

**THE INTERLANGUAGE DEVELOPMENT OF ARTICLES IN ENGLISH AS A
SECOND LANGUAGE: A LONGITUDINAL STUDY**

by

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Speakers of other languages often have trouble learning the article system in English. This study traces the development of six learners, three Arabic speakers whose first language (L1) has articles and three Chinese speakers whose L1 does not. The study follows how learners use articles and maps that usage onto Huebner's (1983) semantic wheel to see their interlanguage form-function relationships with articles. Short spontaneous speeches by two groups of learners over the course of a year were used to see if the learners' L1 affects their development (Master, 1997; Zobl, 1982). Articles are examined in the context of the noun phrase in which they appear (Liu & Gleason, 2002; Huebner, 1983; Parrish, 1987; Robertson, 2000) and the countability of the noun phrase is also considered (Hiki, 1990). It was found that the Arabic speakers were more accurate in their use of *the* and \emptyset , but the Chinese were more accurate with *a(n)*. Overall, there are few differences between the target-like use of the two groups and this is hypothesized to be due to neither Arabic nor Chinese having an indefinite article (Kharma, 1981; Thompson-Panos & Thomas-Ružić, 1983; Robertson, 2000). However, because Arabic has a definite article while Chinese does not, the Arabic speakers seem to develop a more target-like representation of *the* earlier than the Chinese speakers. The Chinese speakers confirmed acquisition stages proposed by Thomas (1989), while the Arabic speakers seem to associate *a* in introductory contexts (*I had a friend named Tom*) before existential contexts (*That is a truck*) and this is hypothesized to be a result of L1 transfer. This study concludes by illustrating the development using Huebner's

semantic wheel to map out both groups' form-function relationships over time (Butler, 2002; Huebner, 1983) and suggesting that the article acquisition stages proposed are not as universal as previously thought (Master, 1995; Thomas, 1989), but actually differ based on features in the learner's L1.

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PREFACE

I would like to thank my committee members, Yasuhiro Shirai, Dawn McCormick and Alan Juffs for their help, suggestions and encouragement. I would also like to acknowledge the Pittsburgh Science of Learning Center and their National Science Foundation grant SBE-0354420 that allowed me to collect the data.

1.0 INTRODUCTION

A, *an*, and *the* – three small words in English that carry a lot of meaning. Although they are function words, the articles *a(n)*, *the* and the zero article (\emptyset) convey crucial information about the noun phrases (NP) they modify. Speakers encode specificity, presumed hearer knowledge and the count status and number of the NP through the article. Specificity refers to the concept of a speaker having a particular or specific noun in mind (i.e., *that chair in the dining room with the red seat* or *I'm going to visit a friend today*). Specific nouns can take *the* if both the speaker and the hearer know about the noun which the speaker is referring to. Specific nouns can take *a* as in the example, *I'm going to visit a friend* today, where the speaker is referring to a particular friend but the hearer is not aware of which friend. The amount of information encoded onto these words (or in the case of \emptyset , the absence of a word) violates Andersen's (1984) one-to-one principle that suggests learners learn most easily when there is a single form-meaning mapping connection. Instead, each article has multiple form-meaning relationships with the NPs they modify.

Although all learners must learn how to use articles in English to encode these meanings, some learners begin with articles in their first language (L1) and some do not. Within the article system of the L1 there are various ways of encoding specificity, noun countability and presumed hearer's knowledge. For example, Chinese has no article system, while Arabic has a definite article only and Spanish has both definite and indefinite articles. The extent to which L1 transfer affects English article acquisition has not been fully explored. Chaudron and Parker's (1990)

study showed little difference among speakers of different languages. However, based on their research and cross-linguistic comparisons, Master (1997) and Zobl (1982) have claimed that learners with articles in their L1 tend to move more quickly towards native-like article use than learners without articles.

This study looks at how articles are used in spontaneous speech over a period of one year of intensive English language study at a major U.S. university. By analyzing students' article usage and over-usage as it corresponds to the various types of noun phrases, a clearer picture emerges of how a learner's article system changes over time. This study traces the way learners use articles before and after instruction over the course of a year. The six students, three from a first language with definite articles and three from a first language without articles, recorded a series of short speeches on various topics as part of their speaking classes as they moved from the pre-intermediate to advanced levels. These speeches have been transcribed and the data has then been analyzed for its target-like use (TLU) of articles, article suppliance in obligatory contexts (SOC) in regards to the types of noun phrases, and form-function relationships, including patterns of article overuse.

This study proposes a series of stages that the learners progress through as they develop their understanding of articles. By comparing speakers with an L1 article system to speakers without one, it will be shown that overall the Arabic speakers and Chinese speakers follow a similar developmental path with their TLU of articles, moving from using *the* to mark specific reference to being able to better distinguish when to use *the*, *a* or \emptyset based on all three factors: specific reference, assumed hearer's knowledge, and noun countability. This confirms previous research (Butler, 2002; Cziko, 1986; Huebner, 1983; Thomas, 1989) that beginning learners use *the* to mark all specific reference noun phrases.

The groups differ, however, in the way they use the definite and singular indefinite articles. Although Master (1997) and Zobl (1982) predict that the speakers of an L1 with articles should be developmentally more advanced, the Chinese speakers use *a(n)* more similarly to the way native speakers use it than the Arabic speakers do. Looking at the patterns of overuse, it will be shown that the Arabic students seem to change their mental representation of *the* from having the feature of specific reference ([+SR]) to also account for the presumed hearer's knowledge ([±HK]) status of the noun earlier than the Chinese students. In fact, these Arabic speakers used *a* more accurately in introductory [+SR, -HK] phrases than in existential [-SR, -HK] (nonreferential indefinite) phrases which has not been predicted in the literature (Butler, 2002; Thomas, 1989). The discussion will consider that L1 transfer may influence both the Chinese and Arabic speakers' semantic form-function relationships of *a* and *the*.

1.1 LITERATURE REVIEW

Understanding interlanguage development of articles requires a schema to trace how learners' understanding of articles changes. Figure 1 shows the semantic wheel Huebner (1983) used to illustrate the form-meaning mapping that native-like use of English articles requires. He combined the features of specific reference ([±SR]) and presumed hearer's knowledge ([±HK]) to form four distinct quadrants. With this system, [-SR, +HK] noun phrases are generic nouns such as *The Swedes are peaceful people* and all three articles can be used, as in *A Swede is a peaceful person* and *The/Ø Swedes are peaceful people*. Referential indefinites ([+SR, -HK]) are used to introduce a noun as the speaker has a specific noun in mind but does not presume that the

hearer has also identified it. These noun phrases take *a* for singular count nouns (e.g., *Sue held a dog*) and \emptyset for noncount and plural count nouns (e.g., *He visited several \emptyset museums on his trip*). Both of these articles can also be used for nonreferential indefinites ([-SR, -HK]) such as *There is a ball*. The article *the* is used with nongeneric definites ([+SR, +HK]) as in, *the book on gardening that Mary bought*, to indicate a specific noun known to both the speaker and hearer.

Nongeneric definites and referential indefinites are considered to be specific since the speaker has a particular object in mind when using these types of NPs. Specific nouns can take either *a* or *the*, depending on whether the speaker assumes that the hearer is aware of the referent of the noun or not. For example, a woman may say, “*I am going to buy a book on gardening today*” and have a specific book in mind, even though the hearer does not know what book it is ([+SR, -HK]). (Note that she can also say the same sentence if she does not know which particular book she will buy, in which case ‘a book’ is non-specific, i.e., [-SR, -HR]). However, if the friend had recommended a book on gardening and then she went out to buy that book, the woman could say, “*I am going to buy the book on gardening today.*” Here, the hearer (the friend) is assumed to know which book the woman is referring to. ([+SR, +HK]). Since in both examples the speaker refers to a specific book, both are said to be specific, or have the feature [+SR]. Definite nouns are a type of specific nouns where the speaker has a particular noun in mind and the listener is also aware of that noun, so the speaker assumes [+HR]. In English, the article *the* is used with definite nouns.

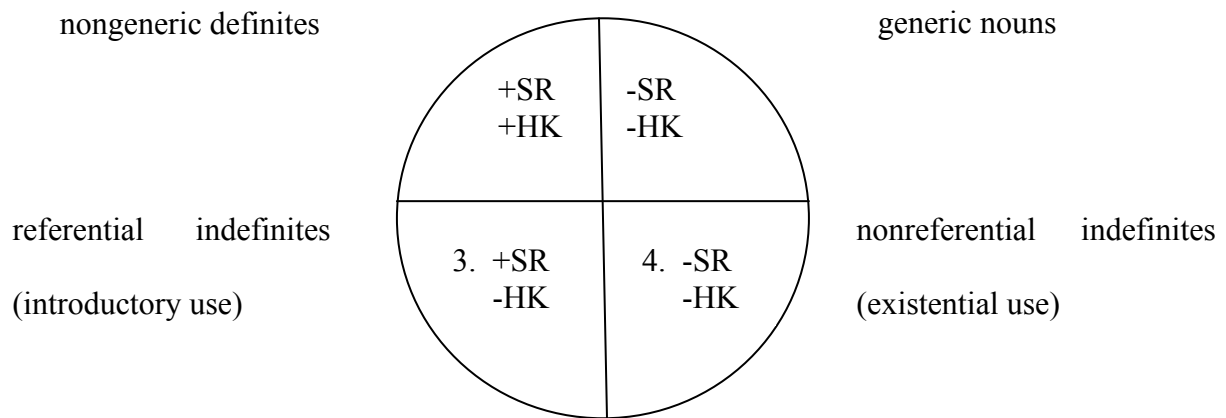


Figure 1. Huebner's Semantic Wheel

1.1.1 Article acquisition stages

Both child L1 and adult L2 learners seem to first associate specificity ([±SR]) with the definite article (Cziko, 1986; Huebner, 1983; Thomas, 1989). A specific noun is marked by [+SR] and a nonspecific or general noun is marked by [-SR]. First marking for specificity leads to learners using *the* for all NPs in the second and third quadrants of Huebner's semantic wheel. This can result in an overuse of *the* in sentences where the hearer does not know the specific referent and, as such, *a* should be used, as in "Tom is visiting *a* boy from his class" (Butler, 2002; Chaudron & Parker, 1990; Ionin, 2008; Parrish, 1987; Yamada & Matsuura, 1982).

Both L1 and L2 learners are slower to account for the hearer's knowledge [±HK] (Butler, 2002; Cziko, 1986; Ekiert, 2008; Ionin, 2008; Thomas, 1989; Tomasello, 2003). Butler's (2002) study asked Japanese students who were enrolled in English classes to complete a fill-in-the-blank task by inserting articles. Immediately following this, the participants were then interviewed and asked to explain the reasons for choosing the article they did for each item. Butler found that at all three proficiency levels most nontargetlike articles resulted from

problems of misdetecting specific reference and hearer's knowledge, with misdetection of hearer's knowledge causing the greatest number of problems. Butler concludes that the Japanese speakers have trouble determining the conditions that cause a reference to be known by a hearer. Table 1 is from Thomas (1989, p. 338) and lays out Cziko's (1986) proposed stages. The type of noun phrase is in the far left column with an example sentence following to illustrate. According to Cziko's research on L1 learners, at stage 1 learners will overuse \emptyset in both [-SR] NP types and use either *a* or *the* in [+SR] phrases regardless of hearer's knowledge. At stage 2, Cziko hypothesized that learners will use *a* for all [-SR] phrases and *the* for [+SR] phrases. Cziko predicts that children will begin to be sensitive to [\pm HK] at stage 3, possibly using *a* in both [+SR] contexts. At stage 4, the children have an adult system of classifying nouns and using articles in English.

Table 1. Proposed stages in the L1 acquisition of English articles (Thomas, 1989, p. 338)

	Example	Stage 1	Stage 2	Stage 3	Stage 4
Generics: [-SR, +HK]	\emptyset Swedes are kind. The Swedes are kind. A Swede is a kind person.	* \emptyset	a	a	\emptyset , a, the
Nonreferentials: [-SR, -HK]	Ken is a banker.	* \emptyset	a	a	a
Referential indefinites: [+SR, -HK]	Sue held a dog. *The dog barked.	a,* the	*the	a,*the	a
Referential definites: [+SR, +HK]	Sue held a dog. The dog barked.	*a, the	the	(*a), the	the

Note: *Predicted errors in article use

While L2 learners' development has not followed these stages exactly (most notably in the lack of overusing *a* (Huebner, 1983; Parrish, 1987; Thomas, 1989; Young, 1996)), learners do seem to first associate [+SR] with *the* (Butler, 2002; Master, 1997; Thomas, 1989; Tomasello, 2003; Yamada & Matsuura, 1982). Both [-art] and [+art] L1 speakers seem to make this association of *the* with a specific reference (Butler, 2002; Cziko, 1986; Thomas, 1989; White, 2003).

Cziko's stages predicts that learners will stop overusing \emptyset after the first stage; however, L2 learners tend to overuse \emptyset , especially those from a [-art] L1 (Chaudron & Parker, 1990; Master, 1997; Yamada & Matsuura, 1982). but the reason for this is not clear (Butler, 2002; Hiki, 1990; Yoon, 1993). Master (1997) finds that [-art] L1 speakers are a stage behind [+art] L1 speakers in their article development, but does not identify any stages in the article development process.

After learners associate *the* with [+SR], it is less clear how *a* and \emptyset are used to mark indefinites. Either *a* or \emptyset can be used with nonreferential nouns ([-SR,-HK]) such as *It is a square*, where the speaker is merely identifying a type of object, and with referential indefinites ([+SR,-HK]) such as *Sue held a dog*, where the speaker is introducing the noun. In the studies that have examined the acquisition of *a*, it appears that the nonreferential (existential) use is more accurate than the referential indefinite (introductory) use (Ekiert, 2007; Robertson, 2000). This may be because existential uses tend to be in relatively fixed phrases such as *It's a dog* that can be easily memorized or because the introductory use involves accounting for hearer's knowledge.

Generic noun phrases ([-SR, +HK]), seem to rarely appear in natural speech by ESL learners and their acquisition has largely been ignored (Hiki, 1990; Liu & Gleason, 2002;

Master, 1987, 1997; Thomas, 1989). This is largely due to the infrequency with which they appear; both native and non-native English speakers use them infrequently in normal conversation (Liu & Gleason, 2002; Master, 1987, Thomas, 1989). Although Master (1987) found that they do occur in a variety of scientific texts, most language learners do not encounter these texts until their understanding of English articles has been well-developed.

1.1.2 Article acquisition by noun phrase type

Using Huebner's semantic wheel, recent studies have considered the various types of definite noun phrases ([+SR, +HK]) and how that affects learners' development. Liu and Gleason (2002) were interested in how learners acquire the various types of nongeneric uses of *the*. They grouped these various functions into four major categories: cultural use (using *the* with well-known unique nouns like *the moon*), situational use (using *the* with first-mention nouns that can be sensed like *The fireplace in this room is large*), structural use (using *the* with a modified first-mentioned noun, as in *He likes the movies that George Lucas made*) and textual use, including anaphoric and entailed uses (using *the* with nouns previously mentioned or referred to). Testing their hypothesis that learners acquire these phrases at a different rate, they asked Chinese speakers who were studying English to insert *the* in a set of sentences wherever they felt it was necessary. They confirmed their hypothesis, finding that learners had the most difficulty with cultural use, then textual use, structural use and situational use. They theorized that the textual use of *the* was difficult because it included both anaphoric references and entailed contexts. While the participants did well supplying the correct article in anaphoric references, they performed poorly in the associative NPs. Based on this, it seems the noun phrase type affects acquisition and these types are not learned simultaneously.

Robertson looked at how Chinese speakers use the indefinite article *a*. He first classified the use of *a* into existential ([-SR, -HK]) NP environments and introductory ([+SR, -HK]) NP environments. He then asked Chinese graduate students at a British university to describe geometrical figures to a fellow participant who would reproduce that figure on a separate piece of paper. Robertson found that the students used *a* most accurately in the existential phrases.

