Communication Strategies of English Learners
with Different Language Proficiency
and Hemispheric Dominance

Wilaiwan Ka-J

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Thesis   Communication Strategies of English Learners with Different Language Proficiency and Hemispheric Dominance

Author   Mrs. Wilaiwan Ka-J

Major program Teaching English as an International Language

_____

Major Advisor   **Examining Committee:**

....Chairperson

(Assoc. Prof. Dr. Adisa Teo)   (Dr. Pittayatorn Kaewkong)

....Committee

(Assoc. Prof. Dr. Thanyapa Palanukulwong)

....Committee

(Assoc. Prof. Dr. Adisa Teo)

        The Graduate School, Prince of Songkla University, has approved this thesis as partial fulfillment of the requirements for the Master of Arts Degree in Teaching English as an International Language.

....

(Assoc. Prof. Dr. Teerapol Srichana)

Dean of Graduate School

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…..................................... Signature

(Assoc. Prof. Dr. Adisa Teo)

Major Advisor

.... Signature

(Mrs. Wilaiwan Ka-J)

Candidate

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....Signature

(Mrs. Wilaiwan Ka-J)

Candidate

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บทคัดย่อ

การวิจัยเชิงคุณภาพและปริมาณในครั้งนี้มีวัตถุประสงค์เพื่อศึกษากลวิธีการสื่อสารใน
การเล่าเรื่องประกอบภาพของผู้เรียนภาษาอังกฤษที่มีความสามารถทางภาษาและสมองซีกควบคุม
ต่างกัน รวมถึงความแตกต่างในการใช้กลวิธีการสื่อสารของกลุ่มตัวอย่าง และความสัมพันธ์ของการใช้
กลวิธีการสื่อสารกับความสามารถทางภาษาและสมองซีกควบคุม กลุ่มตัวอย่างเป็นนักศึกษาระดับ
ปริญญาตรี สาขาวิชาภาษาอังกฤษ (หลักสูตรนานาชาติ) จากมหาวิทยาลัยเอกชนแห่งหนึ่งในภาคใต้
ของประเทศไทย ซึ่งกำลังศึกษาในปีการศึกษา 2558 จำนวน 100 คน เครื่องมือที่ใช้ในการศึกษามี 5
รายการ ประกอบด้วย แบบวัดระดับความสามารถทางภาษา แบบวัดซีกสมอง ภาพชุดประกอบการ
เล่าเรื่อง แบบแสดงความคิดเห็นย้อนกลับ และการสัมภาษณ์กึ่งโครงสร้างโดยใช้วิดีโอประกอบ
วิเคราะห์กลวิธีการสื่อสารตามกรอบแนวคิดของ Dornyei และ Scott (1997) โดยใช้สถิติเชิง
พรรณนา Mann-Whitney U Test และค่าสหสัมพันธ์ของเพียร์สัน

ผลการศึกษาพบว่า ผู้เรียนที่มีความสามารถทางภาษาต่ำใช้กลวิธีทำให้สำเร็จ กลวิธี
ทางตรง และกลวิธีทางอ้อม บ่อยกว่าผู้เรียนที่มีความสามารถทางภาษาสูงซึ่งใช้กลวิธีหลีกเลี่ยงสูงกว่า
ผู้เรียนที่มีความสามารถทางภาษาต่างกันทั้งสองกลุ่มนี้ใช้กลวิธีการใช้ภาษาท่าทางแทนคำพูดแตกต่าง
กันอย่างมีนัยสำคัญทางสถิติ (p = .03) เมื่อศึกษากลวิธีการสื่อสารในกลุ่มผู้เรียนที่มีสมองซีกควบคุม
แตกต่างกัน พบว่า ผู้เรียนสมองซีกกลางและผู้เรียนสมองซีกซ้ายใช้กลวิธีทำให้สำเร็จ กลวิธีทางตรง
และกลวิธีทางอ้อม สูงกว่าผู้เรียนสมองซีกขวา ซึ่งเป็นกลุ่มที่ใช้กลวิธีการหลีกเลี่ยงสูงกว่าสองกลุ่มแรก
กลุ่มผู้เรียนที่มีสมองซีกควบคุมต่างกันทั้งสามกลุ่มใช้กลวิธีการตัดทอนถ้อยความ (p = 0.04) และ
กลวิธีการเติมคำหน่วงเวลา (p = 0.05) แตกต่างกันอย่างมีนัยสำคัญทางสถิติ กลุ่มผู้เรียนที่มีสมองซีก
ควบคุมและความสามารถทางภาษาต่างกันทั้ง 6 กลุ่ม ใช้กลวิธีการตัดทอนถ้อยความ แตกต่างกัน
อย่างมีนัยสำคัญทางสถิติ (p = 0.04) สมองซีกซ้ายและสมองซีกขวาผนวกกับความสามารถทางภาษา
ทั้งระดับต่ำและระดับสูงแสดงความสัมพันธ์เชิงลบกับการใช้กลวิธีหลีกเลี่ยง กลวิธีทำให้สำเร็จ และ
กลวิธีทางอ้อม อย่างมีนัยสำคัญทางสถิติที่ 0.05

คำสำคัญ: กลวิธีการสื่อสาร สองซีกควบคุม ความสามารถทางภาษา

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ABSTRACT

This qualitative and quantitative study aimed to identify communication strategies applied in an oral narrative task by English learners with different language proficiency and hemispheric dominance; to investigate their different use; and to explore relationships among their English proficiency, hemispheric dominance and communication strategy use. The participants included 100 English major undergraduates in an international program at a private university in Southern Thailand. The instruments covered the Quick Placement Test (QPT), the Brain Dominance Inventory (BDI), a narrative task material, retrospective comments, and semi-structured video-stimulated recall interviews. Data analysis was based on Dornyei and Scott's (1997) communication strategy taxonomy. Descriptive statistics were applied together with Mann-Whitney U Test and Pearson's correlation.

The findings indicated that achievement, direct and indirect strategies were more applied by the low proficient learners than the highly proficient ones who were the greater users of avoidance strategies. Significantly different communication strategy use between the two proficiency groups was discovered at mime strategy ($p = .03$). Among the three groups of different hemispheric dominance, it was found that achievement, direct and indirect strategies were more frequently used by the whole-brained and the left-brained learners than their right-brained counterparts who were the most frequently users of avoidance strategies. Message reduction ($p = 0.04$) and use of fillers ($p = 0.05$) strategies were applied differently among the users with different brain patterns. Message reduction was used significantly differently ($p = 0.04$) among the six groups of learners with different hemispheric dominance and proficiency. Negative correlations ($p = 0.05$) were discovered among left and right hemispheric dominance with different proficiency in application of avoidance, achievement and indirect strategies.

Keywords: Communication Strategies, Hemispheric Dominance, Language Proficiency

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Reprint of Letter of Acceptance

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Language Institute
Thammasat University
Prachan Road
Bangkok 10200

September 29, 2016

Dear Wilaiwan Ka-J and Associate Professor Dr. Adisa Teo

As regards your submission of the research paper entitled ***Communication Strategy Use in an Oral Narrative Task among English Learners with Different Hemispheric Brain Dominance*** to our peer-reviewed LEARN (Language Education and Acquisition Research Network) journal, currently indexed in Tier 1 of Thai-Journal Citation Index (TCI), we are pleased to inform you that your paper, upon our rigorous reviewing process, has been accepted to be published in LEARN Journal, Volume 9 Issue 2, which is expected to be available in December 2016.

We are really appreciative of your academic contribution to our journal and hope that we will in the future receive other insightful manuscripts from you.

Yours sincerely,

Assistant Professor Dr. Supakorn Phoocharoensil
Editor-in-Chief of LEARN Journal
Language Institute, Thammasat University
Bangkok, Thailand

1.   Introduction

1.1   Rationale

Communication strategies (CS) are systematic techniques used by language learners when faced with difficulties during their communication. The aim of learners' use of communication strategies is for achieving specific communication goals (Færch & Kasper, 1983). In other words, poor linguistic competence possibly leads to communicative failure. Accordingly, learners seek for strategies to bridge the gap between their linguistic competence and communicative competence. Individuals' communication strategies vary according to their different factors. Fluency and hemispheric brain patterns are also included in those factors. Many studies reported that learners with different language proficiency showed different communication strategy use (Chen, 1990; Chuanchaisit & Prapphal, 2009; Dobao, 2002; Færch & Kasper, 1983; Green & Oxford, 1995; Hyde, 1982; Metcalfe & Noom-Ura, 2013; Nakatani, 2010; Rohani, 2011; Paribakht, 1985; Poulisse, 1990; Tarone, 1977; Ting & Phan, 2008; Tuan, 2001). Highly proficient learners' use of communication strategies was found more frequent and numerous than low proficient learners' use (Nakatani, 2010; Rohani, 2011). Conversely, some studies (Chen, 1990; Hyde, 1982; Tuan, 2001) discovered lower use of communication strategies in high proficient learners. Moreover, high achievers were reported to use positive communication strategies; on the other hand, low achievers tended to rely on negative ones (Dobao, 2002; Metcalfe & Noom-Ura, 2013; Wei, 2011).

Additionally, neurological factors also affect language learners' communication. It is neurologically indicated that certain functions are lateralized to different brain hemispheres upon the maturity of the human brain. The left

hemisphere dominates intellectual, logical, and analytical functions. On the other hand, emotional and social needs are controlled by the right hemisphere (Brown, 2000). Accordingly, brain hemispheric functioning plays a vital role in the process of language acquisition. The hemispheric brain construct is beneficial to second language acquisition in defining second language learners' learning styles based on their brain hemispheric dominance. According to Stevick (1982 as cited in Brown, 2000), distinguished capability in learning a second language of left-brain dominant learners includes production of separate words, collection of specifics of language, and production of sequential operations. They are also excellent at dealing with abstraction, classification, labeling, and reorganization. Differently, learners with right-brain dominance seem to perform better at dealing with the whole images, generalization, metaphors, emotional reactions and artistic expressions.

The different brain dominance reflects a feature of the learner, resulting in their learning strategies, while a feature of the language brings about communication strategies (Bialystok, 1982). Nevertheless, communication strategies relate to cognitive processes presented in different communication strategy taxonomies, specifically those which are based on the cognitive approach placed within psycholinguistic framework. Among them are Faerch and Kasper's (1983) speech model covering two phases: *a planning phase* and *an execution phase*, and Kellerman and Bialystok's (1997) model of language proficiency consisting of two processing components: *analysis of knowledge* and *control of processing*. Brain hemispheric functioning, accordingly, seems to affect the learner's communication strategy use. This assumption brings about a larger number of studies on the relationship between

language learners' brain hemispheric dominance and their communication strategy use.

Even though investigations on learners' communication strategy use and the impact of brain dominance on second language learning have been widely and comprehensively focused, the two studied topics are rarely explored on their possible relationships. Since a few years ago, such relationship is more interested but yet in a small number (Dulger, 2012; Mireskandari & Alavi, 2015). Additionally, despite several studies on relationship between learners' language proficiency and their communication strategies (Chen, 1990; Chuanchaisit & Prapphal, 2009; Dobao, 2002; Færch & Kasper, 1983; Green & Oxford, 1995; Hyde, 1982; Metcalfe & Noom-Ura, 2013; Nakatani, 2010; Rohani, 2011; Paribakht, 1985; Poulisse, 1990; Tarone, 1977; Ting & Phan, 2008; Tuan, 2001), there is a scarcity of investigations on communication strategies used by learners with different language proficiency and hemispheric dominance. To fill gaps in research, the present study aims to shed light on investigation of correlations among English learners' use of communication strategies, their language proficiency and their brain hemispheric dominance.

1.2 Purposes of the study

With an attempt to explore whether correlations exist among learners' English proficiency, brain hemispheric dominance and communication strategy use, the present study includes, in particular, the following objectives:

1.1.1 To investigate communication strategies used by English learners with high and low proficiency in an oral narrative task

1.1.2 To explore the communication strategies in an oral narrative task applied by English learners with different hemispheric dominance

1.1.3 To find out differences in communication strategy use among high and low English learners with different hemispheric dominance in an oral narrative task

1.1.4 To study relationships between English learners' language proficiency and hemispheric dominance with their communication strategy use in an oral narrative task

1.3   Research questions

1.3.1 Are there any differences in communication strategies used by English learners with high and low proficiency in an oral narrative task? If so, how and to what extent?

