Exploring the Variability of the Preposition *"In"* in Written Communication

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ABSTRACT

Complex Dynamic Systems Theory (CDST) has been applied to the study of second language acquisition to possibly account for the nonlinear development and variability found within second language development. Characteristics of a dynamic system that make it compatible with examining the developmental trajectory of second language acquisition include the presence of subsystems, variability, and the dependence on internal cognitive and external social and environmental resources (De Bot, Lowie, & Verspoor, 2007; Van Geert, 2008). Using a CDST perspective, this study looked at the use of the preposition *in* within the written communication of a native speaker of English and a non-native speaker. Three methods of data analysis-target-like use analysis, form-function analysis, and metaphor analysis-were employed to track how the use and function of the preposition *in* varied over time. Results indicate that an individual's literal and conceptual engagement with and production of a language develops over time in a non-linear manner.

INTRODUCTION

Originating from Physics and Mathematics, Complex Dynamic Systems Theory (CDST) has been applied to the study of second language acquisition to possibly account for the non-linear development and variability found within second language development. CDST is a general approach to describing changes in language development over time. Characteristics of a dynamic system that make it compatible with examining the developmental trajectory of second language acquisition include the presence of subsystems, variability, and the dependence on internal cognitive and external social and environmental resources (De Bot, Lowie, & Verspoor, 2007; Van Geert, 2008).

Using a CDST perspective, this paper examines the written communication between two college students. This paper specifically focuses on each participant's use of the preposition *in*. Using three different methods of data analysis to examine the interaction between the participants, this study aims to explore the following research questions:

1. To what extent does the use of the preposition *in* vary over time?
2. What is the role of the preposition *in* in metaphoric expressions? To what extent does the conceptual use of the preposition *in* vary over time?

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This paper will begin with a brief review of studies that have used CDST to measure complexity, accuracy, and fluency. The paper will then discuss the three different methods of analysis. Results of the data analysis will be presented, followed by a discussion of what those results reveal about CDST and language development.

REVIEW OF THE LITERATURE

CDST researchers have examined learner progress in second language development, and described how internal cognitive resources interact with external resources to produce changes in language development over time. Various studies have focused on language development in terms of complexity, accuracy, and fluency. Spoelman and Verspoor's (2010) research looked at the interaction between accuracy and complexity in an absolute beginner of Finnish, with Dutch L1. Accuracy was measured to the extent to which the language the learner produced conformed with native speaker norms. Complexity was measured as morphemes per word, words per noun phrase, and the difference between the average sentence length in morphemes and the average sentence length in words. The study found that accuracy fluctuated early in the study, but then seemed to settle down. The relationship between accuracy and complexity also changed over time. Results showed that early in the study, accuracy and complexity seemed to be in competition. However, as the study progressed, the relationship between accuracy and complexity appeared to be less competitive. The greatest degree of variability happened at the earlier stages of acquisition with degrees of stabilization occurring as the learner's proficiency increased.

Polat and Kim's (2014) also looked at accuracy and complexity in an untutored Turkish learner of English. Through a series of unstructured oral interviews conducted over a year, the researchers sought to explore the relationship between accuracy, syntactic complexity, lexical diversity. The study revealed that development occurred in lexical diversity with considerable variability, some development occurred in syntactic complexity, but accuracy showed no development, although it showed the most variability. Results revealed that the participant's interlanguage was highly variable.

Larsen-Freeman (2006) examined complexity, accuracy and fluency development in five Chinese-speaking learners of English. After analyzing various measures of complexity, accuracy, and fluency, such as type-token ratio, the proportion of error-free T-units to T-units, and the average number of words per T-unit, results revealed a great degree of intra-learner and inter-learner variability. Learners experienced progression and regression in their IL development. Although all the learners made improvements in their language use, each learner appeared to follow a unique developmental pattern. This non-linear developmental pattern was attributed to participants allocating their attentional resources to different aspects of language production at different times.

When looking at language development in terms of complexity, accuracy and fluency, studies measuring global accuracy and complexity may not achieve a fine-grained view on the interlanguage development of different linguistic forms. Thus, this study will look at the development of one particular linguistic item, the preposition *in*. Research on prepositions has analyzed their meaning from a monosemy, polysemy, or homonymy perspective (Lakoff & Johnson, 1980; Tyler & Evans, 2003; Mueller, 2011). From a monosemy perspective, linguistic items have one highly schematice meaning which is evident in all usages of the word. In contrast,

from a polysemic and homonymic perspective, linguistics items allow for the possibility that linguistic items may have multiple meanings. Polysemy assumes linguistic items have multiple related meanings whereas homonymy assumes linguistic items have multiple unrelated meanings. Due to the relative rarity of homonymy in the English language, there are far greater instances of polysemy of linguistic items than homonymy (Tyler & Evans, 2003).