1.1.3 Proposed stages in article development by noun phrase type

The present study looks at article development by combining the development that Thomas (1989) observed based on Cziko's (1986) stages and the research on how the type of NP affects article usage (Liu & Gleason, 2002; Master, 1995; Robertson, 2000). Table 2 proposes stages for L2 acquisition of English articles based on the type of NP the article is used with. While much of Table 2 is similar to Thomas (1989), Table 2 includes predictions about when the specific types of noun phrases emerge. The Noun Phrase environment column corresponds with Thomas' (1989) findings, with the inclusion of noun countability in stage 3. The Noun Phrase subcategory column attempts to synthesize Liu and Gleason's (2002) findings about the definite article and Robertson's (2000) findings about the indefinite article within Thomas' and Cziko's proposed stages. This study incorporates Liu and Gleason's (2002) use of definite noun phrases in stage 1 and added stages 5 and 6 to account for the associative and cultural uses of nongeneric *the*. I have also added stage 3 based on Hiki's (1990) and Butler's (2002) findings that noun countability affects the choice of articles and learners do not become sensitive to noun countability until they have studied English for a considerable length of time. By stage 7, learners are predicted to use articles with native-like accuracy, including in the generic noun phrases.

Table 2. Proposed stages in L2 English development of articles

	Noun Phrase environment	NP Subcategory	Example
Stage 1	<i>the</i> used with [+SR]	situational use	<i>The</i> fireplace is big.
		anaphoric use	He drank milk. <i>The</i> milk...
		structural use	<i>The</i> milk that he drank
	<i>a</i> used infrequently		
	∅ overused*		
Stage 2	<i>a</i> used with [-SR]		It's <i>a</i> balloon.
Stage 3	<i>a</i> used with [-SR][+count][+sg]	existential use	It's <i>a</i> ball.
	∅ used with [-SR][-count] and [-SR][+count][+pl]		It's ∅ milk. There are ∅ balls.
Stage 4	<i>a</i> used with [+SR,-HK][+count][+sg]	introductory use	Mary bought <i>a</i> ball.
Stage 5	<i>the</i> used with [+SR, +HK]	associative use	Jim got into his car and started <i>the</i> engine.
Stage 6	<i>the</i> used with [+SR,+HK]	cultural use	He went to <i>the</i> beach.
Stage 7	<i>the</i> , <i>a</i> and ∅ used with [-SR,+HK]	generic use	A Swede is a peaceful person. ∅/The Swedes are peaceful.

1.1.4 L1 Transfer

Although Thomas (1989) proposed universal developmental stages, others (Master, 1997; Zobl, 1982) have argued that articles are an area where L1 transfer affects acquisition. Zobl (1982) synthesized previous research on child L2 learners of English, particularly Huang's (1971) study of a five-year-old male Chinese speaker with a three-year-old male Spanish speaker discussed in Hernández-Chávez' (1977) study. Both had learned English in a pre-school setting. Zobl found that the Chinese speaker uses the demonstrative *this* where a native speaker would use *the* while the Spanish-speaking boy was able to correctly interchange the determiners *this* and *that*. From these data, Zobl concludes that learners who have the developmental feature in their L1 have a grammatical advantage when they learn the target feature since they already have a similar system of marking in their L1. He then accounts for them having a similar developmental path by explaining that learners with the feature in their L1 do not have to create a mental category for the L2 feature but only have to restructure the specific features of that category for the L2.

Master (1997) agrees, suggesting that [-art] L1 learners are approximately one stage behind [+art] learners. He analyzed data spoken data from twenty English learners and found that the learners from [-art] L1s initially oversupply \emptyset in obligatory contexts and then after realizing that \emptyset is not always accurate, switch to using *the* with all nouns. However, [+art] L1 learners begin by overusing *the*. He summarizes saying, "This can be interpreted to mean that it takes about one interlanguage level for a [-art] learner to become aware that such a thing as an article system exists" (p. 218).

In contrast, Chaudron and Parker (1990) found that there was not a significant difference between learners from different language backgrounds. In their literature review, they analyzed previous studies on L2 article acquisition (Andersen, 1977; Parrish & Tarone, 1988) and concluded that learners follow universal developmental sequences, regardless of their L1. They did not compare the developmental stages or proficiency levels, but rather focused on how the topic and discourse contexts affected learners' use of articles. Chaudron and Parker's study compared spoken data from Japanese learners and English native speakers, finding that the learners encoded definiteness before indefiniteness. However, they did not compare Japanese learners with other English learners from a [-art] or [+art] L1. Thus, based on the research comparing [+art] and [-art] L1 groups (Master, 1997; Thomas, 1989; Zobl, 1982), I predict that the [+art] L1 group will proceed through the stages at a slightly faster rate.

This study focuses on Arabic speakers as the [+art] group, although the article system in English and Arabic have several differences. Arabic has only a definite article and no indefinite article. Arabic students tend to extend their L1 concept of not marking the indefinite article in English and thus tend not to supply *a* in obligatory contexts (Kharmā, 1981; Thompson-Panos & Thomas-Ružić, 1983). Additionally, Arabic has a system for marking the number of nouns; nouns can be singular, dual or plural. Collective nouns are treated grammatically as singular nouns and singular adjectives and verbs are used with them (Ryding, 2005).

According to Zobl (1982), Arabic speakers should already have a mental category for the definite article, but Chinese speakers should not. Chinese speakers use word order or demonstratives to mark for definiteness and specificity, but a bare noun is the most typical form found in Chinese discourse and nouns are not marked for number in Chinese (Robertson, 2000). Therefore, based on their L1s, it is hypothesized that the Arabic speakers will be a stage ahead of

the Chinese speakers since the Arabic speakers already have a definite article feature while the Chinese speakers have no article.

The studies that have compared article interlanguage development with [-art] and [+art] L1 languages (Liu & Gleason, 2002; Master, 1997; Thomas, 1989; Zobl, 1982), were cross-sectional studies. The previous longitudinal studies (Ekiert, 2007; Huebner, 1983; Parrish, 1987) focused on only one learner. The present study adds to the literature by comparing two groups of learners over a period of one year. Using a longitudinal method with multiple participants allows a more comprehensive comparison between the two groups.

1.1.5 The effect of task type

Another factor that affects article usage is the type of task that the learners are asked to perform. Tarone and Parrish (1988) found that varying the task types results in different accuracy rates and different types of NPs produced by the learners. Learners seem to be more accurate when they are telling a narrative than when they are performing other tasks such as a written grammar test or answering questions about their future plans in an interview (Tarone, 1985; Tarone & Parrish, 1988). Tarone and Parrish hypothesize that this occurs because the discourse information encoded in articles is more important. This could affect the present study since the students were given topics but were free to discuss the topic in any way they chose. All of the phrases in this study are freely produced, so students were free to use whatever type of NP they chose and to answer in the style that they chose, whether that be to recount a personal story about the topic or speak about it more generally. In addition, the speakers could choose to use modifiers like *my* or *some* to avoid using articles altogether. Since the learners can choose the NPs they use but need

to keep the discourse information connected within a task, I hypothesize learners to be the most accurate with their use of articles in narrative tasks.

Along with the type of oral task, attention to form can also affect article accuracy. Hiki (1990) found that learners performed differently on spoken elicitation tasks and written fill-in-the-blank editing tasks. Learners were more accurate in the spoken tasks, even though they were editing data from their oral interviews and had more time-on-task while editing. In fact, they occasionally changed correct answers to incorrect ones when they spent more time on task editing. Tarone (1985) reports similar findings, with the participants having higher article accuracy rates when speaking than when working on editing tasks. Based on these findings, I predict that in this study, the self-corrections that the learners make will do little to affect their accuracy.

1.1.6 The comparative fallacy

In a language study on the suppliance of articles in obligatory contexts, it is easy to fall into the comparative fallacy. Bley-Vroman (1983) explained that the comparative fallacy results from making conclusions by comparing learners' interlanguage form with the target language form. In this type of analysis, any of the learners' forms that deviate from the target language forms are considered errors. This type of comparison focuses on the errors or omissions of the learners without allowing for any systematicity or development in the interlanguage. It particularly obscures the interlanguage development when the zero article is one of the forms under consideration. By only looking at where the zero article is supplied such as Master (1997) did, it appears that the learner has acquired the article, regardless of any overuse of that article, and this obscures the form-function relationships the learner has.

Parrish's (1987) longitudinal case study of Mari, an adult Japanese woman learning English, analyzes the article data following three different methods, showing the importance of considering article overuse when studying the development of English articles. Parrish finds Mari uses articles systematically, even as the semantic relationships Mari makes between articles and noun phrases change. While Parrish avoids the comparative fallacy by considering article overuse, she only follows one [-art] learner. The present study examines a group of learners from both a [-art] and a [+art] L1, looking at their patterns of article use and overuse.

1.1.7 Research Questions

To summarize, the English article system has been the focus of researchers interested in the interlanguage development of grammatical morphemes (Butler, 2002; Chaudron & Parker, 1990; Hiki, 1991; Huebner, 1983; Parrish, 1987; Master, 1997; Thomas, 1989; Zobl, 1982). This research has either taken a cross-sectional approach of many learners (Butler, 2002; Chaudron & Parker, 1990; Hiki, 1991; Master, 1997; Thomas, 1989; Zobl, 1982) or a longitudinal analysis of one learner from a [-art] L1 (Ekiert, 2007; Huebner, 1983; Parrish, 1987). This study adds to the literature by looking at the interlanguage development of [-art] and [+art] learners over a year. The following research questions guided this study:

- a) Based on spontaneous spoken data and learner's self-edited corrections, how do [+art] L1 speakers' and [-art] L1 speakers' article systems develop over time?
- b) At what stage in IL development do learners consider noun countability as reflected in their article usage with count and noncount nouns? In other words, does the count status of a noun affect the article a learner chooses, and at what point in their development does this occur?

- c) At what stage in IL development does learners' article usage indicate they are choosing articles based on assumed hearer knowledge? Or, when do the articles a learner uses reflect that the learner is considering whether the hearer is familiar with the noun phrase in that the speaker will use *the* for [+SR, +HK] NPs and *a* for [+SR, -HK] NPs?
- d) Which type of article usage is hardest (that is, the least accurate based on spontaneous speech production and learner self-corrections) for L2 English learners to acquire in spontaneous speech based on the NP context it occurs in?

2.0 THE STUDY

2.1 METHODS

2.1.1 Environment

The data comes from classroom activities in the speaking classes at the English Language Institute (ELI) at the University of Pittsburgh. The ELI is an intensive English program which offers classes at three levels: low-intermediate (level 3), high intermediate (level 4) and advanced (level 5). There are no beginning classes so all students have had some exposure to English, whether through classes or living in an English-speaking environment. Full-time students in each level take a reading, writing, grammar, speaking and listening class each semester. Frequently students remain in the program until they pass level 5 classes, although some move on after achieving their desired score on the Test of English as a Foreign Language (TOEFL) while in level 4 or 5. Students in the ELI generally want to improve their English to enroll in an English-language academic program or get a job that requires English.

As part of the initial registration process, all new students take the Michigan Test of English Language Proficiency (MTELP), a University of Pittsburgh-created listening comprehension test (LCT), and a writing task. These scores are tabulated and used to place students. The combination of a student's listening test and writing test scores generally determine

the level of the speaking class he or she will take. Once in the program, students move into the next level upon successful (C average or above) completion of the course work. Students with an MTELP score of 45-59 are placed in level 3, 60-79 in level 4 and 80-100 in level 5 (with 100 points being the maximum). Scores of 11-18 on the listening comprehension test (with 32 possible points) are placed in level 3, 19-25 in level 4 and 26-32 in level 5. The writing test is graded holistically on a scale from 0 to 5; students with a score of 2 are put in level 3 writing, those with a score of 3 in level 4 writing and those with a score of 4-5 in level 5 writing.

2.1.2 Data

The data used here comes from a larger set of data that the Pittsburgh Science of Learning Center (PSLC) and ELI instructors have collected. The complete data set includes written and oral production from various activities done in ELI classes, their placement test scores, and background information provided by each student. This study analyzes only the Recorded Speaking Activities (RSAs) of selected students; each student completed three or four RSAs every semester as part of their speaking class curriculum. The speaking classes were held in the language technology lab on the day of each RSA, with each student sitting at an individual computer with a headset microphone. They recorded their answers on a computer program using the Runtime Revolution software. The sound files are then transferred to a secure server that contains the full set of PSLC data.

The speaking class curriculum supervisors choose the topic for each RSA and every level uses the same topic. Students had previously been exposed to possible topics for that RSA through speaking warm-up activities, but neither the teacher nor the students knew exactly what

the topic would be that day since the curriculum supervisor chose the topic. The topics are general enough that speakers at any level should be able to answer the question in two minutes.

Immediately before beginning each RSA, students were shown a written question prompt such as “Describe a custom in your country” or “Compare shopping for food in your country with shopping for food in the U.S.” They then had a few seconds to think about their answer before beginning to speak. Students were given only one chance to answer the question and were instructed to speak for the entire two minutes. At the end of the two minutes, students were asked to listen to their speech and make a transcription of what they said. They were instructed to type exactly what they heard – not what they should have said. These transcriptions became the basis for the students’ self-correction notes, correcting any errors they chose to correct after noticing them while making the transcription as they listened to their recording. This study analyzed the spoken data only, referring to the student’s transcriptions only in the rare cases that the spoken data was unintelligible to the researcher.

After making a transcription, the students would then make corrections. For the first two RSA activities each semester, students made corrections using a standard prompt, again shown visually on the board in front of the classroom: *I said X, I should have said Y*. For the third activity each semester, students were told to make a re-recording where they could use their self-correction notes from their transcription if they chose. This occurred on the same day as the original recording. (Note: At the low intermediate level, two of the participants did not rerecord their third RSA but instead did a separate fourth RSA at a later date.)

The RSAs were done as part of the curriculum in the students’ speaking classes and students received feedback from their speaking teacher on fluency (overall communicative ability, their speed, use of fillers, etc.), vocabulary, pronunciation and grammar. To receive

feedback, the students would again go to the language technology lab during class to listen to their teacher's feedback on their speech as they looked at the transcript they had written. The focus of the activities was not on articles, nor were articles a teaching focus in the speaking classes. Because of this, many of the students' corrections were about their pronunciation or grammatical errors like using the wrong verb tense and were not related to their article usage.

All of the RSAs were electronically stored in a secure database and a number assigned to each student's data and then all names in the spoken and written data were deleted for anonymity. To collect the data, I listened to the speeches and made transcriptions of each. I referred to the students' transcriptions if the meaning of a phrase was unclear, but the primary data source was the audio recordings of their speeches. In the few instances where there was a question as to what I heard, I incorporated the words from the student transcription.

2.1.3 Participants

Data from three Chinese and three Arabic participants was analyzed over the course of three semesters of participation in ELI classes. The six participants were selected from the PSLC data because they began the program at the low intermediate level and continued through the advanced level. A second selection criterion was that they began the program at around the same time. Together, the six students were in the program over five terms with at least two participants in each term. This increases the likelihood that they received similar article instruction, at approximately the same point in the semester and using the same materials.

At the beginning of their first semester, the Arabic students Mohammad, Ali and Aziz¹, had been in an English-speaking environment for less than one year. Two of the participants had spent three to five years studying English, while one had less than one year. They had an average MTELP score of 46, LCT score of 9.7², and writing score of 2.5 (although Mohammad's score is not available). All of the Arabic speakers were males from Saudi Arabia with an average age of 26.3 years. They used Arabic as their primary language and did not speak any additional languages. Because there is a diglossic situation in Saudi Arabia, the speakers likely speak a regional dialect of Arabic in addition to Modern Standard Arabic. As the varieties of Arabic are similar in that they have only the definite article (Thompson-Panos & Thomas-Ružić, 1983), this study will consider the Saudis as speakers of Modern Standard Arabic.

The Chinese participants include one female, Lili, and two males, Zhi and Wen. Zhi and Wen had spent three to five years studying English but less than one year living in an English-speaking environment. They had an average MTELP score of 52, an average LCT score of 13.3 and an average writing score of 3.1 upon entering the program in level 3 classes. Lili had spent more than five years studying English and more than five years living in an English-speaking environment. Zhi and Wen are from Taiwan while Lili is from mainland China, but all three self-reported their language as Mandarin. Zhi also uses Japanese and Korean at home. Although these languages differ considerably, none had exposure to a language with articles, except for English. Their average age was 27.3 years old.

¹ Note that as part of the PSLC database, all names have been deleted and pseudonyms were used for all six students.

² This is slightly below the LCT score range for level 3 (11-18 points) but students who place into level 3 classes based on their grammar and writing scores may be in level 3 speaking and listening if a lower level is not offered that semester, especially if their writing scores are high for the level, as they are for these speakers.

2.1.4 Time-series research design

Mellow, Reeder and Forster (1996) called for applied linguists to utilize time-series research designs because they improve internal validity, are longitudinal and can trace the effects of instruction on language acquisition. In a time-series design study, there are multiple data collection points for each subject before and after each intervention. These repeated pre-tests (from data collection points before instruction) form the basis for comparing the participants after an instructional intervention, negating the need for a control group. Time-series studies are particularly useful in tracing the development of an L2 form since they follow a learner's progress at multiple points during the study both before and after instruction.