1.3.2 Are there any differences in communication strategies used by English learners with different hemispheric dominance in an oral narrative task? If so, how and to what extent?

1.3.3 Are there any differences in communication strategy use among high and low English learners with different hemispheric dominance in an oral narrative task? If so, how and to what extent?

1.3.4 Are there any correlations among hemispheric dominance, communication strategy use and language proficiency in an oral narrative task of English learners? If so, how and to what extent?

1.4   Scope of the study

1.4.1 This study focuses on only investigation of relationships among English language proficiency, brain hemispheric dominance and communication strategy use of Thai EFL (English as a Foreign Language) tertiary students majoring in English.

1.4.2 English proficiency levels are categorized into low and high proficiencies according to the participants' Oxford Quick Placement Test results.

1.4.3 The study explores only one-way communication strategy use in oral communication through a picture series narrative task. Interactional communication strategies are excluded. The results of the study are not generalizable to the learners' receptive communicative strategy use in listening and reading tasks and online communication strategies.

1.5   Expected results

1.5.1 The communication strategies used by learners with different proficiency in oral narration of a story from the given picture series are identified.

1.5.2 The communication strategies used in an oral narrative task by English learners with left-brained, whole-brained and right-brained hemispheric dominance are discovered.

1.5.3 Differences in communication strategy use among high and low English learners with different hemispheric dominance in an oral narrative task are indicated.

1.5.4 Relationships among English learners' language proficiency, their brain hemispheric dominance and their communication strategy use in productive communicative tasks: oral and written narrative tasks are revealed.

1.6 Significance of the study

Theoretically, this study would make a contribution to research in related disciplines, i.e., Second Language Acquisition (SLA), teaching pedagogy, and neurology in terms of promoting a clearer understanding of how language proficiency and brain hemispheric patterns might simultaneously correlate with the communication strategy choices of English language learners.

Moreover, the findings of this study would be practically beneficial to language teachers in their attempt to enhance learners' communicative competence. This study might encourage language teachers to attempt to design well-balanced classroom or learning activities mostly suitable to all of their current learners, not orientating towards those with a specific brain hemispheric dominance, or learning style, and language proficiency. At the same time, language students are encouraged and assisted to alter their learning styles appropriately according to different learning environments where their classmates are different in brain hemispheric dominance and language proficiency. Additionally, the research findings might provide useful information for designers or producers of language instructional materials.

1.7   Definitions of terms

The following specific terms used in the present study are operationally defined as follows.

1.7.1 The term "hemispheric dominance" refers to learner participants' functional specialization of their cerebral preference in processing and producing information based on the Brain Dominance Inventory modified from Davis et al (1994). It is categorized into three types: left hemispheric dominance, right hemispheric dominance, whole hemispheric dominance. Additionally, its synonyms also widely used in previous studies of this field are "brain dominance", "brain hemispheric dominance", "brain hemisphericity", "brain orientation" and "hemispheric preference".

1.7.2 Communication strategies referring to techniques of coping with difficulties applied by learners during their communication in their imperfect English orientate towards learner participants' one-way oral narrative task based on the taxonomies of Dornyei and Scott (1997).

2. Literature Review

The section includes brief definitions of each construct and previous studies related to the present one. The constructs to be reviewed cover (1) definitions and classifications of communication strategies, (2) language proficiency, (3) brain hemispheric dominance and learning of English, (4) task types and communication strategy use, and (5) related studies.

2.1   Definitions and classifications of communication strategies

Initially raised by Selinker (1972), communication strategy (CS) is a component of communicative competence (Dornyei & Thurrel, 1991). Many prominent researchers define CS differently according to their perspectives. In the traditional perspective, Tarone (1977), Faerch and Kasper (1983), Ellis (1997) and Saville-Troike (2006) define CS as a communicative device applied for overcoming linguistic deficiency in the second language (L2) in order to reach a particular communicative goal. A few years later Tarone introduced a broader definition in the interactional perspective where CS is considered as a tool for interlocutors used in jointly negotiating meaning (Dornyei & Scott, 1997). Brown (2000) suggests communication strategy based on the perspective of error resources for he views it as the process of interlingual transfer.

Faerch and Kasper's (1983) definition of CS is conceptualized through a psycholinguistic approach, based on the theoretical framework of speech production. The speech model consists of two phases: a planning phase including 'goal', 'planning process' and 'plan', and an execution phase covering 'plan', 'execution process', and 'action'. The two researchers locate communication strategies in the model and characterize the CS function through the relationship between communication strategies and processes and plans. Considering CS as a subclass of plans, they adopt problem-orientedness and consciousness as a defining criterion of communication strategies. The criterion of problem-orientedness distinguishes between goals without difficulty and goals with 'problems', both of which need plans to achieve. However, only plans for dealing with 'problems' in the latter goals are viewed strategies. In short, the problem experienced by the individual in reaching a

communicative goal is the 'strategic goal' in the planning phase resulting in a problem solution in the execution phase. Hence, based on the speech model, communication strategies can occur in either the planning phase or the execution phase. The researchers state that individual's deficiency in means or methods to achieve the goal leads to using some strategies in the planning phase. In case of the individual's problems related to fluency or accuracy, some strategies are used in the execution phase. The other defining criterion of CS, the criterion of consciousness focuses on classification of consciously employed plans, unconsciously employed plans, and plans both consciously and unconsciously employed by different language users or in different situations.

Faerch and Kasper (1983) believe that learners might adopt "avoidance behavior" or "achievement behavior" to solve their communication problems. Those behaviors are totally different. The former shows the ways the learner tries not to face the problem, usually by alternating the communicative goal. In contrast, the latter behavior presents the learner's attempt to deal with the problem in order to reach the communicative goals. Accordingly, the two problem-solving approaches result in two major different communication strategies: reduction strategies and achievement strategies, both of which yield different solutions to problems.

The two researchers clarify that learners adopt reduction strategies to avoid errors or non-fluency due to their insufficient linguistic resources. On the other hand, the strategies may be applied by native speakers in simplification of their L1 system in order to match learners' receptive resources. Reduction strategies include formal reduction strategies and functional reduction strategies. The former are used based on two reasons: error avoidance and speech facilitation. The application is categorized

into three linguistic levels: phonological, morphological, and syntactic. In a functional reduction strategy, the communicative goal is 'reduced' to prevent a communicative problem. Contrasting to the reduction strategies which are used for error avoidance, achievement strategies are adopted by learners to solve their communicative problems by expanding their existing communicative resources. According to Faerch and Kasper's perspective (1983), achievement strategies are composed of compensatory strategies and retrieval strategies. Learners use different sub-types of compensation strategies according to what resources they draw on in attempting to solve their problems. The strategies cover code switching, interlingual (IL) transfer, inter-/intralingual transfer, interlanguage-based strategies (generalization, paraphrase, word coinage, restructuring), cooperative strategies, and non-linguistic strategies. In the execution phase, learners may face difficulties in retrieving specific interlingual item and may use achievement strategies to obtain the problematic item. Six retrieval strategies include waiting to the term to appear, appealing to formal similarity, retrieval via semantic fields, searching via other languages, retrieval from learning situations, and sensory procedures.

From the extended perspective, Dornyei and Scott (1997) extend previous CS definitions by including "every potentially intentional attempt to cope with any language-related problem of which the speaker is aware during the course of communication (p.179)". Reviewing nine different CS taxonomies, Dornyei and Scott (1997) discover many similarities in spite of significantly varied terminologies and specificity levels. For instance, "reduction strategies" (Faerch and Kasper, 1983; Varadi, 1980), "avoidance strategies" (Tarone, 1977), and "message adjustment strategies" (Corder, 1981) share the common aim of preparing one's message based

on one's resources by changing, reducing or leaving the original content (all as cited in Dornyei & Scott, 1997). The following section is devoted to the details of the taxonomies.

Dornyei and Scott (1997) suggest their updated taxonomies which integrate their first four classifications of communication problems (resource deficit, processing time pressure, own performance problems, and other performance problems) with three basic categories (direct, indirect, and interactional strategies). Accordingly, in their latest taxonomies, each subcategory includes the same four types of communication problems with different subtypes.

(1) Direct strategies

Direct strategies show learners' attempt in applying lexical choices and syntactic alternatives and modifications to compensate for their inadequacy of L2 competence. They might adopt the means of either self-rephrasing or self-repair on their own performance problems. Most traditional communication strategies are found in this category. Learners, with deficiency in their communicative resources, might use various types of problem-solving strategies including message abandonment, message reduction, message replacement, circumlocution, approximation, use of all-purpose words, word-coinage, restructuring, literal translation, foreignizing, code switching, use of similar sounding words, mumbling, omission, retrieval and mime.

(2) Indirect strategies

To process time pressure, learners might use fillers or repeat what they utter. Aware of their own performance problems, they can use verbal strategy markers. Indirect strategies focus on facilitation of conveyance of meaning directly to prevent communication breakdowns, rather providing alternative meaning structures.

(3) Interactional strategies

Presenting cooperative exchanges of solutions to nonunderstanding conveyance of meaning, interactional strategies bring about mutual understanding leading to achievement in communicative goals of both interlocutors.

The table below presents descriptions/definitions and examples of each strategy included in Dornyei and Scott's Communication Strategy Taxonomies (1997, p.188-194).

Table 1:   Descriptions/Definitions and Examples of Dornyei and Scott's Communication Strategy Taxonomies (1997)

No.	Strategy	Description/Definition	Example
		Avoidance Strategies	
Direct Strategies			
1	Message abandonment	Leaving a message unfinished because of some language difficulty.	*It is a person er… who is responsible for a house, for the block of house… I don't know… (laughter)*
2	Message reduction (topic avoidance)	Reducing the message by avoiding certain language structures or topics considered problematic languagewise or by leaving out some intended elements for a lack of linguistic resources.	[Retrospective comment by the speaker] *I was looking for "satisfied with a good job, pleasantly tired", and so on, but instead I accepted less.*
		Achievement Strategies	
Direct Strategies			
3	Message replacement	Substituting the original message with a new one because of not feeling capable of executing it.	[Retrospective comment after saying that the pipe was broken *in the middle* instead of *"the*

No.	Strategy	Description/Definition	Example
			screw thread was broken"] *I didn't know "screw thread" and well, I had to say something.*
4	Circumlocution (paraphrase)	Exemplifying, illustrating or describing the properties of the target object or action.	*It becomes water* instead of "*melt*".
5	Approximation	Using a single alternative lexical item, such as a superordinate or a related term, which shares semantic features with the target word or structure.	*Plate* instead of "bowl".
6	Word-coinage	Creating a non-existing L2 word by applying a supposed L2 rule to an existing L2 word.	[Retrospective comment after using *dejunktion* and *unjunktion* for "street clearing"] *I think I approached it in a very scientific way: from 'junk' I formed a noun and I tried to add the negative prefix "de-"; to "unjunk" is to 'clear the junk' and "unjunktion" is 'street clearing'.*
7	Restructuring	Abandoning the execution of a verbal plan because of language difficulties, leaving the utterance unfinished, and communicating the intended message according to an alternative plan.	*On Mickey's face we can see the... so he's he's he's wondering.*
8	Literal translation (transfer)	Translating literally a lexical item, an idiom, a compound word or structure from L1/L3 to L2.	*I'd made a big fault* [translated from French].
9	Foreignizing	Using L1/L3 word by adjusting it to L2	*Reparate* for *'repair'* [adjusting