The acquisition of prepositions in English may be challenging for English language learners due to the relationship between a linguistic item and its meaning; one preposition may have many meanings and these meanings need to be understood, on a literal as well conceptual level. For example, in the sentences "I am standing *by* the bus stop, and "I will be at your house *by* 6pm," *by* functions as a preposition, but it conveys a different meaning in each sentence. *By* in the first sentence indicates a location, whereas *by* in the second sentences refers to a period of time. However, in the sentence "the bus flew *by* the stop," *by* functions as an adverb, describing the manner in which the bus traveled (very quickly). Thus, in order to effectively use English prepositions, meaning must be gauged literally as well as conceptually, and as Lindstromberg (2010) states geometrically and functionally. Thus, the conceptual difficulty of preposition may cause high levels of variability and non-linear development indicating repeller states, or development.

METHOD

Data and Participants

The data comprised email correspondence between Belinda, a Chinese L1 speaker and L2 English language learner, and Michelle, a Spanish/English bilingual speaker. The interaction between Belinda and Michelle occurred as part of intercultural class project in which participants were paired with someone from a different culture. Belinda and Michelle wrote to each other over a period of nine weeks. Michelle wrote a total of 13 emails and Belinda wrote 11 emails. The content of their emails spanned a variety of topics including movies, city life, food, and national holidays/celebrations.

Methods of Analysis

Target-Like Use (TLU) Analysis

To measure accuracy, a target-like use (TLU) analysis was used. The purpose of a TLU analysis (Pica, 1984) is to examine a learner's correct use, underuse, and overuse of a particular linguistic item. The linguistic focus of this study is the preposition *in.* A preposition is a word placed before a noun or pronoun to show the relationship between that noun or pronoun and other nouns and verbs in the same sentence. Using the formula suggested by Pica (1984), TLU was calculated for Belinda and Michelle's usage of the preposition *in*. Obligatory occasions for all instances of *in* usage were first identified in the data. These occasions were then coded for correct suppliance, over suppliance, and no suppliance. Following Pica's formula, the total number of correct suppliances was divided by the sum of obligatory contexts and suppliance of non-obligatory contexts. In addition to the preposition *in*, a target-like use analysis was also conducted for the prepositions *on* and *at* for *Belinda. In, on,* and *at* were looked at terms of their overall accuracy because they are prepositions that have similar meanings in terms of place and time.

Functional Analysis

As the subject of inquiry for this study is the variability in use of the preposition *in,* conducting a functional analysis would best highlight the changes in the use of *in* over time. A functional analysis looks at how one form may be utilized to express multiple meanings and how one meaning may be realized through multiple forms. The former is termed form-function analysis*,* with its starting point being a specific linguistic form and the latter, function-form analysis*,* begins with a particular function. This study used a form-function approach to track the accuracy and variability of *in* usage over time. All instances of correct suppliance and over suppliance of the preposition *in* were analyzed in terms of their function and meaning. Meaning was determined by looking at the context in which *in* was used.

Metaphor Analysis

A metaphor analysis was conducted to investigate whether the literal representation of a particular linguistic form and the conceptual representation of that form exist as two different subsystems within a learner's IL. A metaphor analysis would also allow for the changes in the variability of how *in* is expressed through figurative language, to be examined over time. In the context of metaphors, most researchers distinguish linguistic metaphors from conceptual metaphors. A linguistic metaphor is the actual metaphorical expression produced by the learner and conceptual metaphors are the ideas, notions, and beliefs that are expressed via the linguistic metaphor (Ellis & Barkhuizen, 2005; Littlemore & Low, 2006). Conducting a metaphor analysis involves collecting linguistic metaphors used to talk about a topic and analyzing them to see what conceptual metaphors arise.

In order to correctly determine metaphoric use in this study, a definition of what a metaphor is needed to be established. As Ellis and Barkhuizen (2005) state, a metaphor is a comparison between two dissimilar notions where one notion is to be understood in terms of the other notion. Successful use and comprehension of metaphors is the ability to understand one entity in terms of another, potentially, unrelated entity (Littlemore, Krennmayr, Truner, & Turner, 2014). This study used Lakoff and Johnson's (1980) definition of metaphor as "experiencing one concept in terms of another."