This study uses data from the PSLC database to emulate a time-series research design. It is not a true time-series design since the data had already been collected before beginning the study, but it analyzes the data following a time-series design. All speakers received two instructional sessions, with two RSAs before instruction (a span of two months upon beginning in the ELI classes), seven RSAs after the first intervention (a span of seven months) and three RSAs after the second intervention (a span of two months). The first RSA happened around the fourth week of classes, the second around the seventh week and the third around the eleventh week. Although the specific dates for each RSA session varied from semester to semester, the timing of the RSAs and article instruction held true for all six speakers.

As mentioned above, students produced two versions of the final RSA each semester, an original version and a re-recorded version. Although both were made on the same day, the article accuracy sometimes varied a great deal between the two versions. Students often seemed more concerned with improving their speaking fluency or pronunciation than with article accuracy, and as a result a different number of NPs was used in the re-recording and the article accuracy

often changed. Since there were different amounts of total tokens used, along with the numbers of modifiers and articles, I chose to examine these as separate data points. A time-series design allows this information to be shown visually, with two separate collection points on the final RSA date of each semester.

2.1.5 Article Instruction

Using a time-series design to trace the development of English articles before and after instruction necessitates discussing the type and length of instruction the students received. Over the course of the twelve RSAs over the three semesters (11 months total), focused article instruction occurred after the second and ninth activities for all participants. This instruction took place in the ELI grammar classes at levels 3 and 5. Level 4 does not cover articles and in no other class are articles the subject of instruction in the curriculum.³ Appendix A includes a summary of the information presented in the ELI grammar classes. ELI grammar teachers follow a communicative language teaching approach with an integrated-skills grammar book. Each grammar unit involves an introduction to the forms and uses of the grammar point, and gives the students both focused practice and communication practice that includes speaking, listening and writing.

At level 3, the students spend a week going through a chapter about nouns and articles. The instruction begins by establishing what proper and common nouns are. The book, *Focus on*

³ This study does not account for any incidental article instruction they may have received during their time in the program. Articles are only in the grammar class curriculum at levels 3 and 5, but individual teachers may have discussed articles in any of the other classes and this data is not available. Students also likely received some instruction on articles before entering the program, but this information is unavailable and thus not considered here.

Grammar 3 by Fuchs, Bonner and Westheimer (2006), then introduces the notion of count and noncount nouns and presents students with a list of typical noncount nouns. Then the students learn about the three articles: *a(n)*, *the* and \emptyset . Using short narrative texts, they are taught that *a* or \emptyset is used to introduce new information while *the* has a second reference use. They are also told to use *the* for unique nouns (such as *the sun*) and specific nouns (such as *the table in the living room*) when the listener knows about them and *a* or \emptyset for general nouns (such as *I bought \emptyset apples*) and in constructions like *He is a teacher*. They also are told that for indefinite nouns, they need to determine the count status of the noun to choose the correct article. From personal communication with several of the ELI teachers who taught level 3 grammar during the course of this study, they said that they move through the chapter on nouns and articles quickly (in approximately four 50-minute lessons) (L. Sunderman, personal communication, January 21, 2008). They do not expect students to master articles, but merely want to present to them the fundamentals of when to use articles and how to decide which article to use based on the discourse context.

At level 5, the grammar curriculum revisits articles (see Appendix A for a sample of the material presented). Here two weeks (eight 50-minute lessons) are devoted to covering nouns and articles. The first lesson in Maurer's (2006) *Focus on Grammar 5* reviews the count/noncount distinction and discusses how noncount nouns can often have count uses, as in a diner asking a waiter to bring four waters to the table. The students then review the uses of articles and are presented with more comprehensive instruction about the uses of the articles. At level 5, the new uses of *the* that they learn are with certain adjectives (like *right*, *wrong*, *only*), noun phrases made specific by context (*He's the doctor* when used by a patient in a hospital), and with certain cultural usages such as some geographic regions (*the Middle East*), bodies of

water (*the Indian Ocean*) and proper nouns (*the Titanic*) (Maurer, 2006, p. 132). Using *a(n)* or \emptyset for first-mention and nonspecific nouns are reviewed. In level 5 generic nouns are presented and students learn that they can be used with *the* (***The orangutan*** is a primate), with *a(n)* (***An orangutan*** is a primate) and with \emptyset (**\emptyset Orangutans** are primates) (Maurer, 2006, p. 131). The rest of the chapter on nouns (two lessons) is spent on modifying nouns with adjectives, quantifiers and other nouns.

2.1.6 Students' self-corrections

As mentioned in section 2.1.2, students listened to their speech to make a transcription and then used that transcription to make any corrections. For the first two RSA dates every semester, the students would record any corrections they chose to make by saying, “*I said X, I should have said Y.*” The last RSA date each semester includes the original speech and then the re-recorded version. As the re-recorded version is being considered here as a separate data collection point, the self-corrections described in this section refer to the corrections made after the first two RSA dates each semester. The spoken corrections were factored into the accuracy rate, with each data collection point having up to two TLU rates: the original speech and then with any corrections factored in. This was done in light of Hiki (1990) who has shown that asking students to later examine their article usage provides additional insight into their interlanguage development. Hiki found that his participants performed differently when they were given article editing tasks with their own spoken data. He had advanced ESL speakers (all seven were graduate students or college instructors) perform three activities: an interview task, an editing task based on their interview, and an editing task on a text the researcher prepared. While the speakers had high rates of article accuracy in the interview (77.7% total accuracy for all three articles, factoring in

overuse), they frequently changed correct articles to incorrect in the editing task using their own words from the interview (p. 404). Also, like Tarone and Parrish (1988) who found that their participants were the most accurate in oral tasks, Hiki's participants were more accurate in the interview than in the editing task.

While the previous studies suggest that students' self-corrections will not be accurate, including the self-corrections offers additional information about the development of articles in learners' interlanguage. Learners who notice non-target-like article usage in their speech and correct it to be more target-like can be said to have a more precise understanding of how to use articles than learners who consistently do not notice non-target-like usage. It also provides insight into the saliency of articles for the participants. Following the logic that the students will correct the mistakes that are most salient to them, it can be assumed that if articles and noun phrases are salient to them they will correct them. However, if other aspects of the speech (pronunciation, fluency, vocabulary, other grammatical elements) are more salient, these will be the bulk of the corrections instead of articles.

2.1.7 Data coding

Once collected and transcribed, each article and noun phrase in the speech was coded, based on the context in which they occur. I used Huebner's (1983) categories: Type 1 – generic noun phrases [-SR, +HK] (*Ø Swedes are peaceful people*); Type 2 – referential definites [+SR, +HK] (*the sun is bright*); Type 3 – referential indefinites [+SR, -HK] (*I met a man named John*); Type 4 – nonreferentials [-SR, -HK] (*It's a ball*). To address noun countability, I incorporated Butler's (2002) system of coding based on [\pm SR, \pm HK] [\pm count]. Appendix B contains a more thorough description and sample of how the data was coded.

Additionally, the data was examined in terms of the specific type of NP in which it occurs (Liu and Gleason, 2002; Robertson, 2000; Tarone and Parrish, 1988). For the definite article, I took Liu and Gleason's (2002) five types of definite article uses and for the singular indefinite uses, I used Robertson's (2000) categories of existential (for nonreferential indefinites) and introductory use (for referential indefinites).

2.1.8 Data analysis

The article usage data was analyzed using three methods: Target-like usage (TLU), suppliance in obligatory contexts (SOC) and a form to function analysis, including patterns of overuse. Looking at all three methods offers a clearer picture of the form-function relationships that learners develop and avoids falling into the comparative fallacy.

First, the individual accuracy of each article during each RSA was calculated using Pica's (1983) Target-like Use Formula:

$$\text{Target-like article use} = \frac{\text{number of instances of correct suppliance}}{\text{the number of obligatory contexts} + \text{the number of overgeneralizations}}$$

This ensures that any article overuse is accounted for and the article accuracy rates are not artificially high (Pica, 1983). To determine where a speaker was developmentally, I used an 80% criterion. If the speaker's accuracy was above 80%, he or she was considered to have reached that stage of development. 80% was used since articles are so hard for learners to acquire and even very advanced speakers use them incorrectly. In Hiki's (1990, p. 404) study of very advanced speakers with an average TOEFL score of 610, the average accuracy rates in the oral

interview were only 77.7%. While the TOEFL scores of the participants in this study are not available, all of these participants began at an English level where they needed intensive instruction before being able to take academic classes in English or pass the TOEFL exam. To avoid a floor effect, I chose to use an 80% criterion.

In analyzing the NP types, the TLU formula was not used because the focus was on the type of NP that determined the article used rather than the article the student chose to use. Instead the data were analyzed by the SOC accuracy rates in regards to noun phrase type (according to Huebner's (1983) semantic wheel), countability and subtype. Overuse was not considered here because the focus was on the type of NP. For instance, while the first analysis measured the total accuracy of *the*, this analysis focused on how *the* was used in nongeneric cultural, anaphoric, associative, structural and situational NPs. Again, an 80% criterion was used to determine if a speaker had reached a stage in their article development.

The third type of analysis looked at the form-meaning relationships learners make. Looking at the use and overuse patterns shows the semantic relationships the learners have between the articles and the NP contexts. By considering all three analyses, the learners' article development over the year of intensive English classes can be traced onto Huebner's (1983) semantic wheel.

2.2 RESULTS

Overall, all three types of analyses confirm that the learners are generally improving in their use of article accuracy and developing more target-like form-function relationships over time. The TLU analysis shows that the Chinese speakers are more accurate with the singular indefinite

article while the Arabic speakers end using *the* and \emptyset more accurately. The SOC analysis confirms these results, while also illustrating that both groups seem to progress through the stages of article usage at a similar time. Finally, the overuse tokens of *the* will be considered, demonstrating the different semantic form-function relationships each group has throughout the study.

2.2.1 TLU analysis

Taken together, the speakers showed an overall increase in article accuracy; however, looking at each group shows that the Chinese speakers decreased in their TLU of \emptyset and improved more in their TLU of *a*, while the Arabic speakers improved more in their TLU of *the*. Tables 3-5 show the average TLU rates of each article before any instruction, after the initial instructional session on articles and then after the final article instructional session. These figures include any corrections the students made after listening to their speech.

As can be seen by Table 3, both groups have strikingly similar TLU accuracy rates for *the* and \emptyset before instruction. However, the Arabic speakers have a lower accuracy rate with the indefinite article, 46% versus 65% for the Chinese speakers. In the activities after the first instructional session (shown in Table 4), both groups of speakers have nearly the same TLU accuracy for all three articles. Both groups have improved their use of *the*. (The larger number of tokens is due to the fact that this period had seven activities while there were only two before instruction and three after.) The Chinese speakers used more tokens of *a* but had exactly the same rate of use, while the Arabic speakers improved from 46% to 65% in their use of *a*. Both groups used \emptyset at approximately the same accuracy rate as each other and as before instruction.

Table 3. Average TLU accuracy rates before instructional sessions (RSAs 1 - 2)

	the	a(n)	Ø
Chinese group	19/30 63%	13/20 65%	44/60 73%
Arabic group	34/49 69%	11/24 46%	61/85 72%
Total	53/79 67%	24/44 55%	105/145 72%

Table 4. Average TLU accuracy rates after instructional session 1 (RSAs 3 – 9)

	the	a(n)	Ø
Chinese group	143/188 76%	50/77 65%	168/220 76%
Arabic group	141/185 76%	40/62 65%	176/241 73%
Total	284/373 76%	90/139 65%	344/461 75%

Table 5. Average TLU accuracy rates after instructional session 2 (RSAs 10 - 12)

	the	a(n)	Ø
Chinese group	54/72 75%	14/16 88%	13/22 59%
Arabic group	92/100 92%	15/27 56%	49/65 75%
Total	146/172 85%	29/43 67%	62/87 71%

From almost identical article TLU after the first instructional session, there are some several differences after the second instructional session. As seen in Table 5, the Chinese speakers maintain their accuracy percentage with *the*, increase in their accuracy of *a* and decrease in their accuracy of \emptyset . The Arabic-speaking students show a different pattern. They jump to 90% TLU of *the*, drop to 56% TLU of *a* and remain steady in their use of \emptyset . Based on this data, it appears that the Chinese learners end the program more target-like in their use of the singular indefinite article while the Arabic learners are more target-like in their use of *the* and \emptyset . In fact, the Arabic speakers seem almost native-like when using the definite article in the final three activities. However, they seem to be behind the Chinese learners when using *a*, as they drop in accuracy after the last instructional session.

As in other longitudinal studies of L2 learners (Ekiert, 2007; Huebner, 1983; Parrish 1987), the TLU accuracy of each speaker varies across data collection points. This can be seen in Figure 2 which shows Aziz' TLU of articles; the graphs for the other students are in Appendix C. The graph shows the TLU of each article on the dates on which each RSA task was completed

and the vertical lines mark the first day each of the two instructional sessions began. As can be seen, there are no consistent patterns for any of the articles that emerge from this graph. This is especially visible in the Arabic students' use of the singular indefinite article; *a* remains somewhat variable even at the time of the final activity. Ali uses it correctly two out of two times in the first recording but only two out of three times in the re-recorded version, while Aziz uses it three out of three times in the first version, but not at all in the re-recorded version. Thus, on the final RSA date the *a* curve is first at 100% but finishes at 0%.

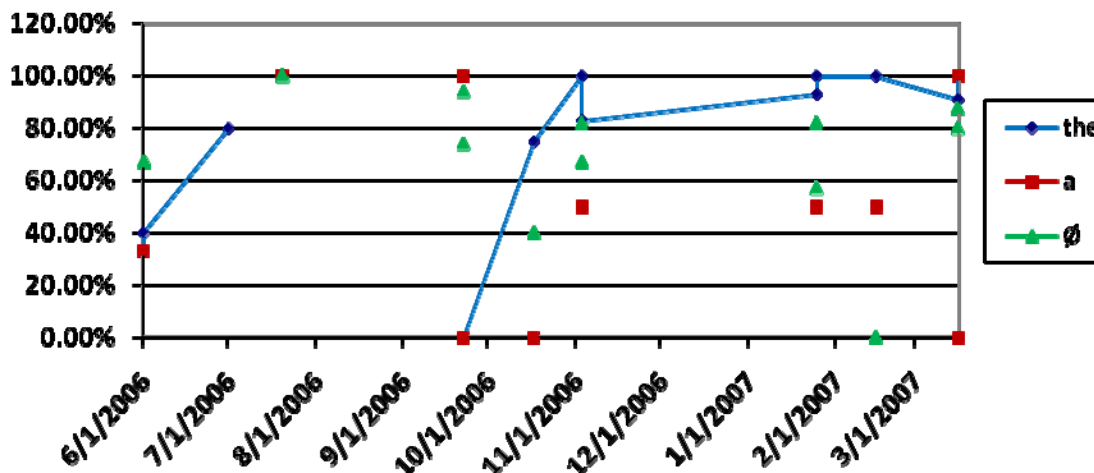


Figure 2. Aziz' TLU over time

2.2.2 TLU and the effects of instruction

The Chinese speakers show similar variability in their article TLU, although they show a strong positive effect after the first instructional session. Zhi and Wen improve in their use of all three articles in the RSA immediately after the first session, and Lili self-corrects several articles to also improve in her use of *a* and *the*. Immediately after the second instructional session there is a

similar trend, although not as strong. Zhi improves (or remains) at 100% with all three articles in the activity immediately after the second session. Wen greatly improves in the use of *a*, slightly improves in the use of *the*, and slightly decreases in the use of \emptyset . (However, he self-corrects his \emptyset mistakes to have 100% accuracy with the zero article). Lili remains around the same in the use of \emptyset , improves in the use of *a*, but decreases in the accuracy of *the*. While the [-art] L1 speakers had an increase in accuracy with all three articles immediately after the first session, there was a similar effect immediately after the second only for *a*.

For the Arabic learners, the effect of instruction is not as strong as the Chinese students. After the first instructional session, all three students improved in their accuracy with the indefinite articles *a* and \emptyset . In the first RSA immediately after the second instructional session, Mohammad and Aziz drop in their TLU of \emptyset from at least 80% to 0%. However, they both improved by the last activity to end around 80% on the day of the final data collection point.