No.	Strategy	Description/Definition	Example
		phonology and/or morphology.	the German word 'reparieren'].
10	Code switching (language switch)	Including L1/L3 words with L1/L3 pronunciation in L2 speech; this may involve stretches of discourse ranging from single words to whole chunks and even complete turns.	Using the Latin *ferrum* for *'iron'*.
11	Retrieval	In an attempt to retrieve a lexical item saying a series of incomplete or wrong forms or structures before reaching the optimal form.	*It's brake er…it's broken broked broke.*
12	Mime	Describing whole concepts nonverbally, or accompanying a verbal strategy with a visual illustration.	[Retrospective comment] *I was miming here, to put it out in front of the house, because I couldn't remember the word.*
13	Use of all-purpose words	Extending a general, "empty" lexical item to contexts where specific words are lacking.	The overuse of *thing, stuff, make, do,* as well as words like *thingie, what-do-you-call-it;* e.g.: *I can't can't work until you repair my … thing.*
14	Use of similar sounding words	Compensating for a lexical item whose form the speaker is unsure of with a word (either existing or non-existing) which sounds more or less like the target item.	[Retrospective comment explaining why the speaker used *cap* instead of "pan"] *Because it was similar to the word which I wanted to say: "pan".*
15	Mumbling	Swallowing or muttering inaudibly a word (or part of a word) whose correct form the speaker is uncertain about.	*And uh well Mickey Mouse looks surprise or sort of XXX* [the 'sort of' marker indicates that the unintellible part is not just a mere recording failure but

No.	Strategy	Description/Definition	Example
			a strategy]
16	Omission	Leaving a gap when not knowing a word and carrying on as if it had been said.	*Then… er… the sun is is…hm sun is… and the Mickey Mouse…* [Retrospective comment: *I didn't know what shine was*]
17	Self-repair	Making self-initiated corrections in one's own speech.	*Then the sun shines and the weather get be… gets better.*
18	Other-repair	Correcting something in the interlocutor's speech	Speaker: *… because our tip went wrong…* […] Interlocutor: *Oh, you mean the tap.* Speaker: *Tap, tap…*
19	Self-rephrasing	Repeating a term, but not quite as it is, but by adding something or using paraphrase.	*I don't know the material… what it's made of…*
Indirect strategies			
20	Self-repetition	Repeating a word or a string of words immediately after they were said.	[Retrospective comment] *I wanted to say that it was made of concrete but I didn't know 'concrete' and this is why "which was made, which was made" was said twice.*
21	Other-repetition	Repeating something the interlocutor said to gain time.	Interlocutor: *And could you tell me the diameter of the pipe? The diameter.* Speaker: *The diameter? It's about er… maybe er… five*

No.	Strategy	Description/Definition	Example
			centimeters.
22	Use of fillers	Using gambits to fill pauses, to stall, and to gain time in order to keep the communication channel open and maintain discourse at times of difficulty.	Examples range from very short structures such as *well; you know; actually; okay,* to longer phrases such as *this is rather difficult to explain; well, actually, it's a good question.*
23	Verbal strategy markers	Using verbal marking phrases before or after a strategy to signal that the word or structure does not carry the intended meaning perfectly in the L2 code.	E.g.: (strategy markers in bold): (a) marking a circumlocution: *On the next picture…* **I don't really know what's it called in English**… *it's uh this kind of bird that … that can be found in a clock that strikes out or [laughs] comes out when the clock strikes.* (b) marking approximations: *It's some er…* **it's some kind of** *er paper.* (c) marking foreignizing *a panel [with an English accent],* **I don't know there's a name in English or not** *[laughter] just it's a panel flat.* (d) marking literal translation: *It's er… a smaller medium flat and in,* **we call them** *block house, but it's not it's not made of blocks.* (e) marking code switching: *The bird form the clocks come out and say "kakukk"* **or I don't know what**.

No.	Strategy	Description/Definition	Example
24	Feigning understanding	Making an attempt to carry on the conversation in spite of not understanding something by pretending to understand.	Interlocutor: *Do you have the rubber washer?* Speaker: *The rubber washer?... No, I don't.* [Retrospective comment: *I didn't know the meaning of the word, and finally I managed to say I had no such thing.*]
Interactional Strategies			
25	Direct appeal for help	Turning to the interlocutor for assistance by asking an explicit question concerning a gap in one's L2 knowledge.	*It's a kind of old clock so when it strucks er... I don't know, one, two, or three 'clock then a bird is coming out. What's the name?*
26	Indirect appeal for help	Trying to elicit help from the interlocutor indirectly by expressing lack of a needed L2 item either verbally or nonverbally.	*I don't know the name...* [rising intonation, pause, eye contact]
27	Asking for repetition	Requesting repetition when not hearing or understanding something properly.	*Pardon? What?*
28	Asking for clarification	Requesting explanation of an unfamiliar meaning structure.	*What do you mean? You saw what?* Also 'question repeats,' that is, echoing a word or a structure with a question intonation.
29	Asking for confirmation	Requesting confirmation that one heard or understood something correctly.	Repeating the trigger in a 'question repeat' or asking a full question, such as *You said...?, You mean...?, Do you mean...?*
30	Guessing	Guessing is similar to a confirmation request but the latter implies a greater	E.g: *Oh. It is then not the washing machine. Is it a sink?*

No.	Strategy	Description/Definition	Example
		degree of certainty regarding the key word, whereas guessing involves real indecision.	
31	Expressing non-understanding	Expressing that one did not understand something properly either verbally or nonverbally.	Interlocutor: *What is the diameter of the pipe?* Speaker: *The diameter?* I: *The diameter.* S: *I don't know this thing.* I: *How wide of the is the pipe?* Also, puzzled facial expressions, frowns and various types of mime and gestures.
32	Interpretive summary	Extended paraphrase of the interlocutor's message to check that the speaker has understood correctly.	*So the pipe is broken, basically, and you don't know what to do with it, right?*
33	Comprehension check	Asking questions to check that the interlocutor can follow you.	*And what is the diameter of the pipe? The diameter? Do you know what the diameter is?*
34	Own-accuracy check	Checking that what you said was correct by asking a concrete question or repeating a word with a question intonation.	*I can see a huge snow...snowman? Snowman in the garden.*
35	Response: repeat	Repeating the original trigger or the suggested corrected form (after an other-repair).	See the example of other-repair
36	Response: repair	Providing other-initiated self-repair.	Speaker: *The water was not able to get up and I...* Interlocutor: *Get up? Where?* S: *Get down.*
37	Response: rephrase	Rephrasing the trigger.	Interlocutor: *And do you happen to know if you have the rubber*

No.	Strategy	Description/Definition	Example
			washer? Speaker: *Pardon?* I: The rubber washer…it's the thing which is in the pipe.
38	Response: expand	Putting the problem word/issue into a larger context.	Interlocutor: *Do you know maybe er what the diameter of the pipe is?* Speaker: *Pardon?* I: *Diametor, this is er maybe you learnt mathematics and you sign er with th this part of things.*
39	Response: confirm	Confirming what the interlocutor has said or suggested.	Interlocutor: *Uh, you mean under the sink, the pipe? For the…* Speaker: Yes. Yes.

As the present study focused on learners' one-way productive communication strategies applied in an oral narrative task, interactional strategies were excluded. Accordingly, Dornyei and Scott's communication strategy taxonomy (1997) with minor adaptation used in the present study includes 2 major strategies (avoidance, achievement), 2 minor strategies (direct, indirect), and 21 specific strategies as shown in *Table 2*.

Table 2:   Communication Strategy Taxonomies (adapted from Dornyei and Scott (1997))

Major Strategies	Minor Strategies	
	Direct strategies	*Indirect strategies*
Avoidance strategies	Message abandonment Message reduction (topic avoidance)	
Achievement strategies	Message replacement Circumlocution (paraphrase) Approximation Word-coinage Restructuring Literal translation (transfer) Foreignizing Code switching (language switch) Retrieval Mime Use of all-purpose words Use of similar sounding words Mumbling Omission Self-repair Self-rephrasing	Self-repetition Use of fillers Verbal strategy markers

2.2   Hemispheric dominance and learning of English

Brain hemispheric dominance refers to different functioning of left and right cerebrals which significantly affects learning style and strategies (Brown, 2000). Left hemispheric dominant learners are field-independent, with logical and analytical thoughts, preference of talking, writing, multiple-choice tests, logical problem solving, and planned and structured processing information. They are good at

mathematics, controlling feelings and remembering names. They are poor at interpreting body language and rarely use metaphors. In contrast, right-brained learners are field-dependent, processing holistic, integrative and emotional information. With good synthesis, they prefer open-ended questions and intuitive problem solving. They are good at interpreting body languages and remembering faces. They can learn more efficiently through demonstration. The following table displays specific different behavior based on one's hemispheres' functioning (Brown, 2000, p. 119).

Table 3:   *Differences in Left and Right Hemispheres*

Left Brain Dominance	Right Brain Dominance
Intellectual	Intuitive
Remembers names	Remembers faces
Responds to verbal instructions and explanations	Responds to demonstrated, illustrated, or symbolic instructions
Experiments systematically and with control	Experiments randomly and with less restraint
Make objective judgments	Make subjective judgments
Planned and structured	Fluid and spontaneous
Prefers established, certain information	Prefers elusive, uncertain information
Analytic reader	Synthesizing reader
Reliance on language in thinking and remembering	Reliance on images in thinking and remembering
Prefer talking and writing	Prefer drawing and manipulating objects
Prefer multiple choice tests	Prefer open-ended questions
Controls feelings	More free with feelings
Not good at interpreting body language	Good at interpreting body language
Rarely uses metaphors	Frequently uses metaphors
Favors logical problem solving	Favors intuitive problem solving

2.3 Language proficiency

Language proficiency is defined as the skill level of using language for real life purposes (Clark, 1975 and Richards, 1985 as cited in Esteki, 2014). Language proficiency plays significant roles in academic achievements of non-English native students who take courses with English-instructional medium (Martirosyan et al., 2015). To measure language proficiency, rating scales are used. Proficiency rating scales are "descriptions of discrete stages of language behavior in one or more macro-skill areas (speaking, listening, reading, and writing) on a continuum ranging (Brindley, 1986, p. 17-18)". Scales of language proficiency can be called in different ways, namely, 'proficiency levels', 'proficiency scales', 'proficiency rating', 'band scores', and 'band scales' (Alderson, 1991). In academic setting, assessment of English learners' language proficiency is almost made based on the four macro skills: speaking, listening, reading, and writing. The standard instrument to measure learners' English proficiency is an English language proficiency test (Nallaya, 2012) such as IELTS, TOEFL, TOEIC, QPT. The first two tests are applied for further studying at international institutes where English is the main instructional medium. TOEIC is usually used as a requirement for applying for a job in which English is the main working language. The last one, QPT, which is the easiest one among the aforementioned tests, is used to identify language proficiency level of participants in many studies because of its appropriate difficulty to English learners at the tertiary level and availability for download and photocopy. Accordingly, QPT was applied in the present study.

2.4   Task types and communication strategy use

Learning task is basically defined as a classroom activity with goal orientation (Ellis, 2003; Nunan, 2006; Oxford, 2006), involving learners' comprehension, production, and interaction in the target language (Towndrow, 2007). It encourages learners to use the target language with a more focus on the conveying of meaning rather than on the practice of form (Ellis, 2003; Nunan, 2006). Task-based learning activity can improve learners' language proficiency, specifically their speaking skills (Lochana & Deb, 2006 as cited in Rohani, 2011). Additionally, task-based learning promotes learners' greater use of positive communication strategies, with less use of reduction and abandonment strategies which are considered negative (Rohani, 2011). Consistently, Ghout-Khenoune (2012) discovered that learners tried to use the target language more frequently in communicative tasks: writing and speaking, rather than retrieving communication strategies rooted in their learned language. Additionally, it was also found that learners' communication strategy use was different depending on tasks. They applied more interlingual-based strategies than L1/L2-based strategies in their picture description task (Ghout-Khenoune, 2012).

2.5   Related studies

Previous studies discovered significant relations between brain hemispheric dominance and achievements in learning of English. Oflaz (2011) and Ashraf, Yazdi and Kafi (2014) are consistent as they found that left-brained learners performed well in their reading comprehension because they were good at applying logics to solve problems. On the other hand, learners with right brain dominance successfully achieved in vocabulary and writing tests due to their excellent response to

demonstrations and responses (Oflaz, 2011). This study is asserted by Weisi and Khaksar (2015), who investigated relationships between Iranian EFL learners' brain hemispheric dominance and their creativity in EFL writing and discovered that the right-brained learners could perform better.