A metaphor is an example of figurative language. Other forms of figurative language include collocations, phrasal verbs, and idioms. A collocation is a set of words that typically go together, for example "fast food." People would not say "quick food" as "fast food" is the lexical expression people typically associate with that type of food. A phrasal verb is a combination of a verb and one or more prepositions, and possibly other words. A key feature of a phrasal verb is that the whole combination of words should function as one lexical unit that has its own meaning. Like phrasal verbs, idioms are expressions that cannot be understood from the meaning of the separate words; the meaning arises when the words are used together. What metaphors, collocations, phrasal verbs, and idioms have in common is that their literal meaning may be different from their intended meaning. As such, there may be overlap amongst the different forms of figurative language. An idiom, for example may be metaphoric if it presents a comparison between two seemingly unrelated entities. This study looked at all examples of figurative language, focusing specifically on expressions that were metaphoric in nature and that contained the preposition *in.*

There are several challenges associated with conducting a metaphor analysis. The biggest challenge involves defining and identifying all instances of metaphoric use. This difficulty is reflected in the idea of literalization, whereby our unconscious and frequent use of metaphors may have impacted our ability to recognize metaphors (Ellis & Barkhuizen, 2005). Another concern regarding metaphor analysis is the high level of subjectivity involved in coding and identifying metaphoric language. As metaphor analysis relies on the judgment of the researcher in determining and coding instances of metaphoric language, this study used a second rater to identify and evaluate the examples of metaphoric language. The second rater was a native speaker of English and an avid reader. Prior to the data coding session, there was a discussion regarding the nature of figurative language and the different ways it can be instantiated through language (i.e. phrasal verbs, idioms). The researcher and the second rater independently coded the data for all instances of figurative language, with a special focus on identifying metaphoric language that used the preposition *in.* Then they met to discuss their findings. In cases where there was disagreement regarding metaphoric examples, an extended discussion took place until there was consensus. Discrepancies in coding typically occurred as a result of literalization or from an over analysis of the example of figurative language.

RESULTS

Target-Like Use (TLU) Analysis

A TLU analysis was conducted to examine the extent to which the use of the preposition *in* varied over time. Tables 1 and 2 show Belinda's use of the prepositions *in*, *on* and *at.*

TABLE 1
TLU analysis of Belinda's preposition (in, at, on) usage by email

Email	IN				AT				ON			
Date	OC	CS	OS	**%**	OC	CS	OS	**%**	OC	CS	OS	**%**
3/2	*1	1	1	50	1	0	0	0	1	0	0	0
	2	1	1	33								
3/4	5	4	0	80		"at" not used				"on" not used		
3/9	1	1	2	33	2	0	0	0		"on" not used		
3/16	2	2	0	100		"at" not used				"on" not used		
										"on" not used		
3/21	3	3	0	100		"at" not used						
3/25	*2	2	3	40		"at" not used			2	0	0	0
	3	3	2	60								
3/30	3	3	0	100	1	1	0	100		"on" not used		
4/2	*3	3	1	75	1	1	1	100	1	0	0	0
	4	4	0	100								
4/4	1	1	0	100	1	1	0	100	1	1	0	100
4/9	*3	1	0	33								
	2	2	1	67		"at" not used				"on" not used		
4/18	3	3	0	100		"at" not used				"on" not used		

OC = obligatory context CS = correct suppliance OS = oversuppliance
*Belinda's production

TABLE 2
Belinda's global accuracy for preposition (in, at, on) usage

Preposition	OC	CS	OS	%
In	27	24	7	70.5
In	28	26	7	74
At	6	3	1	43
On	5	1	0	20

OC = obligatory context CS = correct suppliance OS = oversuppliance

Over 11 emails, Belinda used *in* 32 times. This number included all correct uses of *in*, as well as incorrect uses, i.e. over suppliance of the preposition. Belinda used *in* correctly 27 times. She over used *in* 6 times and did not use *in* in an obligatory context twice. There were four instances where *in* was over used in a non-obligatory context instead of *at* or *on*. Thus, Belinda's use of the prepositions *in*, *at*, and *on* was examined because they are prepositions that convey similar meanings of time and place. The examples of improper *at* and *on* usage occurred within the same email. In email 3/9, Belinda wrote "It won 0 awards *in* the Academy Awards" and "for us to share *in* the cinema." In both cases, *at* should have been used instead of *in* because *at* makes reference to a specific location. In email 3/25, Belinda wrote "it's different from what I had seen i*n* TV before" and "sitting *in* the beach watching sunset." *On* should have been used instead of *in* in both instances. Belinda's global accuracy for *at* and *on* usage was low, 43% and 20% respectively. She didn't use *on* that often; rather, she opted to use *in* instead.