2.2.3 SOC analysis

By looking at how the speakers use articles in the specific types of noun phrases, a clearer picture of their article usage emerges. Analyzing the articles used with specific types of noun phrases shows that learners' article usage develops at different rates depending on the type of noun phrase. For example, while all the speakers averaged around 73% TLU for *the*, they actually had above 90% accuracy in their use of associative and anaphoric NPs. Tables 6 and 7 present the overall SOC rates for each type of noun phrase students produced. These tables also include any overuse tokens and the frequency with which each article was overused.

Table 6. Chinese Speakers' SOC by NP type

Type of Noun Phrase	Accuracy rate	Tokens used / obligatory tokens	Article	Forms used incorrectly
[+SR, +HK][assoc]	100%	16/16	the	
[+SR, -HK][-count]	100%	1/1	∅	
[-SR, -HK][+count, pl]	93%	96/103	∅	1 (a) 6 (the)
[+SR, +HK][ana]	94%	101/107	the	1 (a) 5 (∅)
[+SR, +HK][struct]	89%	42/47	the	5 (∅)
[+SR, +HK][sit]	85%	39/46	the	7 (∅)
[-SR, -HK][-count]	78%	66/84	∅	2 (a) 16 (the)
[+SR, -HK][+count, sg]	78%	14/18	a(n)	2 (∅) 2 (the)
[-SR, -HK][+count, sg]	62%	69/111	a(n)	30 (∅) 12 (the)
[+SR, +HK][cult]	61%	22/36	the	14 (∅)

Note The dashed horizontal line represents the 80% criterion

Table 7. Arabic speakers' SOC by NP type

Type of Noun Phrase	Accuracy rate	Tokens used / obligatory tokens	Article	Forms used incorrectly
[+SR, +HK][assoc]	100%	20/20	the	---
[+SR, -HK][+count, pl]	100%	4/4	∅	---
[+SR, +HK][sit]	97%	46/47	the	1 (∅)
[+SR, +HK][ana]	92%	107/116	the	9 (∅)
[-SR, -HK][+count, pl]	90%	120/134	∅	14 (the)
[+SR, +HK][struct]	89%	75/84	the	9 (∅)
[-SR, -HK][-count]	86%	74/86	∅	3 (a) 9 (the)

[+SR, +HK][cult]	65%	26/40	the	14 (∅)
[+SR, -HK][+count, sg]	60%	6/10	a(n)	3 (∅) 1 (the)
[-SR, -HK][+count, sg]	44%	36/81	a(n)	40(∅) 5 (the)
[-SR, +HK][-count]	100%	0/3	∅	3 (the)

Note The dashed horizontal line represents the 80% criterion

In many ways, the speakers of both language groups appear to use articles similarly. Both have above 80% accuracy in their use of associative, situational, anaphoric and structural referential definite NPs and plural count [-SR, -HK] NPs. Although the Arabic speakers tend to use more noun phrases in general, their overall accuracy rates are similar in the associative, anaphoric, structural [+SR, +HK] NPs and plural count [-SR, -HK] NPs. Below the 80% criterion, both groups used cultural [+SR, +HK] phrases similarly. However, both groups do not do as well with the singular indefinite noun phrases. (I am not going to discuss noncount and plural count [+SR, -HK] NPs and [-SR, +HK] NPs because there are so few tokens.)

While these similarities exist, looking at how articles are used in the specific types of noun phrases also highlights some key differences between the groups. Using an 80% accuracy rate, on average the Arabic and Chinese speakers have reasonable command over all of the [+SR, +HK] noun phrases except for the cultural ones. The cultural NPs may be harder than the other types of [+SR, +HK] NPs since they generally have to be learned individually. For example, students studying in America frequently hear “*in **the** United States of America*” in their input, yet Zhi and Wen both said, “*in United States*” at least once.

A difference between the two groups is that the Chinese speakers seem to have only one fewer type of noun phrase above the acquisition criterion than the Arabic speakers. Also, the Chinese speakers perform, on average, more accurately than the Arabic speakers when considering their accuracy below the 80% criterion. For example, while the Arabic speakers’ use of *a* in singular nonreferential phrases is at 44%, the Chinese speakers have a 62% accuracy rate with those phrases. Interestingly, the Chinese speakers are exactly 18% better in their use of both types of NPs that require *a*. As will be considered more thoroughly in the discussion, the different rates of accuracy with *a* may be a result of L1 transfer. Since Arabic students have the

definite article, their L1 default is to use the zero article to mark all indefinite NPs. This process of restructuring their conceptualization of indefiniteness to include using *a* for singular NPs may take longer than the Chinese students creating new categories for both *a* and *the*.

The overuse tokens will be discussed in more detail in section 2.2.6, but here it can be noted that the Chinese speakers overuse *the* the most frequently with [-SR, -HK][-count] phrases (16 tokens) and [-SR, -HK][+count, sg] phrases (12 tokens). The Arabic speakers overuse *the* the most frequently with [-SR, -HK][+count, pl] phrases (14 tokens) and [-SR, -HK][-count] phrases (9 tokens).

2.2.4 SOC analysis over time

Table 8 provides an overall breakdown of the Chinese speakers' article usage based on the type of NP and Table 9, for the Arabic speakers. The tables are divided into three main columns based on how much article instruction has occurred. Note that there is a span of approximately seven months between when articles were presented in level 3 and then again in level 5. The rows are divided by the type of NP used, followed by how many tokens of that type had correct article usage compared with total number of types of that noun phrase. The dashed lines represent the 80% criterion mark.

Table 8. L1 Chinese speakers' NP SOC accuracy over time

Before Instruction (2 activities)			After Session 1 (7 activities)			After Session 2 (3 activities)		
<u>NP type</u>		<u>Total</u>	<u>NP type</u>		<u>Total</u>	<u>NP type</u>		<u>total</u>
[+SR, +HK]	[assoc]	9/9	[+SR, +HK]	[assoc]	5/5	[+SR, +HK]	[sit]	9/9
		100%			100%			100%
[+SR, +HK]	[sit]	2/2	[+SR, +HK]	[ana]	73/77	[+SR, +HK]	[assoc]	1/1
		100%			95%			100%
[-SR, -HK]	[+ct,pl]	27/28	[-SR, -HK]	[+ct, pl]	61/65	[+SR, +HK]	[struct]	19/20
		96%			94%			95%
[+SR, +HK]	[ana]	6/7	[+SR, +HK]	[struct]	13/14	[+SR, +HK]	[ana]	22/23
		86%			93%			96%
[+SR, +HK]	[struct]	10/12	[-SR, -HK]	[-ct]	34/39	[-SR, -HK]	[+ct,sg]	24/27
		83%			87%			89%

[-SR, -HK]	[-ct]	10/13	[+SR, +HK]	[sit]	28/35	[-SR, -HK]	[+ct,pl]	8/9
		77%			80%			89%
[+SR, -HK]	[+ct,sg]	3/4	-----					
		75%	[-SR, -HK]	[+ct,sg]	36/49	[+SR, +HK]	[cult]	4/5
					73%			80%
[+SR, +HK]	[cult]	5/7	[+SR, -HK]	[+ct,sg]	12/18	-----		
		71%			67%	[-SR, -HK]	[-ct]	16/24
								67%
[-SR, -HK]	[+ct,sg]	6/15	[+SR, +HK]	[cult]	13/24	[+SR, -HK]	[+ct,sg]	2/4
		40%			54%			50%

Note The dashed horizontal line represents the 80% criterion

Table 9. L1 Arabic speakers' NP SOC accuracy over time

Before Instruction (2 activities)			After Session 1 (7 activities)			After Session 2 (3 activities)		
<u>NP type</u>		<u>Total</u>	<u>NP type</u>		<u>total</u>	<u>NP type</u>		<u>total</u>
[-SR,-HK]	[+ct,pl]	14/14	[+SR,+HK]	[assoc]	2/2	[-SR,-HK]	[+ct, pl]	19/19
		100%			100%			100%
[+SR,+HK]	[struct]	10/10	[+SR,+HK]	[ana]	53/54	[-SR,-HK]	[-count]	15/15
		100%			98%			100%
[+SR,+HK]	[assoc]	3/3	[+SR,+HK]	[sit]	32/33	[+SR,+HK]	[assoc]	15/15
		100%			97%			100%
[+SR,+HK]	[sit]	2/2	[-SR,-HK]	[+ct,pl]	84/97	[+SR,+HK]	[sit]	12/12
		100%			87%			100%

[-SR,-HK]	[-ct]	12/15	[+SR,+HK]	[struct]	56/65	[+SR,+HK]	[struct]	9/9
		75%			86%			100%
[+SR, -HK]	[+ct,sg]	4/6	[-SR,-HK]	[-ct]	47/56	[+SR,-HK]	[+ct, sg]	3/3
		67%			84%			100%
[+SR,+HK]	[ana]	9/14	[+SR,+HK]	[cult]	13/18	[+SR,+HK]	[ana]	45/48
		64%			72%			94%
[-SR,-HK]	[+ct,sg]	6/13	[+SR,-HK]	[+ct,sg]	2/3	[+SR,+HK]	[cult]	8/10
		46%			67%			80%
[+SR,+HK]	[cult]	5/12	[-SR, -HK]	[+ct,sg]	20/44	-----		
		42%			45%	[-SR, -HK]	[+ct,sg]	12/24
								50%

Note The dashed horizontal line represents the 80% criterion

Comparing the two tables, we see similar patterns of article suppliance. Before instruction both groups have above an 80% SOC rate with *the* in structural, associative and situational phrases and \emptyset in plural nonreferential indefinite ([-SR, -HK]) phrases. While the exact percentages of each differ, only the anaphoric phrases differ in that the Chinese speakers supply them with above 80% accuracy and the Arabic speakers do not. After the first instructional session, both groups have at least 80% SOC except for with *the* in cultural phrases and *a* in singular [+SR, -HK] and [-SR, -HK] phrases. After the second session, the Arabic speakers only use *a* in singular [-SR, -HK] phrases less than 80% of the time, while the Chinese do not use *a* correctly in singular [+SR, -HK] phrases or [-SR, -HK] phrases.

2.2.5 Article Overuse

The ways learners overuse articles helps to reveal the form-function relationships they have made with the articles. The overuse⁴ patterns reveal differences between the two groups. Table 10 shows the overuse tokens by NP type over time.

As seen in Table 10, *a* is rarely overused, with only three overuse tokens total. Most of these errors (five of the six) came from students misjudging the countability of the NP and using *a* with a noncount noun. However, with only six tokens, it is difficult to draw any conclusions.

In contrast, *the* is overused more frequently. Before instruction, the Chinese learners overused *the* twelve times (with one correction) while the Arabic speakers overused it only four times. Of those twelve tokens, two of them are in singular [+SR, -HK] phrases and two resulted

⁴ Only *the* and *a* are considered in the following overuse discussion since the zero article is the default for Chinese speakers. Arabic speakers also default to \emptyset before indefinite NPs (Kharma, 1981).

from using *the* with a proper noun such as in **the Pittsburgh*. The remaining instances occurred in referential indefinite (-SR, -HK) phrases. The Arabic speakers, however, exclusively overused *the* with nonreferential definites ([+SR, -HK]) before the first instructional session.

After the first instructional session, the Chinese speakers overused *the* five times in singular [+SR, -HK] NPs where the Arabic students had only one overuse token in that type of NP. These learners also continued to overuse *the* when referring to proper nouns with nine tokens. Four of these tokens come from one speaker's description of his hometown in Taiwan, when he said **the Taiwain* and **the Taipei*, and then correcting himself on four of those tokens. While the Arabic students never overused *the* with proper nouns, they had more overuse tokens in [-SR, -HK][+count, pl] phrases (14 tokens) as when Ali says that his father, "*taught me how to deal with ***the** people,*" yet is not referring to specific people. They also had more overuse tokens of *the* in [-SR, -HK][-count] phrases (9 tokens), as when Aziz describes his favorite vacation spot saying, "*we go to the beach and eat ***the** lunch*".

Table 10. Article overuse by NP type over time

	NP Type	[-art]	[+art]
Before instruction	[+SR, -HK][+count, sg]	3 <i>the</i> (1 c ⁵)	1 <i>the</i>
(2 RSA sessions)	[+SR, -HK][-count]	---	3 <i>the</i>
	[-SR, -HK][+count, sg]	2 <i>the</i> (1 c)	---
	[-SR, -HK][+count, pl]	1 <i>the</i>	---
	[-SR, -HK][-count]	4 <i>the</i>	1 <i>a</i>
	Proper	2 <i>the</i>	---
	Total	12 <i>the</i>	4 <i>the</i> , 1 <i>a</i>
After Session 1	[+SR, -HK][+count, sg]	6 <i>the</i>	1 <i>the</i>
(7 RSA sessions)	[-SR, -HK][+count, sg]	5 <i>the</i>	2 <i>the</i>
	[-SR, -HK][+count, pl]	3 <i>the</i>	14 <i>the</i>
	[-SR, -HK][-count]	4 <i>the</i> , 1 <i>a</i>	9 <i>the</i> , 1 <i>a</i>
	Proper	9 <i>the</i> (4 c)	---
	Modifier	---	1 <i>the</i>
	Total	27 <i>the</i>	27 <i>the</i>
		1 <i>a</i>	1 <i>a</i>
After Session 2	[-SR, -HK][+count, sg]	1 <i>the</i>	2 <i>the</i>
(3 RSA sessions)	[-SR, -HK][-count]	7 <i>the</i>	---
	Proper	1 <i>the</i>	---
	Total	9 <i>the</i>	2 <i>the</i>
All RSAs	Total	48 <i>the</i>	33 <i>the</i>
		3 <i>a</i>	3 <i>a</i>

⁵ *c* here stands for corrected, as in the student self-corrected the mistake either by repeating the phrase correctly within the activity or by correcting it immediately after listening to the initial recording.

After the second instructional session, neither group has any overuse of *a* in any environment or *the* in [+SR, -HK] phrases. The Chinese speakers primarily overuse *the* in [-SR, -HK][-count] phrases. In these activities, the Arabic students have a low occurrence of overuse of *the*, with only two instances, both with [-SR, -HK][+count, sg] nouns.

The two biggest differences between the groups are the Chinese speakers' overuse of *the* with proper nouns and the Arabic speakers' overuse of *the* in plural and noncount [-SR, -HK] NPs after the first instructional session. First, the Chinese speakers' use of *the* with proper nouns is likely a result of their associating *the* with all [+SR] nouns. Proper nouns are specific by their very nature and the Chinese learners seem to be carrying over this connection between *the* and [+SR] to proper nouns. Secondly, the Arabic speakers' overuse of *the* after the first instructional session may be due to a misdetection of specificity, where the speaker assumes that the noun is specific when he or she is actually referring to any instance of that noun. For instance, Ali describes the role his grandfather played in his life saying, "*He told me a lot of things about how *the person can deal with *the others.*" Here it seems from his article choice that Ali has a specific person in mind, but the context suggests that he is talking about any person. Examples like this where the speaker had a specific NP in mind but seemed to refer to that type of noun in general may have caused the Arabic speakers to overuse *the* here. Both of these differences will be discussed further in section 3.3.

2.2.6 The effect of task type

As Hiki (1990), Tarone (1985), and Tarone and Parrish (1988) have shown, task type affects the type of NPs elicited and the TLU rates. In the RSAs, students were free to take a general prompt such as *how is shopping for food different in the U.S. than in your country?* and answer it as they chose. Their speeches fell into two categories: descriptive or narrative. The term *description* was used when the speaker primarily described the person, situation or event. There was no story or narrative here; rather the speaker attempted to portray his or her picture of the topic at hand. The term *narrative* was used when the speaker recounted a story that happened to himself or someone else he knew or knew about.

Throughout the study, each speaker had at least one narrative speech although the majority were descriptive speeches (see Appendix D for the complete list of topics and types of RSAs). In these activities, there appears to be no correlation between the task type and accuracy rate. Some speakers did above average on narrative tasks; for example, Aziz achieved his highest accuracy in a narrative account of his favorite holiday in data collection point 3. Others, like both Mohammad and Lili at data collection point 6, performed particularly poorly in these narrative activities and had a higher TLU in descriptive tasks.

While the oral task type had little effect, there was a difference between the original and corrected speeches. When speakers made corrections, they generally improved their accuracy. Of the twenty times speakers corrected noun phrases, they improved their article accuracy sixteen of those times. The Chinese speakers correct five tokens of *the* overuse with proper nouns (out of 12 total tokens). The most common correction (9 occurrences) for speakers in both groups was to correct the number of the indefinite noun phrase from singular to plural, making \emptyset correct by changing the noun phrase grammatical number.