According to Mireskandari and Alavi (2015), nevertheless, language learners with different brain hemispheric dominance were not significantly different in their spoken communication strategies. However, significant difference was discovered in their use of specific compensatory of speaking strategies, that is, the whole-brained learners used compensatory communication strategy differently from the left-brained and right-brained counterparts.

Along the same line, Kok (2013) explored the effect of neurolinguistics-based language curricula on the listening comprehension achievement of 32 students with different brain dominance. The findings indicated no differences between the learners in the control group who were educated through the curriculum based on the representational system and the other group of students who learned through traditional ways.

Dulger (2012) adopted Oxford's scale "Strategy Inventory for Language Learning" (1990) to identify Turkish learners' strategies in relation to their brain dominance and found that the right-brained learners preferred using memory and social learning strategies over the left-brained ones.

Additionally, interaction between complex communicative tasks and choices of communication strategies are discovered (Ghout-Khenoune, 2012; Rohani, 2011). Rohani (2011) discovered that the learners preferred using positive communication strategies to negative ones: reduction and abandonment, in performing oral tasks.

In comparison of learners with different language proficiency levels, it was found that the low proficient learners depended more on L1-based communication strategies, particularly language switch; while the more proficient learners preferred L2-based communication strategies (Ting and Phan, 2008). In addition, higher competent learners more frequently used communication strategies for coping with both speaking and listening problems (Rohani, 2011; Yarahmadzehi, Saed, & Farzane, 2015). In support of the above studies, Hsieh's (2014) study also confirms the low proficient learners' use of their prior linguistic knowledge and their high tendency to use avoidance/reduction oral communication strategies.

In the Thai context, Somsai and Intaraprasert (2011) studied employment of communication strategies by English major Thai students to cope with face-to-face oral communication problems, and found that they much applied nonverbal expressions or gestures. The finding was consistent to that of Nakatani (2006) in the Japanese context. Switching from English to Thai words was also discovered in the study.

Malasit and Sarobol (2013) explored Thai EFL learners' communication strategies through one-way and two-way speaking tasks by comparing among three groups of different proficiency levels: high, middle and low. Use of fillers was found the most frequently used, while foreignizing was found the least. There was neither significant difference among three groups of participants with different proficiency levels, nor significant relationship between communication strategy use and proficiency.

Metcafe and Noom-ura (2013) investigated communication strategies used by Thai university students who were of different language proficiency and oral

proficiency. It was reported that message reduction and alteration as well as negotiation for meaning while listening were the most frequently used speaking and listening strategies. Moreover, the high proficient learners more frequently used social-affective, fluency-oriented, and negotiation for meaning during their oral communication; on the other hand, the low proficient learners tended more to use avoidance strategies: message abandonment and less active listener.

The previous studies on communication strategy use by Thai learners aforementioned generally aimed at discovering frequency of use and comparing among learners with different proficiency. Investigations of communication strategy application by other learners' personal traits have been rare, specifically by hemispheric dominance which has not been studied in the Thai context. Correlations among the three variables: communication strategies, language proficiency and hemispheric dominance have not been explored. The present study could be a pioneer work in Thailand and a contribution to related disciplines of research.

3. Research Methodology

3.1 Design

This is a correlational non-experimental study with descriptive analysis of both quantitative and qualitative data. Below are descriptions of population and sample, and research instruments.

3.1.1 *Population and sample*

The population of this study included 134 Thai EFL undergraduate students majoring in English at a private university in southern Thailand, of academic year 2015. The students were in the researcher's classes and participated in the study

on a voluntary basis. Among the 134 students, 64 were in their third year and 70 were fourth-year students, they were 11 males and 123 females, aged around 22-25 years old. All of them were Muslims, the majority of whom are Melayu-native speakers residing in the three southernmost provinces of Thailand, while a smaller number was from the other provinces of the country speaking Thai as their mother tongue. As they were studying in an international program of which all major classes use English as an as instructional medium and to ensure their satisfactory English communicative skills for classroom interactions, they were required to take a one-year preparatory English course at the Language Institute of the university before starting their first-year study as English majors.

The sample size of this study was based on Thorndike (1979)'s formula proposed for non-experimental studies with multiple variables. The formula is as follow.

n ≥ 10k + 50

when n is the sample size; k is the number of independent variables

As this study investigated the correlation between communication strategies of English learners with different language proficiency and hemispheric dominance in an oral narrative task, there was a total of 5 sub-variables in two independent variables including two language proficiency levels *(high and low)* and three hemispheric dominance elements *(left, whole, and right)*. Accordingly, the sample size became at least $(10 \times 5) + 50 = 100$.

Disproportionate stratified random sampling was conducted for drawing the sample of the study. That is, the researcher had all 134 students do the Brain Dominance Inventory (BDI) in order to group them into three strata of

hemispheric dominance: left-brained, whole-brained, right-brained, and do the Quick Placement Test (QPT) to categorize them into two proficiency levels: high and low. Then the sample number of the three different strata was set by optimal allocation for precision to finally obtain the sample size of 100 participants: 11 high proficient participants including 3 left-brained learners, 3 whole-brained learners, and 5 right-brained learners; and 89 low proficient participants including 23 left-brained learners, 19 whole-brained learners, and 47 right-brained learners.

3.1.2   Research instruments

The instruments applied in the study included (1) the Quick Placement Test (QPT), which was a paper-and-pen version (P&P), to assess the participants' English language proficiency, (2) the Brain Dominance Inventory (BDI), (3) a narrative task material, (4) retrospective comments, (5) video-stimulated recall interviews, and (6) communication strategy checklist. The following are descriptions of features of all instruments.

3.1.2.1 Quick Placement Test

The Quick Placement Test (QPT) (see *Appendix A)*, obtained from   https://www.international.rmit.edu.au/agent/document/forms/pdf/QPT-Paper-and-pen.pdf, was used in this study to identify the participants' language proficiency. Developed by Oxford University Press and Cambridge ESOL, it is a quick and reliable test of English language proficiency applicable to English learners, with two versions: computer-based (CB) version with a listening part and paper and pen (P&P) version without the listening part. There are two parallel versions of P&P Quick Placement Test in multiple-choice format of 60 items. The test consists of two parts: part 1 (items 1-40) is taken by all participants, part 2 (items 41-60) for participants

who score more than 35 out of 40 on the first part. The paper-and-pen QPT version 2 was applied in the present study because of its convenience to administer. According to the test instructions, the administration of the test took approximately 30 minutes. The test scores in *Table 4* showed that no one could obtain more than 35 marks, causing them not to further doing the second part of the test. *Table 4* presents the score comparison and interpretation adapted from the QPT score criterion.

Table 4:   *Score Comparison and Interpretation for Language Proficiency*

Level			Description	Score	Number of Participants
ALTE	*Council of Europe*	*Present Study*		*Part 1: out of 40*	
0.1	-		Beginner	0-9	-
0.2	A1	Low	Breakthrough	10-15	15
1	A2		Elementary	16-23	74
2	B1		Lower intermediate	24-30	10
3	B2	High	Upper intermediate	31-40	1
4	C1		Advanced	36-40 plus scores obtained from Part 2	-
				Total	100

3.1.2.2 *Brain Dominance Inventory (BDI)*

Widely used and accepted in previous studies on brain hemispheric dominance (Dulger, 2012; Kok, 2013; Mireskandari & Alavi, 2015), the Brain Dominance Inventory (BDI) (see *Appendix B*) was a modified version of Davis et al. (1994) original in English and translated into Thai to avoid participants' misunderstanding or misconception of the items in the survey. The inventory was

used to determine if the respondent was primarily left-brain, right-brain, or bi-lateral dominant. There were 39 items with three options of each. The scoring was firstly separately adding all scores of each option (a, b, c). The total score had to be 39. Next, the B score minus the A score was computed. The answer could be positive or negative. Then, in case of the C score becoming 17 or higher, the B minus A score was divided by three, and the score to the nearest number was rounded to obtain the score of the respondent. It could be a minus or plus number. However, in case the C score was from 10 to 16, the B minus A score was divided by two, and the score to the nearest number was rounded. The C score was one less than 10, not divided at all. The B minus A score was the answer. The following is the criterion for determination of the respondent's brain hemispheric dominance.

Table 5:   *Scoring Hemispheric Dominance*

Scores	Hemispheric dominance
0	Whole (bilateral)
-1 to -3	Slight preference toward the left
-4 to -6	Moderate preference for the left
-7 to -9	Left
-10 to -11	Very strong left
+1 to +3	Slight preference toward the right
+4 to +6	Moderate preference for the right
+7 to +9	Right
+10 to +11	Very strong right

3.1.2.3 *Narrative task material*

A series of pictures (see *Appendix C*) was obtained from the Internet (http://wksp.ru/schpargalki-dlya-mamy/425-rasskazy-v-kartinkah-3-10-let-bolschie-kartochki.html). The series of pictures was selected for a narrative task in

this study because it was authentic, clear, and suitable in terms of length of time it took to tell a story based on it. The four pictures in the series were presented in the correct order and formed a coherent storyline. The pictures depicted a man, a woman, a baby in a baby carriage and a cow. The setting was at the backyard of a house. The man was asked by the woman to bottle feed the baby. The milk was up and the baby needed more milk, so the man solved the problem by attaching a rubber tube to the cow breast. The fourth picture presented a humorous sense.

3.1.2.4   Retrospective comments

For more in-depth investigation of the phenomenon of the participants' communication strategy use in an oral narrative task, they wrote their retrospective comments in the given form (see *Appendix D*) immediately after they had completed their tasks.   In the retrospective form, the participants identified difficulties they had faced while performing the task, and explained how and why they coped with those problems.

3.1.2.5   Video-stimulated recall interviews

To probe into the participants' use of communication strategies including avoidance strategies in an oral narrative task, video-stimulated recall interviews (see *Appendix E*) were consequently conducted at the final stage with 12 participants purposively drawn based on their video-recorded task performance and retrospective comments.

3.1.2.6   Communication strategy checklist

Adapted from Dornyei and Scott's (1997) communication strategy taxonomies by excluding interactional strategies, the communication strategy

checklist was used for identifying and recording individual participants' application of communication strategy by the three raters.

3.2 Data collection procedures

3.2.1 Pilot study

Validity and reliability of all instruments: the Thai-version BDI, the narrative task material, the retrospective comment form and semi-structured questions for the stimulated-recall interview, excluding the QPT, were established. They were all validated by a panel of three raters holding a doctorate degree: two were experts at Second Language Acquisition and the other was an expert at Language Testing. To obtain 30 pilot participants, 2 high-proficient students and 8 low-proficient students from each of 3 hemispheric strata were purposively drawn from the population. They performed an oral narrative task within 5 minutes, the first 2 minutes for preparation and the other 3 minutes for oral performance, using the four-picture series to test its practicality and appropriateness. The students' narrations were video-recorded. They all wrote their retrospective comments upon their task completion. Finally, 3 of them with the most interesting communication phenomena found in their video-recorded tasks and retrospective comments were purposively drawn for participating in the video-stimulated recall interview.

To validate and establish reliability of rating of communication strategies found in the pilot participants' oral narrative performance, a panel of three raters was applied. They included the researcher and another two English lecturers, one holding MA in English as a Second Language and the other in Linguistics. The rater panel first discussed descriptions and examples, or structural features, of each

communication strategy shown in the communication strategy checklist (*see Appendix F*) for consistent perception and understanding among them. Then, they independently and individually rated all 30 transcribed oral narrations performed by the 30 pilot participants and recorded all discovered strategies in the checklist. The inter-rater reliability (IRR) was 0.81.

3.2.2   Main study

In the main study, 100 participants purposively drawn from the population, excluding 30 pilot participants, were categorized into six groups based on their English proficiency and hemispheric dominance. The low-proficient groups included 23 left-brained learners, 47 right-brained learners, and 19 whole-brained learners. In the high-proficient groups, there were 3 left-brained learners, 5 right-brained learners and 3 whole-brained learners. Individual participants performed an oral narrative task with the researcher in a closed room. The other participants were waiting to be called out of the room. Four pictures numbered orderly with clear instructions were given to the participant. He or she had 2 minutes for preparation of a story corresponding to the pictures, and the narration which was video-recorded was to be finished by 3 minutes later.