Two different accuracy percentages were calculated for Belinda. Table 1 indicates Belinda's accuracy percentage by email while Table 2 presents her overall accuracy. 70.5% and 74% where recorded as Belinda's global accuracy percentage for her TLU for the preposition *in.* There were four instances where Belinda's use of *in* could be coded as over use or incorrect suppliance in context. These examples include email 3/2 where Belinda wrote "nice to work with you *in* this semester" and email 3/25 where she wrote, "seems to be a comfortable place and to live *in* there." In both examples *in* is not needed; in fact, the statements would have sounded more native-like had it been omitted.

The statements "each year we would all get together *in* the Spring Festival" found in email 4/2 and "Many games I played *in* my childhood" in email 4/9, also illustrate how coding may affect the outcome of the analysis. While the use of *in* in these two sentences is not grammatically incorrect because it conveys the correct form-meaning relationship, the usage may not appear to be target-like to some. For "*in* the spring" and "*in* my childhood," *in* could possibly be replaced with another preposition, *during*. *In* indicates a discreet time, while *during* indicates a continuum within a time period such as spring or childhood. Both *in* and *during* are correct, but during sounds more "native-like" given the context in which it was used. So, if the four examples of *in* usage had been coded as overuse or incorrect suppliance in context, Belinda would have achieved 70.5% global accuracy in her acquisition of *in*. If they were considered correct or obligatory in context, then she would have achieved 74% in global accuracy for her acquisition of *in*.

Unlike Belinda, the result from Michelle's TLU analysis found in Table 3, indicate that she has fully acquired and mastered the ability to use the prepositions *in*, *at*, and *on*.

TABLE 3
TLU analysis of Michelle's preposition (in, at, on) usage by email

Email	IN				AT				ON			
Date	OC	CS	OS	**%**	OC	CS	OS	**%**	OC	CS	OS	**%**
3/1	4	4	0	100		"at" not used				"on" not used		
3/3	3	3	0	100		"at" not used			1	1	0	100
3/6	6	6	0	100	1	1	0	100	1	1	0	100
3/13	4	4	0	100		"at" not used			1	1	0	100
3/17	2	2	0	100		"at" not used				"on" not used		
3/24	4	4	0	100		"at" not used				"on" not used		
3/28	3	3	0	100		"at" not used				"on" not used		
3/30	10	10	0	100	1	1	0	100	5	5	0	100
4/2	9	9	0	100		"at" not used			3	3	0	100
4/6	3	3	0	100	1	1	0	100	3	3	0	100
4/13	1	1	0	100		"at" not used				"on" not used		
4/19		"in" not used			1	1	0	100	4	4	0	100
4/28	1	1	0	100		"at" not used				"on" not used		

OC = obligatory context CS = correct suppliance OS = oversuppliance

Michelle is a native speaker of English, so it is hardly surprising that she is able to use the prepositions *in*, *at*, and *on* with greater mastery than an English language learner. The quantity of *in* usage was also much higher than Belinda's. Michelle used *in* a total of 50 times. The highest number of in usage happened in the email 3/30. The content of the email was a description of the various festivals that occur in Michelle's hometown, a place she refers to as "the Valley," and in Mexico. As the description pertains festivities and celebrations that are unique to a particular location, the majority of the times *in* was used was as a preposition of place, for example "In Mexico…," "Here in the Valley…," and "in my town." In addition to the difference in quantity of *in* usage, Michelle's use of *in* and the various functions of its usage, also differs from Belinda. This difference will be discussed the following section.

Functional Analysis

Unlike TLU analysis which focuses on the form of a particular linguistic item, functional analysis focuses on the relationship between form and function. Specifically, form-function analysis investigates the ways in which a single form is used to accomplish different functions and express different meanings. The results of the form-function analysis of *in* usage by both Belinda and Michelle are presented in Tables 4 and 5.

TABLE 4
Form-function analysis: Belinda "in" usage

Email Date	Form	Function		Meaning		Total # of Instances
3/2	In	Preposition	Semantic	Specificity of	Place	1
					Time	1
3/4	In	Preposition	Semantic	Specificity of	Place	1
					Time	1
					Manner	2
3/9	In	Preposition	Semantic	Specificity of	Place	2
3/16	In	Preposition	Semantic	Specificity of	Place	1
					Time	1
3/21	In	Preposition	Semantic	Specificity of	Place	3
3/25	In	Preposition	Semantic	Specificity of	Place	5
3/30	In	Preposition	Semantic	Specificity of	Place	3
4/2	In	Preposition	Semantic	Specificity of	Place	2
					Time	1
					Manner	1
4/4	In	Preposition	Semantic	Specificity of	Place	1
4/9	In	Preposition	Semantic	Specificity of	Place	1
					Time	2
4/18	In	Specificity of	Semantic	Specificity of	Place	1
					Time	1
					Manner	1

Belinda used *in* at least once in every email. She used *in* as a preposition in all her language production to show specificity of time, place, or manner (i.e. in summer, in China, in English). Belinda was very consistent with her usage of *in* as a preposition. However, Michelle's *in* usage varied. In addition to using *in* as a preposition, Michelle used *in* as an adverb (*as in the amount of work*, and *into my vocabulary, with cheese inside*) and in conjunction with a relative pronoun (*in which families*) in a phenomenon known as prepositional stranding.