In the re-recordings, most speakers also improved their overall article accuracy; the Chinese speakers improved or maintained their article accuracy in each re-recording. The Arabic speakers improved or maintained their article accuracy in five of the eight re-recordings, but decreased in three. For example, in Aziz's RSA on March 16, 2007, the first version had a TLU rate of 10/11 with *the*, 3/3 with *a* and 7/8 with \emptyset . However, the re-recorded version improves to 8/8 for *the*, maintains approximately the same accuracy of \emptyset with 8/10, but falls to 0/3 for *a*.

3.0 DISCUSSION

The results of this analysis show that both groups of learners generally follow a similar developmental path in regards to their article usage and progress through the proposed stages. However, in some areas the Arabic speakers, predicted to be a stage ahead of the Chinese speakers, seem to have a more developed understanding of how articles should be used in English, while at other times the Chinese speakers seem to. The discussion will explain that the Arabic speakers develop a more target-language like representation of *the*, while the Chinese speakers develop a more target-language like representation of *a* due to effects of L1 transfer. It will also propose new stages based on the data analyzed in this study. Finally, I will map the semantic representations of *the* for each group on Huebner's (1983) semantic wheel and discuss the overall results of all the articles in terms of the proposed stages and Huebner's semantic wheel.

3.1 OVERALL TLU OF THE ARTICLES

This study confirmed the hypothesis that Arabic L1 students would be ahead of the Chinese speakers in their use of the definite article since Arabic also has a definite article. Arabic speakers generally used *the* more frequently and more accurately than the Chinese speakers. L1 transfer can explain this, with the Arabic students transferring their L1 concept of a definite

article to into the English system (Kharma, 1981; Thopson-Panos & Thomas-Ružić, 1983). Based on their high TLU of *the* and overuse tokens of *the* in [+SR, -HK] NPs before instruction, it seems they already have a concept that *the* should be used to mark specific reference, as Thomas (1989) predicts.

3.1.1 The effect of L1 Chinese transfer

The Chinese speakers seem to follow the path predicted in the stages and described in the literature (Cziko, 1986; Thomas, 1989). They begin with associating *the* with specificity and the results here show that, in general, they know when to use the definite article. After that, they seem to move to using the indefinite article to mark nonreferential indefinite ([-SR, -HK]) singular NPs. In contrast to the Arabic speakers with a low accuracy rate on these phrases (37%), the Chinese speakers correctly used the indefinite article with these phrases with a 64% accuracy rate (69/107 instances). However, their accuracy with the singular referential indefinite ([+SR, -HK]) NPs is slightly lower at 55% (12/22 instances). This result is similar to those of Butler (2002), Robertson (2007), and Thomas (1989) who found that speakers without articles in the L1 first understand how to use the indefinite article in [-SR, -HK] noun phrases and then move on to accounting for hearer's knowledge. Since the Chinese speakers do not have an article marking specific reference in their L1, it seems to be easier for them to use the indefinite article to mark indefiniteness than it is for the Arabic speakers. These speakers follow the projection first described by Huebner, where the learner moves from using *the* to mark all specific phrases, to using *a* to mark all singular [-SR, -HK] phrases and then using *a* to also mark singular [+SR, -HK] NPs.

3.1.2 The effect of L1 Arabic transfer

Arabic uses an article to mark that a noun is definite, but indefinite nouns do not take an article (Thopson-Panos & Thomas-Ružić, 1983). Thus, these speakers have a high rate of accuracy with the phrases that take *the* and phrases that take \emptyset . However, before instruction they tend to overuse *the* in [+SR, -HK] NPs. Thomas (1989) and Butler (2002) report similar findings, with learners first using *the* to mark all definite nouns, regardless of presumed hearer's knowledge, and thus overuse *the*. After instruction, this usage drops and there is only one instance of the Arabic speakers overusing *the* after the first instructional session and none after the second. As they learn that *the* should only be used in situations where the noun phrase is specific and the hearer knows about it, they then stop overusing *the* in [+SR, -HK] NPs. This is seen in the decrease in overuse tokens of *the* in [+SR, -HK] NPs from four before instruction to only one after the first instructional session and none after the second.

However, using *a* does not extend to [-SR] phrases as easily since their L1 does not require an article for indefinite noun phrases (Kharma, 1981; Thopson-Panos & Thomas-Ružić, 1983). This explains why they had such a low accuracy rate with the singular nonreferential indefinite ([-SR, -HK]) NPs (27 correct instances of 74 total tokens). Since the learners do not need to mark for indefinite noun phrases in their L1, they do not seem to have that category in their mental representation of articles and NPs. In fact, the Arabic group had lower TLU and SOC rates than the Chinese speakers throughout the study. This study suggests that having only the definite article in a learner's L1 may make it harder for the learner to acquire an indefinite article in the L2. If the speakers transfer the concept of a definite article from their L1, they may

also transfer the use of the zero article to mark all nonspecific noun phrases. They would then have to learn to associate *a* with singular [+SR, -HK] and [-SR, -HK] NPs.

When also considering the SOC data, it appears that the Arabic speakers have a more target-like usage of *a* with [+SR, -HK] NPs than [-SR, -HK] NPs. This may be due to fewer tokens of singular [+SR, -HK] NPs (only 12 total), but may also be in part a result of L1 transfer. If learners associate [+SR] with the use of an article, they may then associate *a* with [+SR, -HK] NPs, thinking that all [+SR] phrases must be marked with an article. Previous studies have shown that the [+SR, -HK] NPs are typically harder for learners because they have to go against their first inclination (to mark all specific NPs with *the*) to also consider hearer knowledge and noun countability, and then use *a* if the noun is singular or \emptyset for plural and noncount nouns (Butler, 2002; Huebner, 1983; Thomas, 1989; Yoon, 1993). However, these studies have not focused on how Arabic speakers use articles. With this explanation, it is not just whether an L1 has articles or not that affects how the speakers use English articles as Master (1997) and Zobl (1983) have reported, but also depends on the specific L1-L2 mapping of the article systems.

White's (2003) study of a Turkish adult woman living in Canada supports the hypothesis that the L1 affects the speaker's use of English articles. Turkish encodes specificity (although not definiteness) using accusative case marking and the numeral one, *bir*. White found that the L1 lack of articles may have factored into the woman using articles in obligatory contexts less accurately than her use of verbal morphological features (Turkish has a rich system of verbal morphology). However, unlike suggested in other studies (Butler, 2002; Huebner, 1983; Thomas, 1989), the woman did not seem to equate the definite article with [+SR] and so did not overuse *the* in [+SR, -HK] contexts. White states that based on the participant's data, there is L1 transfer,

although it is limited; in her speaker, the presence of a marker in the L1 seems to make the speaker more sensitive to those features in the L2.

3.2 SOC ANALYSIS

As discussed in sections 2.2.3 and 2.2.4, overall the Arabic speakers seem to have a more-developed view of articles based on the type of noun phrase, with above 80% in all but three NP types. This supports Master (1997) and Zobl (1982) who predicted learners from a language without articles would be approximately one stage behind learners from an L1 with articles. What is surprising, however, is that both groups have so many similarities in their overall use of articles. This can be explained by the fact that many of the other studies (Thomas, 1989; Zobl, 1982) on article development among learners' from a [+art] L1 come from learners who have an article system similar to English in its use of the definite and indefinite articles. Arabic only has a definite article, but no indefinite article. This may explain the low usage rate of *a* in singular nonreferential indefinite ([-SR, -HK]) NPs.

3.2.1 Overall article usage and the proposed stages

Based on the results of this study, it appears that in elicited speech activities like these, the stages proposed in Table 2 are not entirely correct. This study supports previous research that *the* is learned first (Huebner, 1983; Master, 1997; Thomas, 1989) and Liu and Gleason's (2002) findings that the cultural type of definite NPs are the hardest for learners. This is understandable

since the cultural NPs tend to be more idiomatic (as in *the beach*) and knowing when to use *the* or another article depends on the speakers' familiarity with that particular noun. Master (1995) also found that even advanced speakers had trouble with knowing when to use *the* in technical or specific NPs within a speech community.

The associative [+SR, +HK] NPs seem to be acquired much earlier than predicted in the proposed stages and this is likely due to task type differences. These are predicted to be acquired at stage 5, after learners have begun using *a* to mark singular indefinite NPs. However, both groups of learners have above 80% SOC accuracy with this type of NP at the beginning of the study and before they consistently use *a* to mark for indefiniteness. This type of NP was predicted to be at stage 5 based on the results of Liu and Gleason's (2002) study where learners had difficulty with associative uses of *the*. In Liu and Gleason's study, learners had to supply the correct article in sentences they were given; therefore, the learners did not create the noun phrase or discourse context. In this study using the RSA activities, the learners chose what they wanted to say and chose the noun phrases they used, thus creating their own NP and discourse contexts. Liu and Gleason controlled for instances of anaphoric and associative NPs, but here there was no control and the learners could simply avoid unfamiliar constructions by using modifiers or nouns they were familiar with.

Another effect of using only learner-produced data is that there are very few uses of the generic noun phrases so it is not known whether the learners were able to use these constructions or not. Only Mohammad used any generic NP constructions and none of these three were used correctly. Based on the limited number of these tokens, it does seem that learners do not commonly use generic NPs (Master, 1987; Thomas, 1989). Since the generic nouns were the least common type of noun phrase produced and were used incorrectly when they were

produced, the generic nouns may be the hardest type for L2 English speakers to acquire. In addition, similar studies (Huebner, 1983; Master, 1987; Parrish, 1987; Thomas, 1989) confirm that generic noun phrases are rarely elicited in free production data and when they are produced, are frequently used with a non-target-like article. Likewise, learners encounter generic NPs in the input infrequently, especially in non-academic settings (Master, 1987; Thomas, 1989). Master (1987, p. 175) examined generic nouns in eleven articles from *Scientific American* and found that unmodified generics made up only around 0.5% of the corpus. The low frequency of these nouns in the input and the nature of the RSA topics (many asking about the speakers' personal experiences as in the topic, "Describe an important person in your life," may also affect the speakers' low rate of producing generic NPs.

3.2.2 Chinese speakers' article usage and the proposed stages

Based on the results discussed above, Table 11 presents the revised proposed stages of article acquisition for Chinese learners. Table 11 is based on the proposed stages in Table 2, but reflects the way the learners used articles in these RSA activities. It differs from the proposed stages in four respects. Here, the associative [+SR, +HK] NPs have been moved to Stage 1 rather than being at Stage 5 since the learners had a high accuracy rate with them throughout the study. Secondly at Stage 1, learners are predicted to use \emptyset to mark [-SR] and not distinguish at all for number since there were no tokens of *a* overuse before instruction. The third change is that the cultural [+SR, +HK] NPs moved to stage 3 (from stage 6) since the Chinese learners are more accurate marking cultural NPs with *the* than using *a* to mark singular indefinite NPs. Stage 4 has changed to show learners distinguishing for the number of indefinite NPs and using *a* to mark

singular [-SR, -HK] NPs and \emptyset to mark plural and noncount [-SR, -HK] NPs. The final three stages remain the same: existential NPs, then introductory NPs and finally generic NPs.

Table 11. Revised stages based on the Chinese speakers' use of articles in RSA activities

	Noun Phrase environment	NP Subcategory	Example
Stage 1	<i>the</i> used with [+SR]	situational use	<i>The</i> fireplace is big.
		anaphoric use	He drank milk. <i>The</i> milk...
		structural use	<i>The</i> milk that he drank
		associative use	Jim got into his car and started <i>the</i> engine.
	\emptyset used with [-SR]		
Stage 2	<i>a</i> used with [-SR]		It's <i>a</i> balloon.
Stage 3	<i>the</i> used with [+SR,+HK]	cultural use	He went to <i>the</i> beach.
Stage 4	<i>a</i> used with [-SR][+count][+sg]	existential use	It's <i>a</i> ball.
	\emptyset used with [-SR][-count] and [-SR][+count][+pl]		It's \emptyset milk. There are \emptyset balls.
Stage 5	<i>a</i> used with [+SR,-HK][+count][+sg]	introductory use	Mary bought <i>a</i> ball.
Stage 6	<i>The</i> , <i>a</i> and \emptyset used with [-SR,+HK]	generic use	A Swede is a peaceful person. \emptyset / <i>The</i> Swedes are peaceful.

3.2.3 Arabic speakers' article usage and the proposed stages

Although it was predicted that the learners would follow the same developmental course (Chaudron & Parker, 1990; Master, 1997; Thomas, 1989), the Arabic and Chinese speakers differed in their use of *a* and *the*. Due to this, Table 12 presents the revised proposed stages of article acquisition for Arabic learners, reflecting the data from these learners in the RSA activities.

Table 12 reflects the data produced by the Arabic learners in the RSA activities. As with the Chinese learners, the associative [+SR, +HK] use of *the* has been moved into Stage 1 to reflect the speakers' high accuracy with these NPs from the beginning of the study. The second difference is moving the cultural [+SR, +HK] NPs from Stage 6 to Stage 2. This reflects the Arabic speakers using *the* more accurately than *a* in either introductory or existential NPs.

Next it is suggested that the Arabic speakers associate *a* with [+SR, -HK] NPs. Although this differs from both the stages I proposed and those that Thomas (1989) proposed, the Arabic speakers seem to be more accurate with *a* in these phrases and there are fewer *the* overuse tokens than with singular [-SR, -HK] phrases. Stage 4 has learners using *a* for singular [-SR, -HK] NPs and Stage 5 is generic noun phrases.

In studies that have compared [+art] L1 and [-art] L1 article acquisition (Thomas, 1989; Zobl, 1982), the [+art] languages are Spanish, Greek, Italian, French and German. These languages have article systems similar to English in that they contain both a definite and indefinite article. No other study has compared Arabic learners with [-art] L1 speakers. It is understandable that since Arabic does not have an indefinite article, these learners would follow

a different developmental path from those who do have an indefinite article in their L1, but this has not been looked at previously. A more complete analysis of Arabic article acquisition could also determine if this pattern of associating *a* with singular [+SR, -HK] NPs before singular [-SR, -HK] NPs was confirmed with more [+SR, -HK] NP tokens since there were only twelve in this data set.

Table 12. Revised stages based on the Arabic speakers' use of articles in RSA activities

	Noun Phrase environment	NP Subcategory	Example
Stage 1	<i>the</i> used with [+SR]	situational use	<i>The</i> fireplace is big.
		anaphoric use	He drank milk. <i>The</i> milk...
		structural use	<i>The</i> milk that he drank
		associative use	Jim got into his car and started <i>the</i> engine.
	∅ used with [-SR]		
Stage 2	<i>the</i> used with [+SR,+HK]	cultural use	He went to <i>the</i> beach.
Stage 3	<i>a</i> used with [+SR,-HK][+count][+sg]	introductory use	Mary bought <i>a</i> ball.
Stage 4	<i>a</i> used with [-SR][+count][+sg]	existential use	It's <i>a</i> ball.
	∅ used with [-SR][-count] and		It's ∅ milk.
	[-SR][+count][+pl]		There are ∅ balls.
Stage 5	<i>The</i> , <i>a</i> and ∅ used with [-SR,+HK]	generic use	A Swede is a peaceful person. ∅/ <i>The</i> Swedes are peaceful.

A comparison of Tables 11 and 12 suggest that the proposed stages are not universal and are influenced at least in part by L1 transfer. Arabic learners seem to develop an earlier target-like form-function relationship with *the* since they semantically map *the* onto all of its nongeneric uses before *a* in either type of indefinite NPs. Chinese learners, in contrast, create a form-function relationship between *a* and [-SR] NPs before associating *the* with cultural [+SR, +HK] NPs. The Chinese speakers follow the development path for article usage proposed in Thomas (1989) and for the specific uses of *the* in Liu and Gleason (2002). The Arabic speakers, however, do not follow the predicted path and I suggest that this is due to L1 transfer. The Arabic speakers seem to move from using *the* to mark all [+SR] NPs to distinguishing between [+SR, +HK] NPs and singular [+SR, -HK] NPs. They then have to restructure their mental category of indefinite articles to include using *a* with singular [-SR, -HK] noun phrases. These differences indicate that the stages of article acquisition are not as universal as has been predicted in the literature (Thomas, 1989).

3.2.4 NP developmental progression

The Chinese speakers developed as expected, based on studies that used Chinese, Japanese or Slavic speakers (Butler, 2002; Robertson, 2005; Young, 1996), none of whom have articles in their L1. The Arabic speakers did not; however, there were no studies comparing the acquisition of articles by Arabic speakers with [-art] L1 speakers. The studies have used European languages with multiple articles in their article system rather than a language with only a definite article but not an indefinite article.