Immediately after the task was completed, the participant went straight to the next-door room prepared for a retrospective comment session. He or she filled in the given form about his or her linguistic problems during performing the narrative task and immediate solutions to the problems. There was no time limit for this session. Then, the participant left the room without meeting other participants waiting outside to prevent revelations about the task. These steps were facilitated by a research assistant.

After that, all video-recorded narrations were transcribed in order to identify communication strategies. Finally, 12 participants, 2 of each proficiency-hemispheric brain pattern, with the widest use of their communication strategies were drawn for joining the video-stimulated recall interview.

3.3 Data analysis

Content analysis of data collected from participants' oral narrative tasks, retrospective comments and semi-structured interviews were conducted based on the taxonomies of Dornyei and Scott (1997). The video scripts elaborated by the data from the written comments and the oral interviews were rated and tallied into communication strategies. Descriptive statistics, frequencies and means, were applied to identify both general and specific communication strategies used by the participants with different proficiency levels and brain patterns. Due to abnormal distribution of data, some nonparametric tests were applied. The Mann-Whitney U Test was conducted to discover differences in communication strategy use in an oral narrative task between two groups of participants with high and low proficiency levels in English. The Kruskal Wallis Test, the analysis of variance by ranks to compare three or more groups, was carried out to explore differences in communication strategy use among highly and low proficient English learner participants with different hemispheric dominance. Pearson's Correlation analysis was also employed to find out relationships among hemispheric dominance, communication strategy use and language proficiency in an oral narrative task of English learner participants.

4. Findings

In this section the findings addressing each research question are presented. The first is a description of communication strategy use in an oral narrative task compared across the two proficiency groups and the three hemispheric brain patterns. Comparisons of communication strategy use across the six groups of proficiency-hemispheric brain dominance are then made. The next presentation covers a description of relationships among hemispheric dominance, communication strategy use and language proficiency.

4.1 Communication strategy use in an oral narrative task

4.1.1 Communication strategy use by high and low proficiency (RQ 1)

To discover communication strategies applied in an oral narrative task by highly and low proficient English learner participants, descriptive statistics were applied for data analysis. The findings (see *Table 6*) indicated that, *overall* strategies were more applied by the low proficient learners ($\overline{X}$ = 20.09, S.D. = 10.08) than the highly proficient ones ($\overline{X}$ = 16.91, S.D. = 7.46). This phenomenon was also found in *achievement, direct* and *indirect* strategies, except for *avoidance strategies* which were more frequently used by the learners with high proficiency. The findings indicated that participants with different proficiency levels tend to use different communication strategies.

Table 6:   *Communication Strategy Use by Language Proficiency: Main Categories*

Strategies	Minimum Use	Maximum Use	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.	Z	Asymp. Sig. (2-tailed)
		Total (n = 100)			Low Proficiency (n=89)		Hi Proficiency (n=11)		Mann-Whitney U Test	
Overall strategy	2	54	19.74	9.85	20.09	10.08	16.91	7.46	-.700	.48
Avoidance strategies	0	5	1.71	1.24	1.69	1.21	1.91	1.51	-.234	.81
Achievement strategies	1	53	18.03	10.03	18.40	10.28	15.00	7.43	-.827	.41
Direct strategies	1	14	6.26	2.66	6.35	2.62	5.55	3.01	-.689	.49
Indirect strategies	0	41	13.48	8.68	13.74	8.90	11.36	6.58	-.562	.57

* p ≤ 0.05

Upon considering specific strategies (see *Table 7*) through naked eyes, the largest gap of strategy application between the two groups was discovered in *use of fillers*, which was mostly frequently applied by both groups. However, difference was not statistically discovered. The low proficient learners applied all strategies, excluding *word coinage* and *foriegnizing*, while their counterpart did not use some strategies: *circumlocution, code switching, retrieval, use of similar sounding words, mumbling* and *omission*. Significant difference in strategy use between the low proficient learners ($\overline{X}$ = 0.07, S.D. = 0.25) and the highly proficient learners ($\overline{X}$ = 0.27, S.D. = 0.47) simply appeared at *mime strategy* ($p ≤ 0.05$). Such difference might be contributed by the other factor, hemispheric dominance.

Table 7:   Communication Strategy Use by Language Proficiency:

Specific Categories

Strategies	Minimum Use	Maximum Use	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.	Z	Asymp. Sig. (2-tailed)
	Total (n = 100)				Low Proficiency (n=89)		Hi Proficiency (n=11)		Mann-Whitney U Test	
Avoidance Strategies										
Direct Strategies										
Message abandonment	0	5	0.84	1.16	.89	1.18	.45	.93	-1.326	.18
Message reduction	0	5	0.87	0.84	.80	.73	1.45	1.37	-1.810	.07
Achievement Strategies										
Direct Strategies										
Message replacement	0	3	0.32	0.65	.33	.62	.27	.90	-1.050	.29
Circumlocution	0	1	0.09	0.29	.10	.30	.00	.00	-1.100	.27
Approximation	0	3	0.81	0.76	.85	.78	.45	.52	-1.595	.11
Word-coinage	0	0	0.00	0.00	.00	.00	.00	.00	.000	1.00
Restructuring	0	2	0.20	0.51	.19	.50	.27	.65	-.355	.72
Literal translation	0	4	0.78	0.98	.84	1.01	.27	.47	-1.796	.07
Foreignizing	0	0	0.00	0.00	.00	.00	.00	.00	.000	1.00
Code switching	0	2	0.10	0.39	.11	.41	.00	.00	-.959	.34
Retrieval	0	5	0.24	0.71	.27	.75	.00	.00	-1.407	.16
Mime	0	1	0.09	0.29	.07	.25	.27	.47	-2.233*	.03
Use of all-purpose words	0	6	0.49	0.93	.48	.89	.55	1.21	-.339	.73
Use of similar sounding words	0	3	0.16	0.53	.18	.56	.00	.00	-1.164	.24
Mumbling	0	1	0.05	0.22	.06	.23	.00	.00	-.802	.42
Omission	0	2	0.08	0.31	.09	.32	.00	.00	-.959	.34
Self-repair	0	6	0.81	1.25	.76	1.15	1.18	1.94	-.205	.84
Self-rephrasing	0	2	0.33	0.55	.33	.56	.36	.50	-.452	.65

Strategies	Total (n = 100)					Low Proficiency (n=89)		Hi Proficiency (n=11)		Mann-Whitney U Test	
	Minimum Use	Maximum Use	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.	Z	Asymp. Sig. (2-tailed)
Indirect Strategies											
Self-repetition	0	18	4.10	4.16	4.22	4.28	3.09	3.05	-.722	.47
Use of fillers	0	34	9.14	6.85	9.28	7.11	8.00	4.20	-.138	.89
Verbal strategy markers	0	5	0.24	0.75	.24	.74	.27	.90	-.321	.75

4.1.2   Communication strategy use by hemispheric dominance (RQ 2)

To identify communication strategies applied in an oral narrative task by learners with different hemispheric dominance: left-brained, right-brained, and whole-brained, the data analysis was carried out using descriptive statistics. Overall, as shown in *Table 8*, communication strategies were more frequently used by the whole-brained and the left-brained learners ($\overline{X}$ = 22.64, S.D. = 13.00 and $\overline{X}$ = 21.50, S.D. = 7.58, respectively) than the right-brained counterpart ($\overline{X}$ = 17.63, S.D. = 8.99). This similar phenomenon also existed in *achievement*, *direct*, and *indirect* strategies. However, *avoidance* strategy was found the most frequently applied by the right-brained learners ($\overline{X}$ = 1.79, S.D. = 1.24), very closely followed by the left-brained ($\overline{X}$ = 1.69, S.D. = 1.41) and the whole-brained ($\overline{X}$ = 1.55, S.D. = 1.06) ones. The two distinct hemispheres tended to use avoidance strategies more frequently than the flexible hemisphere. This phenomenon might result from the participants' language proficiency.

Table 8:   *Communication Strategy Use by Hemispheric Dominance:*
            Main Categories

Strategies	Total (n=100)				Left-brained learners (n=26)		Right-brained learners (n=52)		Whole-brained learners (n=22)	
	Minimum Use	Maximum Use	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.
Overall strategy	2	54	19.74	9.85	21.50	7.58	17.63	8.99	22.64	13.00
Avoidance strategies	0	5	1.71	1.24	1.69	1.41	1.79	1.24	1.55	1.06
Achievement strategies	1	53	18.03	10.03	19.81	7.67	15.85	9.19	21.09	13.18
Direct strategies	1	14	6.26	2.66	6.42	2.44	6.06	2.35	6.55	3.54
Indirect strategies	0	41	13.48	8.68	15.08	6.51	11.58	7.89	16.09	11.57

* p ≤ 0.05

The findings of using specific communication strategies (see *Table 9*)
indicated that some *achievement* strategies including *message replacement,
restructuring, all-purpose words, mumbling, self-rephrasing, fillers* and *verbal
strategy markers* were most frequently applied by the whole-brained learners.
Message abandonment, which was an avoidance strategy, *literal translation,
retrieval, omission*, and *self-repetition* were most frequently used by the left-brained
learners. The most frequent use of the other strategies covering *message reduction*,
which was the other avoidance strategy, *circumlocution, approximation, mime,
similar sounding words*, and *self-repair* was found in the right-brained learners.
Additionally, equally high application of *code switching* was discovered among the

left-brained and the right-brained learners. Hemispheric functions might be connected

to those strategies.

Table 9:   Communication Strategy Use by Hemispheric Dominance

Strategies	Total (n=100)				Left-brained learners (n=26)		Right-brained learners (n=52)		Whole-brained learners (n=22)	
	Minimum Use	Maximum Use	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.
Avoidance Strategies										
Direct Strategies										
Message abandonment	0	5	0.84	1.16	1.08	1.38	0.73	1.10	0.82	1.01
Message reduction	0	5	0.87	0.84	0.62	0.75	1.06	0.89	0.73	0.70
Achievement Strategies										
Direct Strategies										
Message replacement	0	3	0.32	0.65	0.38	0.70	0.21	0.57	0.50	0.74
Circumlocution	0	1	0.09	0.29	0.04	0.20	0.13	0.34	0.05	0.21
Approximation	0	3	0.81	0.76	0.77	0.71	0.83	0.73	0.82	0.91
Word-coinage	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restructuring	0	2	0.20	0.51	0.23	0.59	0.12	0.38	0.36	0.66
Literal translation	0	4	0.78	0.98	0.85	1.05	0.73	0.84	0.82	1.22
Foreignizing	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Code switching	0	2	0.10	0.39	0.12	0.43	0.12	0.43	0.05	0.21
Retrieval	0	5	0.24	0.71	0.42	0.81	0.23	0.78	0.05	0.21
Mime	0	1	0.09	0.29	0.04	0.20	0.12	0.32	0.09	0.29
Use of all-purpose words	0	6	0.49	0.93	0.50	0.91	0.38	0.63	0.73	1.42
Use of similar sounding words	0	3	0.16	0.53	0.15	0.46	0.17	0.58	0.14	0.47

Strategies	Total (n=100)				Left-brained learners (n=26)		Right-brained learners (n=52)		Whole-brained learners (n=22)	
	Minimum Use	Maximum Use	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.
Mumbling	0	1	0.05	0.22	0.04	0.20	0.04	0.19	0.09	0.29
Omission	0	2	0.08	0.31	0.15	0.37	0.04	0.19	0.09	0.43
Self-repair	0	6	0.81	1.25	0.77	1.11	0.87	1.36	0.73	1.20
Self-rephrasing	0	2	0.33	0.55	0.27	0.53	0.29	0.46	0.50	0.74
2.2 Indirect Strategies										
Self-repetition	0	18	4.10	4.16	4.50	4.43	3.77	3.59	4.41	5.14
Use of fillers	0	34	9.14	6.85	10.42	5.14	7.67	6.33	11.09	9.00
Verbal strategy markers	0	5	0.24	0.75	0.15	0.61	0.13	0.40	0.59	1.30

With abnormal distribution, the data were analyzed by using the Kruskal Wallis Test to investigate differences in communication strategy use among three brain groups of learners. According to *Table 10*, it was found that *message reduction* (Chi-square = 6.602, *p* = 0.04) and *use of fillers* (Chi-square = 6.024, *p* = 0.05) strategies were applied differently among the participants with different brain patterns. The *message reduction* strategy was quite similarly applied by the left-brained ($\overline{X}$ = 0.62, S.D. = 0.75) and the whole-brained ($\overline{X}$ = 0.73, S.D. = 0.70) learners, while the application of such seen strategy among the right-brained learners ($\overline{X}$ = 1.06, S.D. = 0.89) nearly doubled. A marked contrast appeared in the *use of fillers* strategy which was much less frequently used by the right-brained learners ($\overline{X}$ = 7.67, S.D. = 6.33) than the other two groups who shared similar application.