TABLE 5
Form-function analysis: Michelle "in" usage

Email Date	Form	Function		Meaning		Total # of Instances
3/1	In	Preposition	Semantic	Specificity of	Place	3
					Time	1
3/3	In	Preposition	Semantic	Specificity of	Manner	3
3/6	In	Preposition	Semantic	Specificity of	Place	1
					Manner	2
		Adverb	Semantic	Specificity of	Manner	3
3/13	In	Preposition	Semantic	Specificity of	Place	2
					Manner	1
		Adverb	Semantic	Specificity of	Manner	1
3/17	In	Preposition	Semantic	Specificity of	Place	2
3/24	In	Preposition	Semantic	Specificity of	Place	2
					Manner	1
		Adverb	Semantic	Specificity of	Manner	1
3/28	In	Preposition	Semantic	Specificity of	Place	1
					Time	2
3/30	In	Preposition	Semantic	Specificity of	Place	6
		Adverb	Semantic	Specificity of	Manner	2
		Prepositional Stranding	Semantic	Specificity of	Manner	2
4/2	In	Preposition	Semantic	Specificity of	Place	6
					Time	1
					Manner	1
		Adverb	Semantic	Specificity of	Manner	1
4/6	In	Preposition	Semantic	Specificity of	Place	2
					Manner	1
4/13	In	Preposition	Semantic	Specificity of	Manner	1
4/28	In	Preposition	Semantic	Specificity of	Manner	1

Metaphor Analysis

The second research question involves the role of the preposition *in* in metaphoric expressions, and extent to which the conceptual use of *in* varies over time. Using Lakoff and Johnson's (1980) definition of metaphor as "experiencing one concept in terms of another," Although, Michelle and Belinda's emails were examined for all instances of metaphoric use, special attention was given to examples of metaphors that used the preposition *in.* Table 6 shows the metaphors produced by Belinda.

TABLE 6
Metaphors produced by Belinda

Email #	Email Date	Metaphor
4	3/16	*To catch a disease in the spring*
5	3/21	*Bitter experience of opening a career in a foreign country*
6	3/25	*In foreigners' eyes*
9	4/4	To the foot of the hill

Belinda produced a total of 4 metaphoric expressions; 3 of those expressions contained the preposition *in*. In these three metaphors, *in* was used as a preposition to specify time and place, which remains consistent with the results from the TLU analysis and from the form-function analysis. Through metaphor analysis the linguistic form, *in*, was examined to see how it expressed a conceptual meaning. The first metaphor that contained *in* "It's easy to catch some disease *in* spring," appeared in email 4. Although "to catch (a cold)" is an idiomatic expression, it is also metaphoric in nature. The topic of the metaphor Belinda uses, illness, is a common conceptual metaphor. Illness is represented as something that we are vulnerable to and that we have to fight and protect ourselves against. The metaphoric expressions, "to guard against germs, wash your hands for 30 seconds" or "She's fighting a cold*"* illustrate this. Additionally, illness is something that can hold us, but it can also release us. *To catch a disease* implies we can hold something (a cold or some other disease) in our hands, but we can also have the ability to let it go (engage in recovery). At the end of the metaphor, *in* is used to specify time, namely a specific season. Belinda produced the metaphor "It's easy to catch some disease *in* spring," in response to an email from Michelle in which she tells Belinda that she had been sick the previous week. Thus, interaction with Michelle prompted the use of this particular metaphoric expression.

The second metaphor that used *in* appeared in email 5. In the metaphor, "bitter experience of opening his career *in* a foreign country" *in* functions as a preposition of place. The metaphor linked two unlike entities, a physical experience with a sensory one. Belinda compared a musician's experience of physically going to a new country to start a career, with a taste and a particular flavor. The metaphor indicated that the experience for this particular musician was not very good. The use of this metaphor makes sense within the context of Belinda's email. In the email, with the subject line "music" she described her favorite musicians and artists. When writing about the artist mentioned in the metaphor, Belinda wrote, "His name is Han Geng, a Chinese, former member of Super Junior, a handsome excellent dancer as well as a singer. Many people, including me, love him because of his bitter experience of opening a career in a foreign country while sticking to his principals and virtues." It is clear from this description Belinda really likes this artist; he is attractive, talented, and noble. To mirror the sensory imagery, presenting Han Geng as a "sweet" man and using the word "bitter" to describe his experience creates a stark contrast and is effective within the context of the email.