Based on the above results, it does seem to confirm that [+art] Arabic speakers are one stage ahead of [-art] Chinese speakers in their use of the definite article and in understanding the concept of count and noncount nouns, both concepts which are present in Arabic. They use more tokens in the initial collection points and steadily improve in their use of *the*, including in cultural definite noun phrases. Also, after the second instructional session they have fewer problems with misusing *the*, especially with proper nouns. However, this study does not confirm Master's (1997) or Zobl's (1983) conclusion that learners with articles in their L1 will be more advanced in their usage of all articles. In fact, the opposite is true here where the Chinese speakers do better with the indefinite article and seem to have a more native-like understanding of how to use it.

3.2.5 Noun countability and indefiniteness

For noun phrases that take indefinite articles, students seem to have the least difficulty with plural count nouns, some difficulty with noncount nouns, and the most with singular count nouns. The Arabic students are less accurate in their use of *a* while the Chinese learners are less accurate in choosing the correct article in noncount indefinite contexts. The difficulty with singular count nouns is explained by the need for the singular indefinite article *a(n)* which is not present in the L1 of either group. Less clear is the reason why the Chinese speakers had more trouble with noncount nouns than plural count nouns, both of which take the zero article.

The Chinese speakers used *the* for the majority of the noncount errors (like when Zhi said, “[*a Chinese*] wedding sometimes have **the music*”) although there was one occasion where *a* was used. Based on this data, it appears that the Chinese speakers are having a greater problem identifying the referentiality of these noun phrases than the countability. If determining the count

status of the NP was the primary cause of these errors, there should be more instances of overuse of *a* due to speakers misjudging the nouns as singular and therefore taking the singular article. However, since the majority of the errors are due to an overuse of *the*, it appears that the Chinese speakers are judging these nouns to be specific rather than nonspecific. These instances include both idiomatic expressions like, “he goes to **the* university” where the particular university is not important or more general instances like, “[a Chinese] wedding sometimes have **the* music.” This is likely due to the speakers having a specific entity in mind when the NP is actually a general one. Butler (2002) found that problems with determining referentiality caused the most problems for Japanese learners with a [-art] L1. Although the learners might consider one factor [±SR] or [±HK], the learners in that study frequently failed to consider both. A similar process may be occurring with the learners in this study as they considered one but not both referentiality factors.

3.3 FORM TO FUNCTION ANALYSIS

3.3.1 How learners’ article interlanguage form-function relationships change over time

By looking at how speakers use and overuse articles, it is possible to understand the article form-function connections they make. The comparative fallacy is avoided since this type of analysis compares the same learners at different stages in their development rather than comparing them with target-language native speaker norms. Taken together, these use and overuse patterns show how learners associate and map these concepts of specificity, hearer’s knowledge and countability onto the articles that they use.

Figures 3 – 8 illustrate the semantic mapping of articles for Chinese and Arabic learners throughout the intensive English program. The light gray shading represents the speakers' representation of when to use *the* and the darker gray, *a(n)*. The unshaded area represents \emptyset in the [+SR, +HK], [+SR, -HK] and [-SR, -HK] quadrants. The [-SR, +HK] quadrant is left unshaded because there are insufficient tokens (only 3 total) to determine learners' associations with this type of noun phrase. Figures 3 – 5 illustrate the Chinese speakers' article form-function relationships before and after instructional sessions, and Figures 6 – 8 do the same for the Arabic speakers.

3.3.2 The developmental path of L1 Chinese learners

The Chinese speakers seem to first associate [+SR] phrases with the definite article. Figure 3 shows the development of *the* before instruction for the Chinese speakers. They used *the* correctly in most types of [+SR, +HK] NPs (all but the cultural type) but overused *the* in [+SR, -HK] NPs. Some speakers also use *the* with proper nouns (i.e., **the Pittsburgh*); of thirteen proper nouns used before instruction, speakers twice used *the* with them, although later correcting one of the tokens. Proper nouns, although they do not fit directly into any of the quadrants of the semantic wheel (Huebner, 1983), are [+SR] by very nature of being a proper noun. Considering these usage patterns of *the*, it seems that Chinese speakers use *the* with specific nouns they are referring to, whether or not those nouns are proper nouns or known by the hearer. In Figure 3, the left side of the circle is shaded to illustrate that speakers use *the* to denote a specific reference, regardless of other possible determining factors of the NP.

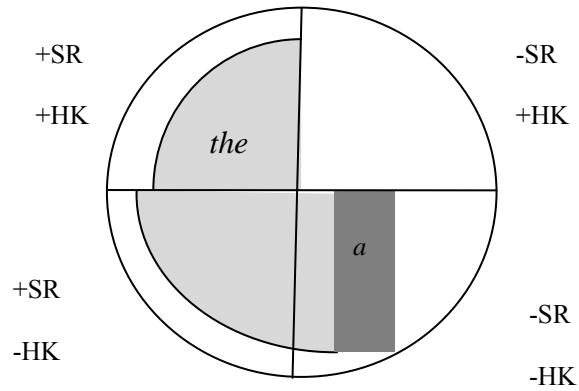


Figure 3. Chinese speakers' semantic mapping of English articles before instruction

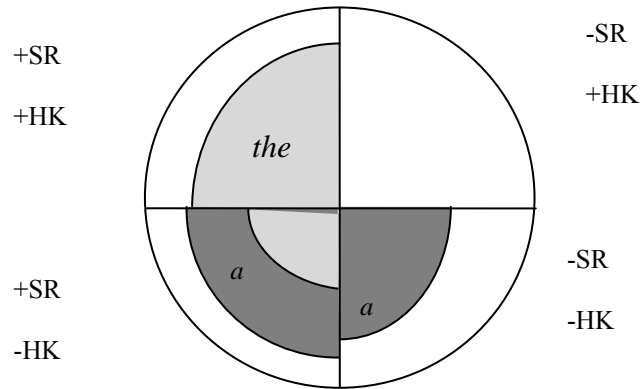


Figure 4. Chinese speakers' semantic mapping of English articles after 1st instructional session

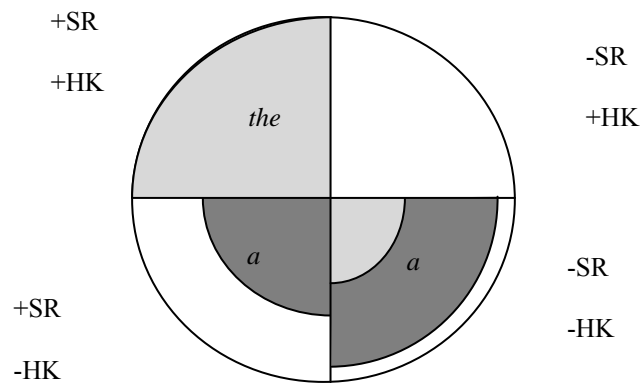


Figure 5. Chinese speakers' semantic mapping of English articles after 2nd instructional session

However, the entire [+SR, +HK] quadrant has not been shaded in since the learners did not always use *the* with [+SR, +HK] NPs, especially the cultural ones. This is likely due to the nature of the cultural noun phrases. The cultural noun phrases include nouns that are unique in all contexts like *the sun* and also proper nouns that require *the* as in *the United States of America*. English native speakers use *the* or \emptyset with these nouns correctly, but the English L2 learner must memorize which nouns take *the* and which take \emptyset . This high level of variability based on the individual NP may cause the learners to acquire this type of [+SR, +HK] NP later than the other types of nongeneric definite NPs, and the results of the SOC use of articles supports this. The Chinese speakers' SOC usage in cultural [+SR, +HK] NPs have an accuracy rate of 71% and are the only cultural type of NPs that were below 80%.

Additionally in Figure 3, part of the [-SR, -HK] quadrant is also shaded since the speakers misjudged the type of noun phrase and thus used the incorrect article. For example, Zhi described how his father would e-mail him magazine articles relevant to his academic studies. He said, "*sometime my dad will send me **the** e-mail and also have some good paragraph.*" In this context an English native speaker would treat the noun *e-mail* as an existential [-SR, -HK][+count, sg] NP that would take *a*. However, through his choice of article, it appears that Zhi is treating those e-mails as specific and thus using *the*. Before instruction there are six instances of *the* overuse in [-SR, -HK] phrases out of 57 total [-SR, -HK] tokens.

Before instruction, Chinese learners primarily use \emptyset to mark indefinite NPs, although some are distinguishing the number of the noun and using *a* to mark singular indefinite NPs. Based on the SOC usage of *a* in singular [-SR, -HK] NPs, these Chinese speakers use *a* around 40% in these NPs. While this percentage is large enough to show that they are mapping *a* onto singular indefinite NPs, they either are not consistently marking NPs for singular or are marking

them as singular but then using the default \emptyset article. As Chinese does not mark the count status of nouns, this may be an additional effect of L1 transfer where the Chinese speakers at an earlier stage did not consider the count status of indefinite NPs and in this before instruction period are just beginning to. However, data from students at a lower proficiency level would be necessary to further support this. It does seem clear that these learners use both *a* and \emptyset to mark indefiniteness, and have begun to use articles to mark the count status of the noun. In Figure 3, the darker color in the [-SR, -HK] quadrant reflects the use of *a* while the unshaded area in both the [-SR, -HK] and [-SR, +HK] quadrants represent \emptyset . The [-SR, +HK] quadrant in all of the following figures will remain blank as there are insufficient tokens (only 3 total) of these generic nouns for an analysis.

Figure 4 presents a graph of the Chinese speakers' form-function relationship with *the* after the first instructional session. Here learners continue to identify *the* with [+SR] noun phrases, although to a lesser degree, and they have stopped using *the* with [-SR, -HK] NPs that they identified as specific. The Chinese speakers continue to use *the* with nine proper nouns (out of 81 total tokens) yet use \emptyset with some cultural NPs that require *the* (9 out of 24). In Figure 4, less of the [+SR, -HK] quadrant is shaded a light gray since learners have a lower percentage of tokens of *the* overuse (6 out of 18 total) than before instruction (3 of 5 total). Based on the average accuracy and overuse of *the* in [+SR, -HK] noun phrases, it seems that the Chinese speakers have begun to change the association between *the* and [+SR] to make it more context-dependent and account for the factor of assumed hearer's knowledge.

The darker shading in Figure 4 represents the Chinese speakers' form-function relationship with *a*. They use *a* more frequently with singular indefinite NPs, both [+SR, -HK] and [-SR, -HK] NPs. In addition, they are more accurate using \emptyset in noncount indefinite NPs.

Taking both their use of *a* with singular nouns and \emptyset with noncount and plural nouns, at this point in their development the learners distinguish the count status of the indefinite noun phrases. This implies that they have matched the form *a* with singular indefinite NPs and the low frequency of *a* overuse tokens seems to agree with this.

Figure 5 shows the Chinese speakers' form-function mapping for the time after the second instructional session (months 10-12). At this time, it appears that the Chinese students no longer associate only the factor of [+SR] with *the*. At these data collection points there are no instances of *the* overuse in [+SR, -HK] phrases. Interestingly, there is a spike in the overuse of *the* in [-SR, -HK] noun phrases. Although they identify the indefinite article form *a* with [+SR, -HK] and most [-SR, -HK] noun phrases, they overused *the* 7 times out of 24 total tokens in nonreferential indefinite phrase, as when Zhi says the most important thing in life is to “*manage *the time.*” The [+SR, +HK] quadrant is shaded in light gray, along with a portion of the [-SR, -HK] quadrant, to represent *the*.

In these RSAs, the Chinese speakers seem to have a near native-like form-function mapping between *a* and singular [-SR, -HK] NPs, using *a* with them 89% of the time. Their use of *a* with singular [+SR, -HK] NPs seems to remain the same, although with only two tokens of *a* here and four total tokens of this type, there is not enough information.

3.4.1 The developmental path of L1 Arabic learners

Figure 6 shows the Arabic speakers' form-function mapping for the English articles with the different types of noun phrases. These students also seem to first associate *the* with [+SR]. There are only three tokens of *a* overuse in [+SR, +HK] noun phrases throughout the study, and Arabic speakers already exhibit a high TLU accuracy with *the* at the beginning of this study. However,

they do overuse *the* in [+SR, -HK] noun phrases. There were only four instances of overuse before instruction, all occurring in [+SR, -HK] NPs. The Arabic speakers never used *the* incorrectly with proper nouns. Taking article overuse into account, it appears Arabic speakers at this level have already begun to associate that there are additional factors to consider than [+SR] when using *the*. However, some overuse occurs, and this is illustrated by the shading in the [+SR, -HK] quadrant. Additionally, they did not use *the* in some [+SR, +HK] cultural and anaphoric NPs where it was obligatory. Thus, the entire [+SR, +HK] quadrant is not shaded. In terms of their form-function mapping of *a*, these Arabic speakers have begun to associate *a* with singular indefinite phrases, although not consistently. They have a 67% SOC usage in [+SR, -HK] NPs (4 out of 6 tokens) and a 46% SOC usage in [-SR, -HK] NPs (6 out of 13 tokens).

Figure 7 portrays the Arabic students' semantic associations after the first instructional session. They continue to overuse *the* in [+SR, -HK] phrases. However, like the Chinese speakers after the second instructional session, these speakers overuse *the* in [-SR, -HK] phrases (25 overuse tokens of 163 total). Like the Chinese speakers, these are phrases that an English native speaker would consider to be referential indefinites but the Arabic-speaking learner used with the definite article. Ali does this when he says, "*the biggest problem facing my country now is *the terrorist attacks.*" For him, it is a specific problem, although it is used in an existential phrase and an English native speaker would be more likely to say, "*the biggest problem facing my country now are terrorist attacks.*" Included in these overuse tokens are also idiomatic phrases that fall into the [-SR, -HK] type like when Ali says, "*in *the life.*" This may also add to the high rate of *the* over-usage in [-SR, -HK] NPs. Figure 6 shows the development for these speakers after the first instructional session. According to their SOC usage and lack of overuse tokens, their conceptual mapping of *a* remains the same.

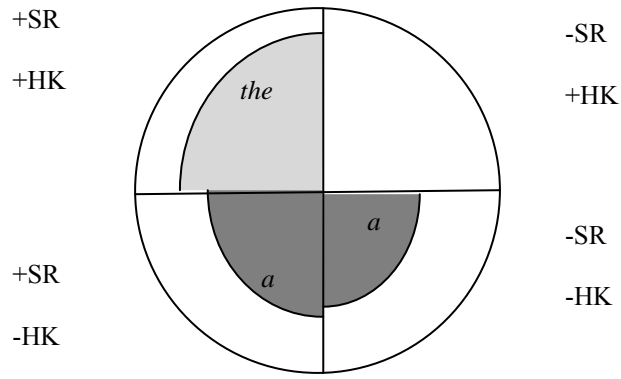


Figure 6. Arabic speakers' semantic mapping of English articles before instruction

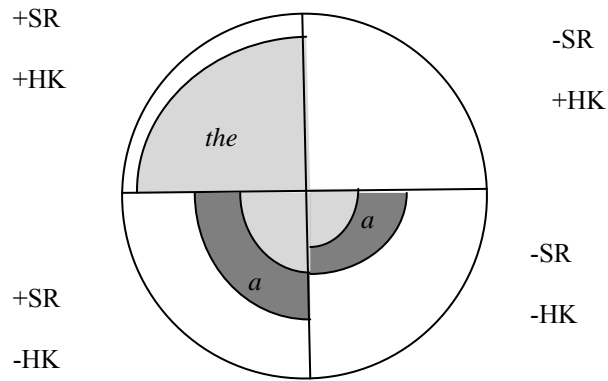


Figure 7. Arabic speakers' semantic mapping of English articles after 1st instructional session

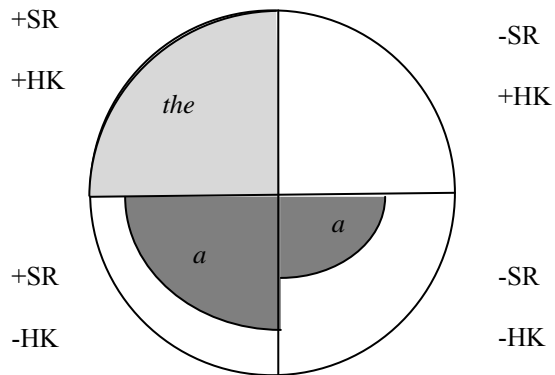


Figure 8. Arabic speakers' semantic mapping of English articles after 2nd instructional session

Figure 8 illustrates the Arabic speakers' form-function mapping of *the* after the second session. Here the speakers seem to have near-native-like associations with when to use *the*. There are only two overuse tokens (of 24 [-SR, -HK] tokens). Also, the speakers have at least an 80% accuracy rate in all types of [+SR, +HK] NPs.