Table 10:   Kruskal Wallis Test of Hemispheric Dominance on Communication Strategy Use

Strategies	Left-brained learners (n=26)		Right-brained learners (n=52)		Whole-brained learners (n=22)		Kruskal Wallis Test	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Chi-Square	Asymp. Sig.
Message reduction	0.62	0.75	1.06	0.89	0.73	0.70	6.602*	0.04
Use of fillers	10.42	5.14	7.67	6.33	11.09	9.00	6.024*	0.05

* p ≤ 0.05

4.1.3   Communication strategy use by hemispheric dominance with different language proficiency (RQ3)

To find out whether there any differences in communication strategy use among high and low English learners with different hemispheric dominance in an oral narrative task, a Kruskal Wallis test was conducted. The findings showed that there was a statistically significant difference in application of the *message reduction* strategy among six groups of learner participants with different brain dominance and language proficiency (*see Table 11*). This nonparametric statistics could not identify the features and the extent of such difference.

Table 11:   Kruskal Wallis Test of Communication Strategy Use by Hemispheric Dominance with Different Language Proficiency

Strategy	Kruskal Wallis Test	
	Chi-Square	Asymp. Sig.
Message reduction	6.602*	0.04

* p ≤ 0.05

4.2   Relationships among language proficiency, hemispheric dominance and communication strategy use (RQ 4)

To investigate the correlation among hemispheric dominance, communication strategy use and language proficiency in an oral narrative task of English learners, correlation coefficient (r value) was computed. The findings in *Table 12* indicated that the left brain dominance with high proficiency was negatively correlated at a moderate level with *avoidance* strategies ($r = -.527$). It showed that the left-brained learners with higher proficiency tended to apply less *avoidance* strategy. The right brain dominance with higher proficiency, because of its quite strong negative relationships, tended to resort less to employment of *overall* strategies ($r = -.604$), in particular *achievement* strategies ($r = -.670$) and *indirect* strategies ($r = -.664$). The right brain dominance with lower proficiency, due to very weak negative relationships, might use less *overall* strategies ($r = -.198$), especially *achievement* strategies ($r = -.198$) and *indirect* strategies ($r = -.198$). These correlations were statistically significant at a 0.05 level.

Table 12:   *Communication Strategy, Hemispheric Dominance and Language Proficiency Correlations*

Communication	High Proficiency			Low Proficiency		
Strategy	Left Brain	Right Brain	Whole Brain	Left Brain	Right Brain	Whole Brain
Overall strategy	.295	-.604[*]	.381	.092	-.198[*]	.143
Avoidance strategies	-.527[*]	.311	.180	.069	.033	-.114
Achievement strategies	.403	-.670[*]	.346	.082	-.198[*]	.154
Direct strategies	.168	-.046	-.116	.020	-.090	.088
Indirect strategies	.257	-.664[*]	.485	.098	-.198[*]	.136

* * p ≤ 0.05

5. Discussion

With the purpose to explore correlations among communication strategy use, language proficiency and hemispheric brain dominance of English learners in performing an oral narrative task, the study discovered the findings which are discussed below.

5.1 Communication strategy use by high and low proficiency

It was evident that the *use of fillers* was the most common strategy among Thai EFL learner participants with high and low proficiency. This was consistent to previous studies both in a Thai context (Malasit & Sarobol, 2012) and non-Thai contexts (Uztosun, 2014; Yaramadzehi, Saed & Farzane, 2015). That the strategy was more applied by the less proficient participants was consistent to the findings of Malasit and Sarobol (2012) and Hashempour and Baghaei (2016). According to Dornyei (1995), *fillers*, as a time-gaining strategy, are employed to prolong the speech production. The strategy is beneficial to the speaker as he or she can pause or slow down his or her speech with natural flow. *Fillers* are 'products' showing the speaker's effort to apply the linguistic system efficiently (Tarone, 1980). The majority of fillers applied by the participants were *'err' and 'umm'* which were 'non-lexicalized'. It was clearly shown that their *use of fillers* focused on processing and thinking time and prevention of communication breakdown. A small number of 'lexicalized' *fillers* with particular meanings were applied by only the higher proficient participants. Use of 'non-lexicalized' *fillers* indicates the speaker's linguistic deficiency. This explanation could contribute to the greater application of *fillers* among the low proficient participants than their counterparts who opted to use other strategy based on their higher linguistic knowledge.

Word coinage and *foreignizing* were not used by both proficiency groups. Similarly, Malasit and Sarobol (2012) found that these two communication strategies were rarely applied by their Thai learner participants. Probably, it was due to different characteristics of Thai and English, making morphological and phonological adjustment difficult. The low proficient participants applied more communication strategies. They used all specific strategies, excluding *word coinage* and *foreignizing*, while their counterparts applied some. This can affirm that learners who are better linguistically-equipped will resort less to communication strategies.

Surprisingly, the low proficient participants applied more *achievement* strategies but less *avoidance* strategies than the highly proficient counterparts, which was inconsistent with many previous studies both in Thai (Metcafe & Noom-ura, 2013) and non-Thai (Hsieh, 2014, Rohani, 2011; Yarahmadzehi, Saed, & Farzane, 2015) contexts. The inconsistency in the different finding of this study could be affected by the small number and the 'actual' proficiency of the highly proficient participants. They were only 10 per cent of all the participants. Based on the standard proficiency level of Council of Europe (see *Table 4*), they were lower intermediate (B1) learners.

Circumlocution, code switching, retrieval, similar sounding words, mumbling and *omission* were kept unemployed by the highly proficient participants. At the same time, *mime* was found more frequently employed by the highly proficient participants than their counterparts with significant difference. It could be assumed that they opted not to use some strategies and tended to resort more to a nonverbal device. Additionally, most of the participants in the high proficiency group were right-brained learners who were expert at using nonverbal language.

5.2   Communication strategy use by hemispheric dominance

The findings showed that hemispheric dominance played an important role in learner participants' communication strategy use in an oral narrative task. *Message abandonment, literal translation, retrieval, omission*, and *self-repetition* strategies were most employed by the left-brained participants. *Literal translation* and *word retrieval* mainly function in the left hemisphere which is specialized in speech and sequential procedures (Sousa, 2002). According to Price (2012 as cited in Ries, Dronkers & Knight, 2016), *literal translation* involves morpho-syntactic procession of the word in the first language and needs sequential information processing. *Word retrieval* is associated with left hemisphere regions of the frontal and temporal lobes. With judgement-based analytical process, the left-brained learners most frequently employed the *word retrieval* and the *literal translation* strategies. *Self-repetition* shows constituent complexity in spontaneous speech (Clark & Wasow, 1998) because the left-brained learners require time utilization and planning which are components of sequencing functioned in the left hemisphere (Bada, 2010).

The right-brained learner participants were reported the highest users of *message reduction, circumlocution, approximation, mime, similar sounding words*, and *self-repair* strategies. *Mime* was used to explain their narration because of their specialization at interpreting body language. Their application of *circumlocution* and *approximation* strategies are contributed by the right hemispheric functioning on sentence processing and semantic integration (Mashal et al., 2008).

Fillers, all-purpose words, verbal strategy markers, message replacement, self-rephrasing and *restructuring* strategies were most frequently applied by the whole-brained learner participants. With more flexible function of hemispheres, they

aimed to achieve a communicative goal with their great attempts. All of those achievement strategies were employed.

Learner participants of different hemispheric brain patterns applied *message reduction* and *fillers* strategies differently. The left-brained and the whole-brained learner participants shared similar tendency of using these two strategies. On the other hand, the right-brained learner participants' use was shown distinctively different. They applied *message reduction* more frequently but *fillers* less frequently than the other two brain groups.

5.3   Relationships between hemispheric dominance and communication strategy use of different language proficiency

It is interesting that two different *avoidance* strategies: *message abandonment* and *message reduction*, were most applied by different brain patterns: the former by the left and the latter by the right. It was also found that *avoidance* strategy was employed most by the learner participants with high proficiency. Nevertheless, a moderate negative relationship was discovered only in the left-brained learner participants. They were likely to apply less *avoidance* strategies when their proficiency became improved. Differently, with higher proficiency, the right-brained learner participants tended to apply less *overall* communication strategies. No relationship was found in the whole-brained learner participants of both proficiency groups.

6. Pedagogical implications

Based on the main findings of this study, some pedagogical implications for promoting learners' effective application of communication strategies are provided.

The first main finding is about communication strategy use by the learners with different language proficiency and hemispheric dominance in performing an oral narrative task. *Use of fillers* was most frequently employed; however, the *fillers* were mainly non-lexicalized, more applied by the low proficient than the highly proficient, resulting from their inferior linguistic knowledge. The teacher can help develop the learners' communicative competence and simultaneously improve their proficiency by introducing them lexicalized *fillers*, for example, 'you know', 'I mean', 'what should I call it?', 'how do I say this?', and 'what's it called?', etc. The introduction can be both explicit (i.e. showing the students some videos on using lexicalized fillers, which can be found on Youtube, and asking them to practice using the strategy) and implicit (i.e. modeling using the strategy in any classroom situation). The teacher may assign the students to pair up between high and low proficiency to practice using varieties of *fillers*.

The findings of the research questions 1 and 2 could help the teacher become aware of different employment of communication strategies among learners of different language proficiency and hemispheric dominance. *Mime*, most frequently used by the right-brained learners, was applied significantly differently between the two proficiency groups. This neurological-based behavior with incorporation of low proficiency could be promoted to more effective use. Playing a mime or gesture game can contribute to various enjoyable use of communicative gestures. The learners might be divided into teams, with homogeneous or heterogeneous proficiency and

hemispheric dominance. Given a picture, a representative of each team performs in mime, and the rest team members guess and utter the corresponding word. An alternative version of the game is that the first player faces the mime performer to see his/her gesture, while the other players turn back. Then he/she turns to the next player and mimes what is perceived from the previous player's gesture. The last player needs to answer what the gesture is about. If the answer is wrong, it shows a communication breakdown. This amusing game helps to improve learners' gestures and make them aware of miscommunication or communication breakdowns.

Among the three different brain patterns, the right-brained participants applied the *message reduction* and the *use of fillers* strategies significantly differently from the other two groups. Despite an avoidance strategy due to its great disagreement with the aim of speaking, *message reduction* is beneficial to learners as it makes them "emotionally protected and possibly more able to speak about other things later" (Oxford, 1990, p. 96). Awareness of this point is significant to assessment of learners' oral performance. The teacher should design a scoring criterion carefully. Additionally, with variation in application by proficiency levels with different brain patterns, *message reduction* should be more focused. Learners should be explicitly trained on when, where and to what extent to employ the strategy in the communication. The teacher may have them video-record their oral task performances, either one-way (i.e. picture description, storytelling, etc.) or two-way (i.e. interviews, role plays, etc.), then make a group or class discussion on *message reduction* found in those videos.

