morphology* but not the lexical aspect of verbs (p. 135). More specifically, he found the verbs his subjects were prone to inflecting for past tense were mostly *irregular*, and the most frequent verbs in English are irregular. The finding obtained by examining L2 learners' overuse of past forms in the present study, inconsistent with the Aspect Hypothesis, showed the regular/irregular distinction could well be stronger than lexical aspect in determining language learners' use of past tense markings, at least in learners' *overuse* of past forms. These findings suggest further research is needed to tease out the influence of frequency, regularity, and verbal semantics as factors in the acquisition of past tense markings in English by second language learners.

In short, the results of the present study suggest that L2 learner corpora of unrestricted written texts can contribute to research on L2 learners' acquisition of tense-aspect morphology. However, further CLC research is indeed needed to test these conflicting findings in the present research as well.

Reference

Anderson R W 1990 Models, processes, principles, and strategies: second language acquisition in and out of the classroom. In VanPatten B, Lee J F (eds), *Second language acquisition-foreign language learning.* Clevedon, Multilingual Matters, pp 45-78.

Anderson R W 1993 Four operating principles and input distribution as explanations for underdeveloped and mature morphological systems. In Hyltenstam K, Viborg A (eds), *Progression and regression in language.* Cambridge, Cambridge University Press, pp 309-339.

Anderson R W, Shirai 1994 Discourse motivations for some cognitive acquisition principles. *Studies in*

---

of these articles were mainly in the past tense.

[4] This finding provides only part of the picture on overuse of past forms. A more complete picture will include the percentages of all uses of telic, atelic, regular, and irregular verbs which are overused in past tense. This additional data will be included in Huang (in prep).

Second Language Acquisition 16: 133-156.
Anderson R W, Shirai Y 1996 The primacy of aspect in first and second language acquisition: the pidgin-creole connection. In Ritchie W C, Bhatia T K (eds), *Handbook of second language acquisition.* San Diego, Academic, pp 527-570.
Antinucci F, Miller R 1976 How children talk about what happened. *Journal of Children Language* 3: 167-189.
Bardovi-Harlig K 1998 Narrative structure and lexical aspect. *Studies in Second Language Acquisition* 20: 471-541.
Bardovi-Harlig K, Reynolds D 1995 The role of lexical aspect in the acquisition of tense and aspect. *TESOL Quarterly* 29: 107-131.
Berstrom A 1995 *The expression of past temporal reference by English-speaking learners of French.* Unpublished PhD thesis, Pennsylvania State University, State College.
Bloom L, Lifter K, Afitz J 1980 Semantics of verbs and the development of verbs inflection in child language. *Language* 56: 386-412.
Bronckart J P, Sinclair H 1973 Time, tense, and aspect. *Cognition* 2: 107-130.
Brown R 1973 *A first language: the early stages.* Cambridge, MA: Harvard University Press.
Comrie B 1976 *Aspect*. Cambridge, Cambridge University Press.
Dowty D 1979 *Word meaning and montague grammar.* Dordrecht, Reidel.
Granger S 1998 The computer learner corpus: a versatile new source of data in the EFL classroom. In Granger S (ed), *Learner English on computer.* London, Longman, pp 3-17.
Huang C C 1999 Tense-aspect marking by L2 learners of English and native English speakers: inherent lexical aspect and unitary vs. repeated situation types. *Issues in Applied Linguistics* 10: 113-129.
Huang P Y in prep *Lexical aspect in the interlanguage of Taiwan English learners.* Unpublished Master thesis, Tamkang University.
Kuczaj S A 1981 The acquisition of copula and auxiliary “be” forms. (ERIC Document Service No. 209932).
Lee E J 2001 Interlanguage development by two Korean Speakers of English with a focus on temporality. *Language Learning* 51: 591-633.
Robison R E 1995 The aspect hypothesis revisited: a cross-sectional study of tense and aspect marking in interlanguage. *Applied Linguistics* 16: 344-370.
Salaberry M R 2000 The acquisition of English past tense in instructional setting. *System* 28: 135-152.
Shirai Y, Anderson R W 1995 The acquisition of tense-aspect morphology: A prototype account. *Language* 71: 743-762.
Vendler Z 1967 Verbs and times. *Philosophical Review* 66: 143-160.
Verkuyl H J 1996 *A theory of aspectuality.* Cambridge, Cambridge University Press.
Wible D, Kuo C-H, Chien F-Y, Liu A, Tsao N-L 2001 A web-based EFL writing environment: exploiting information for learners, teachers, and researchers. *Computers and Education* 37: 297-315.