Their use of *a* in [+SR, -HK] NPs improved to 100%, suggesting that they may also have native-like associations with *a* and singular [+SR, -HK] NPs. However, there is not enough data from these RSAs with only three [+SR, -HK] NP tokens during the last two months. Based on their SOC usage, they have a similar semantic association between *a* and [-SR, -HK] NPs as at the beginning of the study. Their SOC accuracy has gone from 46% to 45% to 50%, showing that there is some connection between *a* and singular indefinite phrases, but this is not consistent.

3.4.2 A comparison of Chinese and Arabic learners

Comparing the two groups shows some similar form-function relationships and also some differences. They are similar in that at the beginning of the study both L1 groups overuse *the* in [+SR, -HK] NPs, confirming the previous research (Butler, 2002; Thomas, 1989) that learners first associate *the* with [+SR]. Additionally, they are similar in that after the first instructional period both groups consider the feature [\pm HK] with specific NP contexts and using *a* to mark singular [+SR, -HK] NPs. Also, both groups infrequently overuse *a*, confirming Thomas' (1989) study in that the learners rarely overuse *a*.

Another similarity is that both groups show an overuse of *the* in [-SR, -HK] NPs, although at different times (after the first instructional session for the Arabic speakers and after the second for the Chinese learners). These occur in [-SR, -HK] phrases where the speaker has a specific noun in mind but the discourse context calls for a non-specific noun, as in *I found out*

that **the family is the most important thing*. These results support those of Butler (2002) who found that referentiality (which he used to include both factors, [\pm SR] and [\pm HK]) caused the most problems for speakers when choosing articles.

This overuse of *the* has not been reported in other literature. Huebner (1983), in his longitudinal study of an untutored learner, describes what he calls *the-flooding* where *the* is used for every NP, but this was not observed in this data. In contrast to Huebner's learner, the participants in this study had received formal English instruction before enrolling in the ELI program and were taking intensive English classes over the course of the year. Thus, these learners may have already passed through the *the-flooding* stage Huebner describes in Ge's interlanguage.

The differences between the two L1 groups lie in the rate of overuse of *the* in [+SR, -HK] NPs and the use of *a* in indefinite phrases. First, the Arabic speakers overuse *the* in [+SR, -HK] phrases less than the Chinese speakers before instruction during their level 3 grammar classes. As discussed in section 3.1.2, this seems to be a result of L1 transfer. Secondly, the Arabic speakers appear to consider the feature [\pm HK] before the Chinese speakers do, although the Chinese speakers have a higher TLU and SOC accuracy with *a*. These differences have been theorized to result from L1 transfer of the semantic concepts encoded in English articles.

3.5 PEDAGOGICAL IMPLICATIONS

Having a clearer idea of how learners' article form-function mapping changes over time can improve the article instruction students receive. The acquisition stages were shown to not be as

universal as previously thought which implies that L1 transfer has a role in article use. For more effective instruction, educators should be aware of these differences and how they affect students' use of articles. In particular, students without articles in their L1 make different semantic connections than those with only definite articles in their L1 or both definite and indefinite articles in their L1. Knowing the [\pm art] L1 background of the students will allow the teacher to tailor the instruction to address those specific transfer issues.

The NP types that had a low TLU or a high rate of article overuse would be one concrete area to focus article instruction. For all speakers without an indefinite article in their L1, instruction could focus on using *a* more consistently. By presenting the referentiality features ([\pm SR, \pm HK]) and the two ways *a* is used, learners may be more aware of using *a* in singular [+SR, -HK] and [-SR, -HK] NPs. Looking at the overuse tokens, the Chinese speakers' use of *the* with proper nouns is an area where specific instruction may have a positive effect. Learners self-corrected four of their twelve overuse tokens of proper nouns, suggesting that this is an area where students can benefit from instruction. This overuse was theorized to be a result of first representing all [+SR] NPs with *the*. As part of the instruction in the level 3 grammar class, students' attention could be drawn to the fact that proper nouns -- although inherently [+SR] -- do not take articles, while [+SR, +HK] common nouns must.

Secondly and most importantly, this study supports previous findings (Butler, 2002; Hiki, 1990; Parrish, 1987) that students need to be taught articles in realistic discourse contexts. Simply memorizing a list of rules or noncount nouns is not enough for students to use articles with a target-like accuracy. Instead, learners should be reminded of the role that discourse context plays in determining the [\pm Specific Reference], [\pm Hearer's Knowledge] and [\pm count] features of a noun phrase. Along with teaching students to be aware of discourse contexts,

students also need to be exposed to cultural [+SR, +HK] NPs and idioms (like *go to Ø school*) with fixed articles.

3.6 ANSWERS TO RESEARCH QUESTIONS

This section will synthesize the discussion to answer the research questions that guided this study. The first question asks how the English article system of [+art] and [-art] L1 speakers' developed over time. This study found that L1 transfer seems to affect the acquisition of articles and speakers from a [-art] L1 like Chinese develop differently than those of an L1 with only a definite article like Arabic. The form-function relationships of Chinese and Arabic speakers were presented. These show the Arabic speakers having a more target-like representation of *the* before the Chinese speakers, but the Chinese speakers having a more target-like representation of *a* before the Arabic speakers. Based on the stages of article acquisition presented in Tables 11 and 12, it appears that the Chinese learners follow the predicted order of acquisition (Butler, 2002; Thomas, 1989) while the Arabic students do not since they use *a* more accurately with [+SR, -HK] NPs than with [-SR, -HK] NPs. To summarize, overall the Chinese learners move from using *the* with all [+SR] phrases and \emptyset with [-SR] phrases to then distinguishing between count [-SR, -HK] NPs by using *a* for singular [-SR, -HK] NPs to then distinguishing for [\pm HK] in the [+SR, -HK] NPs. The Arabic speakers move from using *the* to mark all [+SR] NPs, to using *a* to mark for hearer's knowledge in [+SR, -HK] NPs to also using *a* to mark [-SR, -HK] NPs.

The second research question asks at what point learners begin to consider noun countability when choosing which article to use with a noun phrase. As discussed above, the Chinese students were less accurate using \emptyset with noncount noun phrases, but the Arabic

speakers did not use *a* with singular count phrases as accurately as the Chinese speakers. In Tables 11 and 12, both groups are hypothesized to distinguish the count status of a noun in stage 4.

The third research question asks at what point learners begin to consider the feature [\pm HK] when they choose an article. The Chinese and Arabic learners seem to do this at different rates. This question is best answered by looking at the [+SR, -HK] NPs since they are specific but take an indefinite article. The Arabic speakers seem to consider [\pm HK] earlier than the Chinese students since they are more accurate in their use of *a* with singular [+SR, -HK] NPs. This is theorized to be a result of transferring the L1 concept that specific NPs take articles. Thus Table 12 predicts that Arabic learners will factor hearer's knowledge into their article choice in stage 3 while Table 11 predicts Chinese speakers do so in stage 5.

The last research question asks which type of noun phrase is the hardest. Although both groups do not follow the same order in how they use articles with types of noun phrases, they were similar in that both rarely used [-SR, +HK] NPs. Because of this, this generic type of NP can be said to be the most difficult and this was also supported in other studies (Huebner, 1983; Master, 1987; Parrish, 1987; Thomas, 1989) that used free production data.

4.0 CONCLUSION

In this section, I will summarize the key findings, discuss the limitations of using production data, and then consider areas for future research in L2 acquisition of the article system in English.

4.1.1 Summary

This study finds there are differences between the Chinese and Arabic L1 groups in their article usage as they progressed through the intensive English language program. The Chinese speakers with no definite article in their L1 overused *the* with proper nouns and I suggest it is a result of associating *the* with all [+SR] phrases. The Arabic students, with an L1 concept of a definite article had a higher level of non-target-like usage with *the*, but did not use *a* as accurately as the Chinese speakers. This has been hypothesized to be because the Arabic speakers need to change their mental category of indefinite noun phrases to include *a(n)* along with \emptyset .

Based on the findings in this study, it seems that the stages of article acquisition are not as universal as previously thought. Thomas (1989) found that learners progress through the stages in a similar way. However, this study shows the Arabic and Chinese speakers using articles differently. While the Chinese speakers follow Thomas' (1989) stages, the Arabic learners seem to acquire *the* in [+SR, -HK] phrases before [-SR, -HK] phrases as predicted,

although more data is necessary. L1 transfer was hypothesized to cause this difference since Arabic has a definite article but not an indefinite article. Finally, the development of article form-function relationships was presented using the concept of a semantic wheel.

This study is significant for three main reasons: first, it confirms previous research that ESL learners use articles systematically; secondly, it proposes that learners from different L1s acquire articles differently; thirdly, it maps out the different form-function relationships between the articles and types of noun phrases. First, this study confirms that while learners may not use articles with target-like accuracy, they do use them systematically (Butler, 2002; Hiki, 1990; Master, 1997; Parrish, 1987; Thomas, 1989) and this systematic use is based on the countability and type of noun phrase. In other words, learners acquire articles based on the noun phrase they occur in, and these NPs are not acquired at the same time, confirming similar findings by Butler (2002), Liu and Gleason (2002) and Robertson (2000).

Secondly, this study adds to the field by proposing stages in article acquisition that reflect L1 differences. Thomas' (1989) study confirmed that the stages Cziko (1986) proposed for L1 acquisition are similar to L2 learning, although L2 English learners do not tend to overuse *a*. The results of this study, however, find that L1 differences affect learners' form-function relationships and the stages are not as universal as previous literature suggests (Chaudron & Parker, 1991; Thomas, 1989). I suggest that these differences result from learners' transferring their L1 concept of articles onto their concept of the English article system. Zobl (1982) suggests that the presence of a similar structure in the L1 affects the L2 acquisition of that structure, but this study goes further by proposing stages which learners progress through based on their L1.

Finally, this study is significant in that it traces the learners' form-function mapping of articles onto Huebner's (1983) semantic wheel. While longitudinal studies of articles since

Huebner (1983) have used this concept to trace learners' article acquisition (Ekiert, 2007; Parrish, 1987; Thomas, 1989), no other study has mapped learners' use of the various subtypes of noun phrases onto the semantic wheel. By doing so, this study presents a more precise view of the interlanguage use of English articles.

4.1.2 Limitations of production data

Using only data produced by learners limits the study in that it allows the learners to control the noun phrases and articles they use. Speakers were able to avoid articles by using quantifiers or modifiers. For example, in his second RSA Aziz describes a scary experience he had and in two minutes of talking uses only five articles by using possessive pronouns to modify the rest of the nouns. Using production data especially limits what can be known of the students' concept of generic nouns. Because generic nouns are infrequent in the input and in the students' usage in the RSAs, it is unclear of the form-function relationships students have with that type of NP. Including data from tasks that directly tests learners' knowledge, such as a cloze activity, or an acceptability judgment test would provide a clearer picture of how students use (or do not use) articles with generic nouns. Also, since whether a task is oral or written has been shown to be a factor in previous studies (Hiki, 1991; Tarone, 1985; Tarone & Parrish, 1988), including a cloze task would provide a different aspect of learners' semantic mapping of articles.

4.1.3 Further research

The findings in this study suggest two primary areas for future research in L2 English article acquisition: longer longitudinal studies that follow learners from their early exposure to English

articles to a high proficiency level and further studies that compare article acquisition from different L1 backgrounds. The first area involves longer longitudinal studies. This study followed speakers for one year of their enrollment in an intensive English language program in the U.S. However, the participants had already had some exposure to English and English articles when they entered the program at the low intermediate level. No longitudinal study on English articles has begun with a learner with no or minimal exposure to English and then followed that learner until he or she reached a very advanced level. Previous longitudinal studies on English articles have used either low-proficiency learners (Huebner, 1983; Parrish, 1987), intermediate learners (Ekiert, 2007) or very advanced learners (Master, 1995) and followed them for a semester, or at most a year. However, as seen with the Arabic speakers' use of *a* in this study, a year may not be long enough for the learners' form-function relationships to change significantly. Longer studies would provide more information about learners' interlanguage representation of articles and a more comprehensive theoretical understanding of the form-function connections that learners make.

Additionally, based on the results of this study that L1 differences affect how learners move through the stages of article acquisition, further studies comparing speakers from different L1s are needed. Previously it was thought that learners move through the stages at different rates (Master, 1997; Zobl, 1982) but follow the same acquisition order (Thomas, 1989). The participants in Zobl's (1982) and Thomas' (1989) study had first languages with either no articles (Japanese, Chinese, Korean and Finnish) or both a definite and indefinite article (Greek, Spanish, Italian, French and German). This study suggests that the learners' L1 affects the order of the stages; specifically that Arabic speakers with only an indefinite article in their L1 do not follow Thomas' (1989) proposed stages. Additional studies comparing speakers from different

L1 backgrounds would provide more information about the order of these stages for these L1s. Including longitudinal data from speakers of an L1 like Spanish with both definite and indefinite articles and also an L1 like Turkish which marks specificity but not definiteness would provide a more comprehensive picture of how L2 learners overall make form to function relationships and a better understanding of the language-specific role of L1 transfer with articles. In the discussion, I suggested that the Arabic speakers do not follow the proposed universal stages because their L1 has only the definite article. Further research comparing L1s without articles, with only a definite article and with both definite and indefinite articles could confirm this.

APPENDIX A

ARTICLE INSTRUCTION MATERIALS USED IN GRAMMAR CLASSES

This appendix contains a summary of the material that students were presented with as part of their grammar classes in the ELI curriculum. The ELI grammar classes use Pearson Longman's *Focus on Grammar* series. Nouns and articles are presented in the level 3 class in units 21-22 of *Focus on Grammar 3* and in the level 5 class in units 7-8 of *Focus on Grammar 5*.

A.1 FOCUS ON GRAMMAR 3

In Unit 21 students are presented with the distinction between proper and common nouns. Common nouns are then divided into count and non-count nouns. Count nouns are explained as, “people, places, or things that you can count separately” and noncount nouns as “things that you cannot count separately” (Fuchs, Bonner & Westheimer, 2006, p. 242). Appendix 7 presents a list of noncount nouns under the categories: activities, food, ideas and feelings, liquids and gases, materials, school subjects, very small things and weather (p. A-4 – A-5).

Unit 22 discusses articles and explains that *the* is the definite article and *a/an*, no article or *some* can be used with indefinite noun phrases. Indefinite articles can be used to identify or to

make general statements. *Focus on Grammar 3* explains that *the* should be used with a unique noun, when the context clearly determines the noun, the noun is mentioned for the second time, or a phrase or adjective like *first, right, or only* identifies the noun (p. 252).

A.2 FOCUS ON GRAMMAR 5

Focus on Grammar 5 begins by presenting students with count and non-count nouns in unit 7. It includes examples of nouns that can have both count and non-count meanings (like *hair* in *There's a **hair** in my soup!* and *Sandra has black **hair***). Non-count nouns are also presented in uncountable use (*I'd like some **coffee***) and countable use (*Please bring us two **coffees***) (Maurer, 2006, p. 116). A list of noncount nouns is presented under the categories: abstractions, activities, diseases, foods, gases, liquids, natural phenomena, occupations, particles, solid elements, subjects and others (p. 118).

Unit 8 discusses the use of the definite and indefinite articles. It explains, “use the indefinite article, *a/an*, with non-specific singular count nouns” and “use zero article with non-specific plural count nouns, non-specific non-count nouns, names of people, names of most countries, and habitual locations” (p. 131). The definite article is presented as the article to use “when the speaker and listener both know which particular person, place, or thing is being talked about” and with unique nouns (p. 132). Finally, some specific uses of *the* are addressed: with public places (*the bank*), with many geographical regions or features (*the Atlantic Ocean*), with certain countries' names (*the United Kingdom*) and with ships' names (*the Titanic*) (p. 132).

The concept of generic nouns is also introduced using both definite and indefinite articles. The indefinite article uses are addressed first:

A noun is **generic** when it represents all members of a class or category of persons, places, or things. In other words, generic nouns talk about things in general. Three common ways to use nouns generically are:

- a. zero article + plural count noun
- b. indefinite article + count noun
- c. zero article + count noun (p. 131)

After that information, the book presents information about the definite article, including its use in generic noun phrases with both singular and plural nouns.

APPENDIX B

NOUN PHRASE CODING SYSTEM

This appendix will detail the coding method used in the study. First there is an excerpt from an RSA with sample coding. Then the coding key follows, first for the type of noun phrase then the subtypes of *the* and *a*.