As a piece of jigsaw in the related fields of research, this investigation could contribute to a body of knowledge in designing brain-compatible materials and

activities, specifically for development of the speaking skill. Understanding the features of hemispheric functions, the teacher with his/her individual learners' brain and proficiency profiles could foster their strengths and improve their weakness. For example, an impromptu speaking task is not enjoyable for the left-brained learners who are analytical thinkers because they require a proper length of time for processing sequential information. They should be encouraged to effectively apply their strong strategies, covering *retrieval*, *literal translation* and *self-repetition*. At the same time, they should be promoted to employ flexible achievement strategies more such as *message replacement, restructuring, use of all-purpose words, use of fillers, self-rephrasing* and *verbal strategy markers,* which are most functioned in the whole brain. Those strategies can be developed through picture description with gap filling. Right-brained learners enjoy telling a story according to their imagination because of their creativity traits.

7. Suggestions for further research

Even though the findings of the present study are inconsistent with many previous ones, some following limitations in the study might influence the results. Bearing in mind the limitations of this study, suggestions for further research could be made as follows:

7.1 Different length of time, with a minimum of 1 minute and a maximum of 3 minutes, employed by individual participants in the oral narrative task could affect frequency of communication strategy use. A future study should specify equal time length for task completion. For example, each participant might need to take 2

minutes to finish a narration. Given the control on time length for task completion, a replication of this study is worth pursuing for the confirmation of its results.

7.2 The participants of the present study were an intact group, leading to large gaps of numbers of participants in each brain group and proficiency level. Additionally, of 100 participants who did the Quick Placement Test: 11 were at a lower intermediate level, and 89 at the elementary level. The former was determined the highly proficient participants, the latter the low proficient ones. The participants in the high proficiency group, with a very smaller number than the low one, might not be actually 'high'. This limitation might possibly affect the findings. Therefore, it is strongly recommended that an equal number of participants in each brain and proficiency group is recruited in the future study. Their proficiency should be distinctively high and low. Finally, with appropriate sample size and equal numbers in each group, the most appropriate parametric statistics can be applied for more empirical findings.

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APPENDIX A

QUICK PLACEMENT TEST (QPT)

Oxford University Press
and
University of Cambridge Local Examinations Syndicate

Name: ....

Date: ....

quick placement test

Version 2

This test is divided into two parts:

Part One (Questions 1 – 40) – All students.

Part Two (Questions 41 – 60) – Do not start this part unless told to do so by your test supervisor.

Time: 30 minutes
Part 1

Questions 1 – 5

- Where can you see these notices?
- For questions **1** to **5**, mark **one** letter **A**, **B** or **C** on your Answer Sheet.

1
You can look, but don't touch the pictures.

   A   in an office
   B   in a cinema
   C   in a museum

2
Please give the right money to the driver.

   A   in a bank
   B   on a bus
   C   in a cinema

3
NO PARKING PLEASE

   A   in a street
   B   on a book
   C   on a table

4
CROSS BRIDGE FOR TRAINS TO EDINBURGH

   A   in a bank
   B   in a garage
   C   in a station

5
KEEP IN A COLD PLACE

   A   on clothes
   B   on furniture
   C   on food

Questions 6 – 10

- In this section you must choose the word which best fits each space in the text below.
- For questions **6** to **10**, mark **one** letter **A**, **B** or **C** on your Answer Sheet.

THE STARS

There are millions of stars in the sky. If you look **(6)** .... the sky on a clear night, it is possible

to see about 3000 stars. They look small, but they are really **(7)** .... big hot balls of burning

gas. Some of them are huge, but others are much smaller, like our planet Earth. The biggest stars are

very bright, but they only live for a short time. Every day new stars **(8)** .... born and old stars

die. All the stars are very far away. The light from the nearest star takes more **(9)** .... four

years to reach Earth. Hundreds of years ago, people **(10)** .... stars, like the North star, to know

which direction to travel in. Today you can still see that star.

6	**A**	at	**B**	up	**C**	on
7	**A**	very	**B**	too	**C**	much
8	**A**	is	**B**	be	**C**	are
9	**A**	that	**B**	of	**C**	than
10	**A**	use	**B**	used	**C**	using

Questions 11 – 20

- In this section you must choose the word which best fits each space in the texts.
- For questions **11** to **20**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

Good smiles ahead for young teeth

Older Britons are the worst in Europe when it comes to keeping their teeth. But British youngsters

(11) .... more to smile about because **(12)** .... teeth are among the best. Almost

80% of Britons over 65 have lost all or some **(13)** .... their teeth according to a World

Health Organisation survey. Eating too **(14)** .... sugar is part of the problem. Among

(15) .... , 12-year olds have on average only three missing, decayed or filled teeth.

11	**A** getting	**B** got	**C** have	**D** having
12	**A** their	**B** his	**C** them	**D** theirs
13	**A** from	**B** of	**C** among	**D** between
14	**A** much	**B** lot	**C** many	**D** deal
15	**A** person	**B** people	**C** children	**D** family

Christopher Columbus and the New World

On August 3, 1492, Christopher Columbus set sail from Spain to find a new route to India, China and Japan. At this time most people thought you would fall off the edge of the world if you sailed too far. Yet sailors such as Columbus had seen how a ship appeared to get lower and lower on the horizon as it sailed away. For Columbus this **(16)** .... that the world was round. He **(17)** .... to his men about the distance travelled each day. He did not want them to think that he did not **(18)** .... exactly where they were going. **(19)** .... , on October

12, 1492, Columbus and his men landed on a small island he named San Salvador. Columbus believed he was in Asia, **(20)** .... he was actually in the Caribbean.

16   **A**   made   **B**   pointed   **C**   was   **D**   proved

17   **A**   lied   **B**   told   **C**   cheated   **D**   asked

18   **A**   find   **B**   know   **C**   think   **D**   expect

19   **A**   Next   **B**   Secondly   **C**   Finally   **D**   Once

20   **A**   as   **B**   but   **C**   because   **D**   if

Questions 21 – 40

- In this section you must choose the word or phrase which best completes each sentence.
- For questions **21** to **40**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

21   The children won't go to sleep .... we leave a light on outside their bedroom.

    A except   **B** otherwise   **C** unless   **D** but

22   I'll give you my spare keys in case you .... home before me.

    A would get   **B** got   **C** will get   **D** get

23   My holiday in Paris gave me a great .... to improve my French accent.

    A occasion   **B** chance   **C** hope   **D** possibility

24   The singer ended the concert .... her most popular song.

    A by   **B** with   **C** in   **D** as

25   Because it had not rained for several months, there was a .... of water.

    A shortage   **B** drop   **C** scarce   **D** waste

26   I've always .... you as my best friend.

    A regarded   **B** thought   **C** meant   **D** supposed

27   She came to live here .... a month ago.

    A quite   **B** beyond   **C** already   **D** almost

28   Don't make such a ....! The dentist is only going to look at your teeth.

    A fuss   **B** trouble   **C** worry   **D** reaction

29   He spent a long time looking for a tie which .... with his new shirt.

    A fixed   **B** made   **C** went   **D** wore

30   Fortunately, ... from a bump on the head, she suffered no serious injuries from her fall.

    A other   **B** except   **C** besides   **D** apart

31   She had changed so much that .... anyone recognised her.

    A almost   **B** hardly   **C** not   **D** nearly

32 .... teaching English, she also writes children's books.

    A Moreover   **B** As well as   **C** In addition   **D** Apart

33 It was clear that the young couple were .... of taking charge of the restaurant.

    A responsible   **B** reliable   **C** capable   **D** able

34 The book .... of ten chapters, each one covering a different topic.

    A comprises   **B** includes   **C** consists   **D** contains

35 Mary was disappointed with her new shirt as the colour .... very quickly.

    A bleached   **B** died   **C** vanished   **D** faded

36 National leaders from all over the world are expected to attend the .... meeting.

    A peak   **B** summit   **C** top   **D** apex

37 Jane remained calm when she won the lottery and .... about her business as if nothing had happened.

    A came   **B** brought   **C** went   **D** moved

38 I suggest we .... outside the stadium tomorrow at 8.30.

    A meeting   **B** meet   **C** met   **D** will meet

39 My remarks were .... as a joke, but she was offended by them.

    A pretended   **B** thought   **C** meant   **D** supposed

40 You ought to take up swimming for the .... of your health.

    A concern   **B** relief   **C** sake   **D** cause

Part 2

> *Do not start this part unless told to do so by your test supervisor.*

Questions 41 – 50

- In this section you must choose the word or phrase which best fits each space in the texts.
- For questions **41** to **50**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

CLOCKS

The clock was the first complex mechanical machinery to enter the home, **(41)** ……………….. it

was too expensive for the **(42)** ……………….. person until the 19th century, when

(43) ……………….. production techniques lowered the price. Watches were also developed, but

they **(44)** ……………….. luxury items until 1868 when the first cheap pocket watch was designed

in Switzerland. Watches later became **(45)** ……………….. available and Switzerland became the

world's leading watch manufacturing centre for the next 100 years.

---

41 **A** despite **B** although **C** otherwise **D** average

42 **A** average **B** medium **C** general **D** common

43 **A** vast **B** large **C** wide **D** mass

44 **A** lasted **B** endured **C** kept **D** remained

45 **A** mostly **B** chiefly **C** greatly **D** widely

Dublin City Walks

What better way of getting to know a new city than by walking around it?

Whether you choose the Medieval Walk, which will **(46)** ……………….. you to the Dublin of

1000 years ago, find out about the more **(47)** ……………….. history of the city on the Eighteenth

Century Walk, or meet the ghosts of Dublin's many writers on the Literary Walk, we know you will

enjoy the experience.

Dublin City Walks **(48)** ……………….. twice daily. Meet your guide at 10.30 a.m. or 2.30 p.m. at

the Tourist Information Office. No advance **(49)** ……………….. is necessary. Special

(50) ……………….. are available for families, children and parties of more than ten people.

46 **A** introduce   **B** present   **C** move   **D** show

47 **A** near   **B** late   **C** recent   **D** close

48 **A** take place   **B** occur   **C** work   **D** function

49 **A** paying   **B** reserving   **C** warning   **D** booking

50 **A** funds   **B** costs   **C** fees   **D** rates

Questions 51 – 60

- In this section you must choose the word or phrase which best completes each sentence.
- For questions **51** to **60**, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

51　If you're not too tired we could have a .... of tennis after lunch.

　　A　match　　　　**B**　play　　　　**C**　game　　　　**D**　party

52　Don't you get tired .... watching TV every night?

　　A　with　　　　**B**　by　　　　**C**　of　　　　**D**　at

53　Go on, finish the dessert. It needs .... up because it won't stay fresh until tomorrow.

　　A　eat　　　　**B**　eating　　　　**C**　to eat　　　　**D**　eaten

54　We're not used to .... invited to very formal occasions.

　　A　be　　　　**B**　have　　　　**C**　being　　　　**D**　having

55　I'd rather we .... meet this evening, because I'm very tired.

　　A　wouldn't　　　　**B**　shouldn't　　　　**C**　hadn't　　　　**D**　didn't

56　She obviously didn't want to discuss the matter so I didn't .... the point.

　　A　maintain　　　　**B**　chase　　　　**C**　follow　　　　**D**　pursue

57　Anyone ...... after the start of the play is not allowed in until the interval.

　　A　arrives　　　　**B**　has arrived　　　　**C**　arriving　　　　**D**　arrived

58　This new magazine is .... with interesting stories and useful information.

　　A　full　　　　**B**　packed　　　　**C**　thick　　　　**D**　compiled

59　The restaurant was far too noisy to be .... to relaxed conversation.

　　A　conducive　　　　**B**　suitable　　　　**C**　practical　　　　**D**　fruitful

60　In this branch of medicine, it is vital to .... open to new ideas.

　　A　stand　　　　**B**　continue　　　　**C**　hold　　　　**D**　remain

APPENDIX B

BRAIN DOMINANCE INVENTORY (BDI)

- ORIGINAL ENGLISH VERSION
- THAI-TRANSLATED VERSION

BRAIN-DOMINANCE INVENTORY
Author unknown
Revisions by Evelyn C. Davis, Ed.D.
(non-copyrighted)

Name _____

Date_____

This inventory will help determine if you are primarily a left-brain or right-brain learner, or if you are bi-lateral (using both about equally).

Directions: Answer the questions carefully, checking the answer that is correct for you. Select the one that most closely represents your attitude or behavior. When you have finished, refer to the scoring instructions.