The third metaphor that used the preposition *in* was in email 6. In the metaphor, "they behavior represents China *in* foreigners' eyes," *in* expresses specificity of place. "*In* foreigners' eyes" specifies a particular and literal place the eyes; however, that place also has a metaphoric meaning. The literal eyes are connected to the conceptual metaphor that eyes are mirrors or some sort of lens through which we gain perspective. Eyes are a medium through which we see ourselves, how we see others, and how others see us. They provide a reflection of who we are and who others are. The "eyes as mirrors" metaphor is a viable interpretation of Belinda's metaphor given the context in which it is used. In the email, Belinda wrote, "In china, it is very easy to find a job for foreigners, especially native English-speakers. people are friendly and

generous to foreigners, probably because they think it is hard for a person to live abroad or they behavior represents China in foreigners' eyes." Here Belinda is discussing two groups of people, foreigners and Chinese people, and using their "eyes" become the way in which these two groups of people "see" each other, both literally and figuratively. And what they see determines their perceptions of each other and may influence how they interact with one another.

Belinda produced one metaphor that did not use *in,* but used the preposition *at.* She correctly used *at* in the metaphor to mark time. This metaphor appeared in email 9, where Belinda described a trip she and her friends made to Mount Lao. She wrote, "we came to the foot of the hill at 7:30am." This is an example of a personification metaphor where human characteristics or attributes are given to something non-human (Littlemore, et. al, 2014). In this case, a hill has been given a foot. Feet appear at the end of the human body. Through this metaphor, Belinda communicated to Michelle specific details about her trip to the mountain regarding time and place. In addition to the metaphor, Belinda's description of her visit to Mount Lao included other forms of figurative language including the phrasal verb "march on," the collocation "high spirits," and the idiom "we will conquer" in reference to climbing the mountain.

In addition to the three metaphors, *in* was used in other forms of figurative language. *In* was used in the phrasal verbs "engaged in" and "lies in." It was also used in the phrase "in memory of." In all instances of use, *in* was used to specify time, place, or manner. Over 9 emails, Belinda used figurative language in the form of phrasal verbs, idioms, collocations, and formulaic expressions or phrases, a total of 26 times. There were two emails in which Belinda did not produce any figurative language. This occurred in emails 2 and 10. These emails were written towards the beginning and towards the end of their correspondence.

Michelle used figurative language a total of 57 times in the 13 emails she wrote to Belinda. Unlike Belinda, Michelle used figurative language in all of her emails. The number of times figurative language was used varied per email; usage ranged from 2-13 times per email. The figurative language Michelle used included phrasal verbs, idioms, collocations, and metaphors. The results of Michelle's metaphor production are presented in Table 7.

TABLE 7
Metaphors produced by Michelle

Email #	Email Date	Metaphor
3	3/6	*I just got caught up in some school stuff*
		A long way to go
4	3/13	*I got so caught up in it*
6	3/24	Spanish words go flying
		Into my vocabulary
		Fell in love
9	2/4	Green with envy
		Green-eyed monster
		Their face was a red as an apple
		You seem blue
10	4/6	Keep a straight face
12	4/19	I actually burned myself out

Michelle produced a total of 12 metaphoric expressions; 4 of those expressions used the preposition *in.* In all 4 instances *in* is used to show specificity of location. The metaphors that appear in emails 3 and 4, use the same idiom "caught up in." This idiom means that a person is

deeply involved in a particular activity. Michelle uses this idiom in her earlier interactions with Belinda to communicate what she does in her daily life and how committed she is to those activities. In email 6, "fell *in* love," is a type of metaphor that Lakhoff and Johnson (1980) refer to as *states are containers.* Love is not an actual container; it is a metaphoric space. The *states as container* category may be used to explain "*Into* my vocabulary." Although vocabulary is not a state, it is a metaphoric "container" within a person's overall language knowledge.