B.1 RSA EXCERPT

From Mohammad's RSA activity on February 2, 2006 (data collection point 1)

- I want to talk about the [+SR,+HK][+count, sg] [struct] <the=the> education system in [+SR,+HK][-count][cult] <Ø- the>USA...
- ...to to to get [-SR,-HK][+count, sg][intro] <Ø-a>lower cost for [-SR,-HK][-count] <Ø=Ø> education for the [+SR,+HK][+count, sg][struct] <the=the>resident there.

Student RSA Correction:

I said 'USA' I should said "in the USA"

Correction Coded:

[+SR,+HK][-count][cult]<the=the>

B.1.1 Coding Key

Article type:

[-SR,+HK]: generic nouns

[-SR,-HK]: nonreferential nouns

[+SR,-HK]: referential indefinites

[+SR, +HK]: referential definite

[± count]: applies to all nouns

[sg], [pl]: singular or plural number only applies to [+count] nouns

B.1.2 Article usage subtypes (sub)

Types of definite article usage [+SR, +HK]: (Hawkins, 1978; Liu & Gleason, 2002):

Cultural use (cult): *the* is used with a noun that is a unique and well-known referent in a speech community (larger situation use relying on general knowledge) *He went to **the** beach.*

Situation use (sit): *the* is used when the referent of a first-mention noun can be sensed directly or indirectly by the interlocuters or the referent is known in a local community (visible situation use, immediate situation use, larger situation use relying on specific knowledge) *He looked at **the** fireplace in the living room.*

Structural use (struct): *the* is used with a first-mention noun that has a modifier (unfamiliar use in noun phrases with explanatory modifiers,

unfamiliar use in noun phrases with nonexplanatory modifiers)

***The** milk that he drank.*

Anaphoric use (ana): *the* is used with a noun that has been previously referred to *He*

*bought milk. **The** milk tastes good.*

Associative use (assoc): *the* is used with a first-mention noun that is entailed by or

associated with a previously-mentioned noun *He got in his car & started **the** engine.*

Types of *a* article use in indefinite noun phrases (Robertson, 2000):

Existential use (**exist**): *a* (sg) or \emptyset (noncount, pl) in NPs where the existence of the NP is asserted in an existential predication

Introductory use (**intro**): *a* (sg) or \emptyset (noncount, pl) when an object is introduced for the first time

(Only *a* will be coded for existential or introductory use since it is impossible for the researcher to determine if \emptyset was used consciously or an article was omitted. All articles will be coded for [\pm SR], [\pm HK] and [\pm count] but only *the* and *a* will be coded at the subtype level.)

B.1.3 Article usage

<>: these brackets denote which article was used and which article should have been used

<the=the> : means that *the* was used and was used correctly

< \emptyset -the>: means that \emptyset was used but *the* should have been used

Note: The coded data will exclude idiomatic phrases and instances where it is impossible for the researcher to distinguish between an article and a hesitation marker or filler. Other questionable article instances will be coded or excluded on a case-by-case basis as the research proceeds.

APPENDIX C

EACH LEARNER'S ARTICLE ACCURACY OVER TIME

The graphs in Appendix C present the TLU accuracy of the three articles over the course of the program. The vertical lines mark the first day each of the two instructional sessions began. The first session occurred approximately two months after the program began, after two data collection points. The second session was approximately eight months after the program began, between the ninth and tenth activities. Note that some data collection points occurred on the same day (activities 3 and 4, activities 7 and 8, and activities 11 and 12), with the second activity being the re-recorded version.

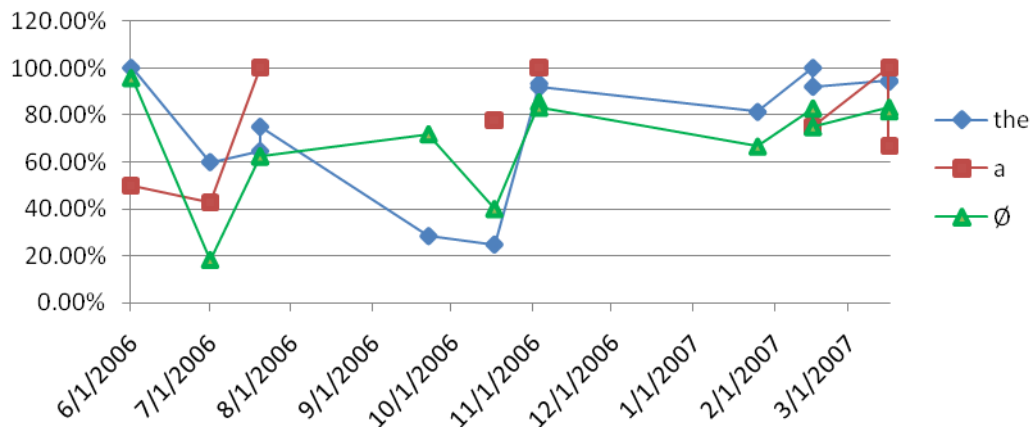


Figure 9. Ali's TLU over time

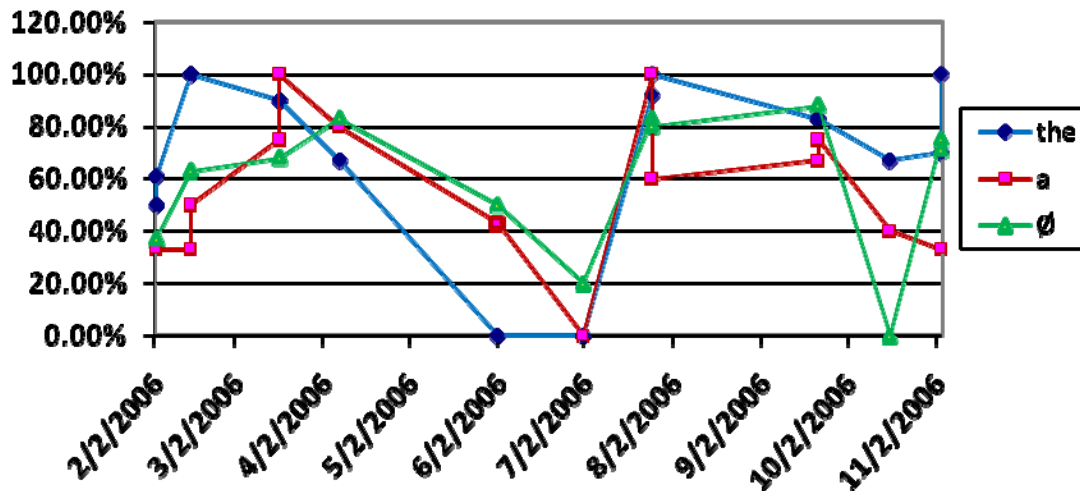


Figure 10. Mohammad's TLU over time

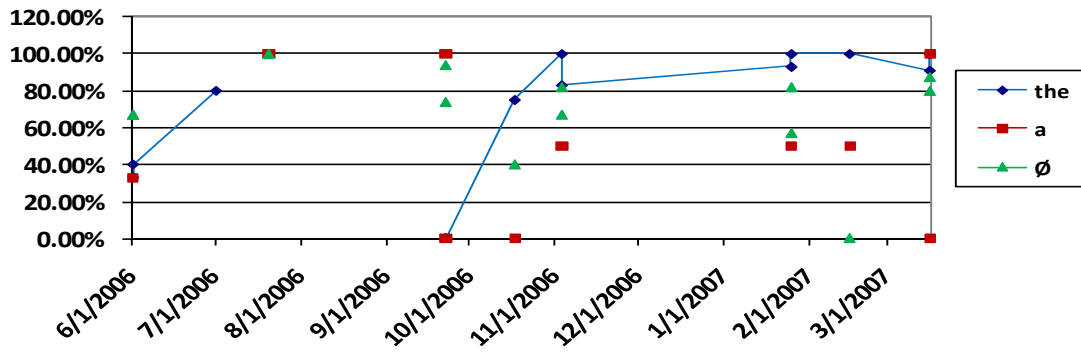


Figure 11. Aziz' TLU over time

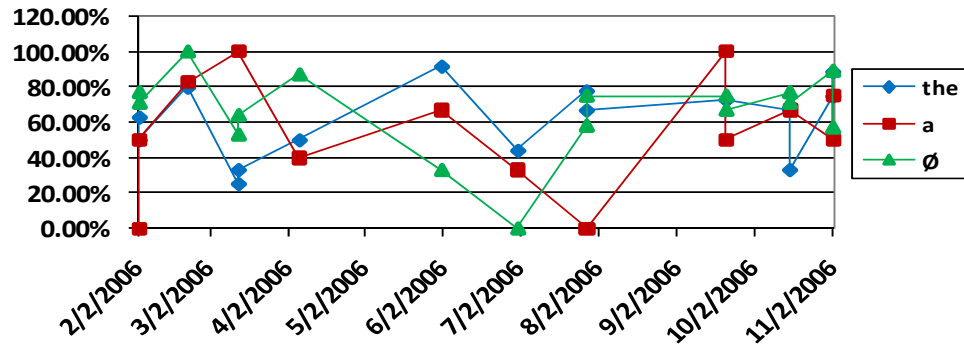


Figure 12. Lili's TLU over time

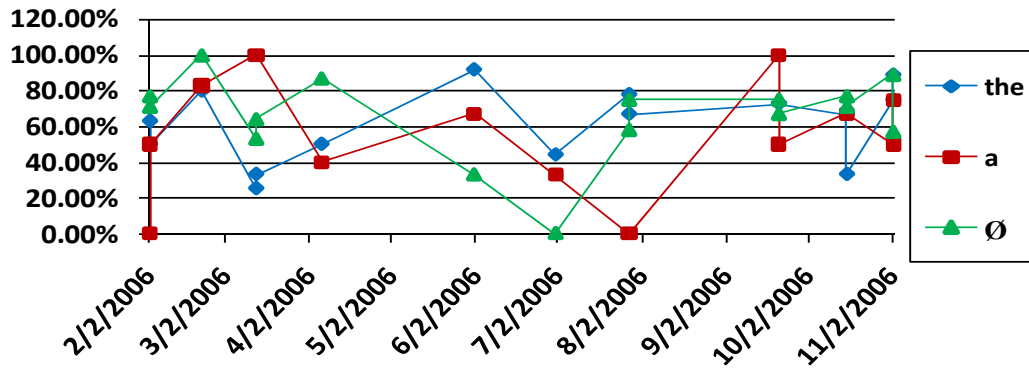


Figure 13. Wen's TLU over time

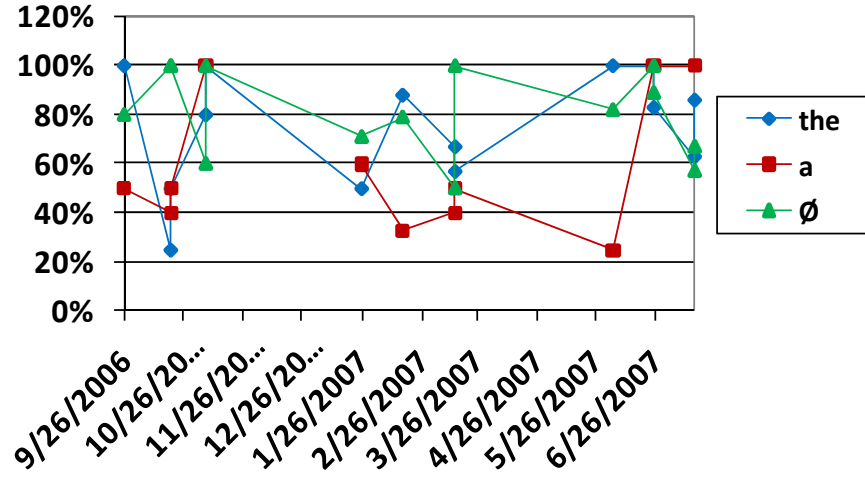


Figure 14. Zhi's TLU over time

APPENDIX D

TYPE OF RSA TASK BY LEARNER

This appendix presents the information about each RSA task type the learners did. The first column lists the RSA number by level and then by activity number. Thus, RSA 3.1 is the first RSA done in level 3. The **S** version is the first speech and the **R** version is the re-recorded speech. The topic column lists the topic of the each RSA activity followed by the type of task. The term *description* was used when the learner primarily described the person, situation or event. There was no story or narrative here; rather the learner attempted to portray his or her picture of the topic at hand. The term *narrative* was used when the learner recounted a story that happened to himself or someone else he knew or knew about. The final column has the percentage of the overall TLU. This is the average TLU of all three articles, multiplied by 100. While the TLU of each article could vary significantly within any given RSA, this figure provides an approximate idea of the learner's TLU at each data collection point.

Table 13. Task type and overall TLU for [-art] L1 speaker Zhi

RSA	Topic	Task type	Overall TLU %
3.1	Pets	Description	77%
3.2	An important person	Description	67%
3.3S	A problem in home country	Description	80%
3.3R	A problem in home country	Description	100%
4.1	Shopping for food	Description	60%
4.2	Something you used to do but can't do in the US	Description	52%
4.3S	A custom in home country	Description	69%
4.3R	A custom in home country	Description	69%
5.1	Hometown	Description	100%
5.2	Describe an experience in your first school	Narrative	73%
5.3S	The most important thing in life	Narrative	73%
5.3R	The most important thing in life	Narrative	84%

Table 14. Task type and overall TLU for [-art] L1 speaker Wen

RSA	Topic	Task type	Overall TLU %
3.1	Pets	Description	69%
3.2	An important person	Description	48%
3.3S	A problem in home country	Description	74%
3.3R	A problem in home country	Description	86%
4.1	Shopping for food	Description	60%
4.2	Something you used to do but can't do in the US	Description	92%
4.3S	A custom in home country	Description	100%
4.3R	A custom in home country	Description	100%
5.1	Hometown	Description	68%
5.2	an experience in your first school	Narrative	100%
5.3S	The most important things in life	Description	66%
5.3R	The most important things in life	Description	65%

Table 15. Task type and overall TLU for [-art] L1 speaker Lili

RSA	Topic	Task type	Overall TLU %
3.1	Badminton	Description	57%
3.2	Vacation destination	Description	88%
3.3	A news item in home country	Description	66%
3.4	Hometown	Description	59%
4.1	Nephew	Narrative	64%
4.2	Scary experience	Narrative	26%
4.3S	Favorite holiday	Description	45%
4.3R	Favorite holiday	Description	47%
5.1	Pets	Description	83%
5.2	An important person	Description	70%
5.3S	A problem in home country	Description	71%
5.3R	A problem in home country	Description	74%

Table 16. Task type and overall TLU for [+art] L1 speaker Mohammad

RSA	Topic	Task type	Overall TLU %
3.1	US education system	Description	44%
3.2	Best age in life	Description	71%
3.3	A news item in home country	Description	86%
3.4	Places travelled	Description	77%
4.1	Pets	Description	31%
4.2	Funny experience	Narrative	7%
4.3S	Holidays in home country	Description	92%
4.3R	Holidays in home country	Description	80%
5.1	Pets	Description	82%
5.2	An important person	Description	36%
5.3S	A problem in home country	Description	59%
5.3R	A problem in home country	Description	68%

Table 17. Task type and overall TLU for [+art] L1 speaker Ali

RSA	Topic	Task type	Overall TLU %
3.1	Hometown	Description	82%
3.2	Experience after graduation	Narrative	41%
3.3	Holidays in home country	Description	76%
3.4	Holidays in home country	Description	79%
4.1	Pets	Description	50%
4.2	An important person	Description	48%
4.3S	A problem in home country	Description	90%
4.3R	A problem in home country	Description	92%
5.1	Shopping for food	Description	74%
5.2	Something you used to do but can't do in the US	Description	86%
5.3S	A custom in home country	Description	93%
5.3R	A custom in home country	Description	81%

Table 18. Task type and overall TLU for [+art] L1 speaker Aziz

RSA	Topic	Task type	Overall TLU %
3.1	Hometown	Description	47%
3.2	Scary experience	Narrative	80%
3.3	Holidays in home country	Narrative	100%
3.4	Holidays in home country	Narrative	100%
4.1	Pets	Description	65%
4.2	Important person	Description	38%
4.3S	A problem in home country	Description	77%
4.3R	A problem in home country	Description	67%
5.1	Shopping for food	Description	77%
5.2	Something you used to do but can't do in the US	Description	50%
5.3S	A custom in home country	Description	93%
5.3R	A custom in home country	Description	60%

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