Michelle produced the largest number of metaphoric expressions in email 9. The reason for this increase can be attributed to a request from Belinda. On 2/4/2011, Belinda wrote, "Yes, I have questions for the use of color word, like use 'green' to show one is jealous. I always mix up this kind of words. Can you teach me how to use them?" Michelle responded to Belinda by not only explaining the symbolism of colors in English, but by providing metaphoric expressions that exemplify that symbolism. Michelle wrote, "Blue is usually linked to sadness and depression. So when people say, "you seem blue," they are really saying, "you look sad or down." Here, Michelle makes the connection between the linguistic metaphor "you seem blue," and its conceptual meaning "sadness and despair" explicit for Belinda. She explicitly connected linguistic and conceptual metaphors again when she wrote, "Another color would be red, which can have two meanings. One use can be "their face was as red as an apple," usually referring to embarrassment." In this instance, the linguistic expression "their face was a red as an apple" is directly linked to its conceptual meaning "embarrassment or shame." The metaphoric expression used in this example is a simile. Like a metaphor, a simile is also used to make a comparison between two seemingly unrelated entities. However, in a simile that comparison is made explicit with the use of the words "like" or "as." With a metaphor that comparison is rather more indirect.

In addition to email 9, there was another email where Michelle provided Belinda with an explanation of a metaphor. In email 12 Michelle wrote to Belinda about her week. In her description, she wrote, "Plus work is so tiring and I actually burned myself out for a while there. Burned, meaning I did so much that I got very tired, not that I was on fire, lol." Here, Michelle explains the difference between the literal meaning and the intended meaning. This fire imagery also appeared in email 9 where Michelle explained the symbolism of different colors. She wrote, "But also because fire is associated with the color red, when people get hot-tempered, heat and red go together." As indicated in email 9, Michelle's need to explain the meaning of certain words and expressions may stem from her belief that English is a difficult language; sometimes what is literally written or said, may not be what is necessarily meant. In email 9, she wrote to Belinda, "English is tricky like that, with many symbols and ambiguous words that can even get us confused. LOL."

DISCUSSION AND CONCLUSION

Using CDST as a framework, this study sought to examine how Michelle, a bilingual English/Spanish speaker, and Belinda, an English L2 learner, use the preposition *in* both literally as well as conceptually. The data were explored through TLU analysis, form-function analysis, and metaphor analysis.

The purpose of conducting a TLU analysis is to determine which morpheme, or in the case of this study a particular linguistic item, learners have acquired. If a learner achieves a 90% accuracy rate, that morpheme is considered acquired. Thus, based on the results from Belinda's overall TLU analysis, it appears that Belinda has not acquired the prepositions *in*, *at*, and *on* at this point in her language development. If Belinda's acquisition of these prepositions is viewed

from a perspective where accuracy of form means acquisition, then the various ways in which Belinda demonstrates her knowledge of form, meaning, and use may remain unaccounted for. However, with its focus on looking at particular linguistics forms, using a TLU analysis may be helpful in studying IL development. Belinda's use of the preposition *in* fluctuates across her emails. In some emails her accuracy rate is 33% and in other emails it's 100%, thus revealing a non-linear development of language. From a CDST perspective, L2 development is characterized by periods of progress and backsliding which is evident in Belinda's language production.

Although the accuracy of Belinda's preposition use fluctuates, the ways in which she uses *in* to convey meaning does not. The results from the form-function analysis indicate that there was not much variability in Belinda's use of *in* as she is consistent in her use of this preposition and its function- to convey information about specific time, place, or manner. This low variability, called an attractor state, may indicate that the preposition *in* is a stable system within Belinda's interlanguage (De Bot et al., 2007; Verspoor et at., 2011). Therefore, her failure to use *in* as an adverb, adjective, or prepositional stranding may indicate that she primarily associates *in* as a preposition to convey information about place, time, and manner. Perhaps, Belinda's systematic use of *in* as a preposition to show specificity of place, time, and manner could be related to transfer for training. ESL textbooks, regardless of level introduce and review prepositions with their form and meaning as they relate to time, place, and manner. And even though dictionaries list the many uses of prepositions, they very rarely explain how the uses are semantically related (Lindstromberg, 2010).

Belinda uses *in* to express time, manner and place; however, this does not mean that *in* is the only preposition she uses to express time, place, and manner. She expresses time, place, and manner by using other prepositions. In email 3/30 she wrote "In Qingdo, cold days are *from* December to February of the next year" and "we will have a 3-day-holiday *from* April 2 to 5." In email 3/2 she writes, "I will be 21 *by* August this year," not "I will be 21 *in* August*."* The different preposition *by* vs. *in* changes the meaning of Belinda's statement and each preposition conveys different information. If Belinda had written "I will in 21 *in* August*,*" she would be communicating the exact month of her birthday. However, in telling Michelle that "I will be 21 *by* August" in an email dated in March, Belinda tells Michelle there are several possible months in which she could be turning 21. These months include April, May, June, July, and August. She is also telling Michelle the months in which she will definitely not be turning 21, September, October, November, or December. These examples show that Belinda is able to express time and place with prepositions other than *in* and *at.* Although, *in*, *by*, and *from* do express time, they convey different meanings, which Belinda seems to be aware of based on her usage.

Like *in*, *at* can also be used to express time and place, and that may be why Belinda's success in using *at* is not that high. There are, however, other prepositions that Belinda uses instead of *at* to express place. In email 2/2, Belinda could have used *at*, instead she wrote "Families get together sitting *around* a table." In this example, two different prepositions, *at* and *around,* can be used to describe place without a change in meaning. The fact that Belinda is able to use different prepositions to convey similar meanings might indicate that through her interaction with Michelle, she has undergone a redistribution and restructuring of particular linguistic forms, namely prepositions that show specificity of time, place, and manner.

Belinda's L1 is Chinese, a language that does not differentiate between the meanings of *in, at,* and *on.* In the instances of suppliance in non-obligatory occasions and non-suppliance in obligatory contexts, errors with *in* usage often involved *at* or *on* i.e. sitting *in* the beach and watching *in* the TV. This could perhaps indicate that *in*, *at*, *on* exists as subsystems within

Belinda's IL that interact with one another. Also, Belinda's L1 Chinese and her L2 are two different systems that interact and impact her IL development.

This study also looked at Michelle and Belinda's metaphoric expressions. The second research question considered how their linguistic use of *in* might influence their conceptual understanding and production of a particular topic. This relationship might contribute to what Littlemore and Low (2006) refer to as metaphoric competence which can be defined as the knowledge of and the ability to use metaphor. Belinda was able to produce metaphors rather well. She produced three metaphors that used *in* and the relationship between the linguistic metaphor and the conceptual one was made more evident through the use of *in*. Thus, a preposition that is inside a figurative expression does not lose its literal meaning. Belinda's understanding of *in's* linguistic meaning and of its conceptual one interact as two systems that contribute to her overall language development. The metaphoric expressions produced by Belinda did not present any oddities in configuration or construction, due to the relationship between the linguistic metaphor and the conceptual metaphor. The metaphors she produced were appropriate and were contextually sound.

There was one instance where Belinda used figurative language, that correctly conveyed its meaning, but linguistically did not include an appropriate word choice. In email 3/25 Belinda writes "It is still funny to remember how excited I was when I first saw a blond here, for it was *an alive one* different from what I had seen in TV before." The questionable word choice here in "an alive one." What Belinda means is that she saw this person in real life, face-to-face. This example speaks to what is referred to as conceptual fluency (Littlemore & Low, 2006; Danesi, 2008). Conceptual fluency means knowing how language encodes abstract concepts, and being to express that abstract concept through language. Thus, conceptually fluency and linguistic ability are connected (Danesi, 2008). This example might suggest that Belinda's conceptual fluency and her linguistic fluency exists as two interconnected subsystems.

Michelle produced more metaphoric expressions and used more examples of figurative language than Belinda. This is not surprising given that an increase in the use of L2 metaphoric language can be equated with overall higher language proficiency (Littlemore, et. al., 2014). The expressions Michelle used were linguistically and conceptually accurate. She produced the largest number of metaphors in response to Belinda's request for help understanding color symbolism in English. The context of the interaction prompted the production of metaphors. However, Belinda did not reciprocate and tell Michelle the meanings of different colors in Chinese culture. This was a missed opportunity for Belinda. As metaphor is universal and culturally specific, it would have been interesting to see the relationship between the conceptual metaphor and the linguistic expression Belinda would have used to express to it.

By examining the interaction between a native speaker of English and Belinda, an English language learner, this paper looked at how each participant used the preposition *in*. Prepositional systems may vary across languages and this cross-linguistic diversity increases as we move from the literal meaning of prepositions into the conceptual, and perhaps the metaphoric, meanings of prepositions (Littlemore, 2010). Examining the intersection of the linguistic meaning of prepositions as well as their conceptual and metaphoric meaning, is compatible when looking at language development within a CDST framework. A system is defined as a set of interacting variables. Belinda's L1 and L2 as well as her linguistic and conceptual knowledge and development in both languages could be viewed as systems comprised of different variables (De Bot, 2008). Additionally, her ability to use a variety of prepositions to indicate time, manner and place reveals the interconnectedness of different

subsystems. Belinda's use of the preposition *in,* both for its literal and conceptual meaning, might indicate that she has acquired this particular linguistic form. She is able to use the form to convey layered meanings of topics that extend beyond the literal meaning of the topic. Although there are instances when Belinda does not use *in* or uses it incorrectly, this does not hinder her ability to engage in meaningful interaction with Michelle where she is able to demonstrate what she knows-both linguistically and conceptually.

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