1. I prefer the kind of classes
   __a. where I listen to an authority.
   __b. in which I move around and do things.
   __c. where I listen and also do things.

2. Concerning hunches:
   __a. I would rather not rely on them to help me make important decisions.
         I frequently have strong ones and follow them.
   __b. I occasionally have strong hunches but usually I do not place much faith in
   __c. them or consciously follow them.

3. I usually have a place for things, a way of doing things, and an ability to organize information and materials.
   __a. Yes.
   __b. No.
   __c. In some areas of my life, but not in others.

4. When I want to remember directions, a name, or a news item, I usually:

   __a. write notes.
   __b. visualize the information.
   __c. associate it with previous information in several different ways.

5. In notetaking, I print:
   __a. never.
   __b. frequently.
   __c. sometimes.

6. I prefer the kind of classes
   __a. where there is one assignment at a time, and I can complete it before beginning the next one.
   __b. where I work on many things at once.
   __c. I like both kinds about equally.

7. When remembering things or thinking about things, I do so best with:
   __a. words.
   __b. pictures and images.
   __c. both equally well.

8. In reviewing instructions, I prefer:
   __a. to be told how to do something.
   __b. to be shown how.
   __c. no real preference for demonstration over oral instruction.

9. I prefer:
   __a. dogs.
   __b. cats.
   __c. no preference for dogs over cats or vice versa.

10. I am:
   __a. almost never absentminded.
   __b. frequently absentminded.
   __c. occasionally absentminded.

11. Do you instinctively feel an issue is right or correct, or do you decide on the basis of information?
   __a. decide on the basis of information.
   __b. instinctively feel it is right or correct.
   __c. I tend to use a combination of both.

12. I have
   __a. no or almost no mood changes.
   __b. frequent mood changes.
   __c. occasional mood changes.

13. I am:
   __a. easily lost in finding directions, especially if I have never been to that place
         before.
   __b. good at finding my way, even when I have never been in that area.
   __c. not bad in finding directions, but not really good either.

14. I get motion sickness in cars and boats:
   __a. hardly ever.
   __b. a lot.
   __c. sometimes.

15. I generally:
   __a. use time to organize work and personal activities.
   __b. have difficulty in pacing personal activities to time limits.
   __c. usually am able to pace personal activities to time limits with ease.

16. I prefer to learn:
   __a. details and specific facts.
   __b. from a general overview of things, and to lookat the whole picture.
   __c. both ways about equally.

17. I learn best from teachers who:
   __a. are good at explaining things with words.
   __b. are good at explaining things with demonstration, movement, and/or action.
   __c. do both.

18. I am good at:
   __a. explaining things mainly with words.
   __b. explaining things with hand movements and action.
   __c. doing both equally well.

19. I prefer to solve problems with:
   __a. logic.
   __b. my gut feelings.
   __c. both logic and gut feelings.

20. I prefer:
   __a. simple problems and solving one thing at a time.
   __b. more complicated problems, more than one thing.
   __c. both kinds of problems.

21. Daydreaming is:
   __a. a waste of time.
   __b. a usable tool for planning my future.
   __c. amusing and relaxing.

22. I prefer classes in which I am expected:
   __a. to learn things I can use in the future.
   __b. to learn things I can use right away.
   __c. I like both kinds of classes equally.

23. I am:
   __a. not very conscious of body language. I prefer to listen to what people say.
   __b. good at interpreting body language.
   __c. good at understanding what people say and also in interpreting body language.

24. In school, I preferred:
   __a. algebra.
   __b. geometry.
   __c. I had no real preference of one over the other.

25. In preparing myself for a new or difficult task, such as assembling a bicycle, I would most likely:
   __a. lay out all the parts, count them, gather the necessary tools, and follow the directions.
   __b. glance at the diagram and begin with whatever tools were there, sensing how the parts fit.
   __c. recall past experiences in similar situations.

26. In communicating with others, I am more comfortable being the:
   __a. talker.
   __b. listener.
   __c. I m usually equally comfortable with both.

27. I can tell fairly accurately how much time has passed without looking at a clock.
   __a. Yes.
   __b. No.
   __c. Sometimes.

28. I like my classes or work to be:
   __a. planned so that I know exactly what to do.
   __b. open with opportunities for change as I go along.
   __c. both planned and open to change.

29. I prefer:
    __a. multiple-choice tests.
    __b. essay tests.
    __c. I like both kinds of tests equally.

30. In reading, I prefer:
    __a. taking ideas apart and thinking about them separately.
    __b. putting a lot of ideas together before applying them to my life.
    __c. both equally.

31. When I read, I prefer to look for:
    __a. specific details and facts.
    __b. main ideas.
    __c. both about equally.

32. I enjoy:
    __a. talking and writing.
    __b. drawing and handling things.
    __c. doing both equally.

33. It is more exciting to:
    __a. improve something.
    __b. invent something.
    __c. both are exciting to me.

34. I am skilled in:
    __a. putting ideas in a logical order.
    __b. showing relationships among ideas.
    __c. both equally.

35. I am good at:
    __a. recalling verbal material (names, dates).
    __b. recalling visual material (diagrams, maps).
    __c. equally good at both.

36. I remember faces easily.
    __a. No.
    __b. Yes.
    __c. Sometimes.

37. When reading or studying, I:
    __a. prefer total quiet.
    __b. prefer music.
    __c. I listen to background music only when reading for enjoyment, not while studying.

38. I like to learn a movement in sports or a dance step better by:
    __a. hearing a verbal explanation and repeating the action or step mentally.
    __b. watching and then trying to do it.
    __c. watching and then imitating and talking about it.

39. Sit in a relaxed position and clasp your hands comfortably in your lap. Which thumb is on top?
    __a. Left.
    __b. Right.
    __c. They are parallel.

BRAIN-DOMINANCE INVENTORY SCORING

Number of A s _____   Number of B s _____   Number of C s _____

Your A s, B s, and C s must total 39, or your score is incorrect.

1.   Compute your B score minus your A score. It can be a minus or a plus answer. _____ .

2.   If your C score is 17 or higher, divide your B minus A score by three. Round your score to the nearest number. The answer will be your score. It can be a minus or plus number. _____.

                    OR

    If your C score is from 10 to 16, divide your B minus A score by two. Round your score to the nearest number. The answer will be your score. It can be a minus or plus number. _____.

                    OR

    If your C score is less than 10, do not divide at all. Your B minus A score is your answer. _____.

3.   NOW PLOT YOUR SCORE BELOW

-11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10 +11

A score of O = Whole-brain dominance (bi-lateral)

A score of - 1 to - 3 = Slight preference toward the left
A score of - 4 to - 6 = Moderate preference for the left
A score of - 7 to - 9 = Left-brain dominant
A score of -10 to -11 = Left-brain dominant (very strong)

A score of + 1 to + 3 = Slight preference toward the right
A score of + 4 to + 6 = Moderate preference for the right
A score of + 7 to + 9 = Right-brain dominant
A score of +10 to +11 = Right-brain dominant (very strong)

BRAIN-DOMINANCE INVENTORY

แบบทดสอบรูปแบบการรับรู้ของซีกสมอง

ชื่อ-สกุล: _____*รหัสนักศึกษา:* _____

วันที่: _____

แบบทดสอบฉบับนี้ใช้เพื่อวัดว่าคุณจัดเป็นบุคคลประเภทที่ใช้สมองซีกใดเป็นหลัก (ซีกซ้าย ซีกขวา หรือทั้งสองซีก)

คำชี้แจง: ให้นักศึกษาตอบคำถามแต่ละข้อโดยใส่เครื่องหมาย ✔ ในช่องว่างหน้าตัวเลือก (ก, ข, หรือ ค) ที่

สอดคล้องกับลักษณะพฤติกรรมหรือทัศนคติของตนมากที่สุด

1. ฉันชอบชั้นเรียนที่มีลักษณะเน้นให้ผู้เรียน
   - ___ก.   ฟังบรรยายจากครูหรือผู้เชี่ยวชาญ
   - ___ข.   ได้เคลื่อนไหวและทำกิจกรรมต่างๆในชั้นเรียน
   - ___ค.   ฟังบรรยายและทำกิจกรรมต่างๆในชั้นเรียนควบคู่กัน

2. เมื่อพูดถึงลางสังหรณ์
   - ___ก.   ฉันมักไม่ค่อยใช้มันเท่าไหร่ในการประกอบการตัดสินใจในเรื่องที่สำคัญต่างๆ
   - ___ข.   ฉันมักมีลางสังหรณ์แรงกล้าและมักปฏิบัติตามลางสังหรณ์นั้น
   - ___ค.   ฉันมักมีลางสังหรณ์แรงกล้าแต่ไม่เชื่อถือเท่าไหร่และไม่ปฏิบัติตาม

3. ฉันเป็นคนเจ้าระเบียบ จัดวางของเป็นที่เป็นทาง ทำงานต่างๆอย่างเป็นขั้นตอน และสามารถจัดระเบียบข้อมูลและสิ่งของ
   ต่างๆได้ดี
   - ___ก.   ใช่
   - ___ข.   ไม่ใช่
   - ___ค.   ในบางกรณีเท่านั้น

4. เมื่อต้องจำชื่อ เส้นทาง หรือรายงานข่าว ฉันใช้วิธี
   - ___ก.   จดบันทึกย่อ
   - ___ข.   นึกภาพในใจ
   - ___ค.   เชื่อมโยงกับข้อมูลเดิมที่มีด้วยวิธีการที่แตกต่างหลากหลาย

5. ฉันพิมพ์บันทึกย่อออกมาอ่าน
   - ___ก.   ไม่เคย
   - ___ข.   บ่อยครั้ง
   - ___ค.   บางครั้งบางคราว

6. ฉันชอบชั้นเรียนที่
   ___ก.   ให้การบ้านทีละชิ้น และฉันสามารถทำเสร็จทันก่อนที่จะได้การบ้านชิ้นใหม่
   ___ข.   ให้ฉันได้ทำงานหลายๆชิ้นในเวลาเดียวกัน
   ___ค.   ให้งานหรือการบ้านทั้งสองแบบข้างต้นเท่าๆกัน

7. ฉันสามารถจำหรือนึกถึงสิ่งต่างๆได้ดีที่สุดเมื่อจำหรือนึกเป็น
   ___ก.   คำ
   ___ข.   ภาพ
   ___ค.   ทั้งคำและภาพช่วยให้ฉันจำได้ดีพอๆกัน

8. ในการทบทวนข้อแนะนำ คำสั่ง วิธีการใช้งาน หรือคำชี้แจงต่างๆ ฉันชอบที่จะ
   ___ก.   ให้มีการบอกหรืออธิบายว่าฉันต้องทำอย่างไร
   ___ข.   ให้มีการสาธิตหรือแสดงกระบวนการขั้นตอนให้ดู
   ___ค.   ชอบทั้งสองวิธีพอๆกัน

9. ฉันชอบ
   ___ก.   สุนัขมากกว่า
   ___ข.   แมวมากกว่า
   ___ค.   ชอบทั้งสุนัขและแมวเท่าๆกัน

10. ฉัน
   ___ก.   แทบจะไม่เคยเหม่อลอยเลย
   ___ข.   เหม่อลอยบ่อยครั้ง
   ___ค.   เหม่อลอยเป็นบางครั้ง

11. คุณใช้สัญชาตญาณความรู้สึกหรือใช้ข้อมูลในการตัดสินถูกผิด
   ___ก.   ตัดสินโดยใช้ข้อมูล
   ___ข.   ตัดสินโดยใช้สัญชาตญาณความรู้สึก
   ___ค.   มักใช้ทั้งสัญชาตญาณความรู้สึกและข้อมูลควบคู่กัน

12. อารมณ์ของฉัน
   ___ก.   คงที่ไม่เปลี่ยนแปลงหรือเกือบจะไม่เปลี่ยนแปลง
   ___ข.   ขึ้นๆลงๆไม่ค่อยคงที่
   ___ค.   ขึ้นๆลงๆบ้างเป็นครั้งคราว

13. ฉันเป็นคนที่

___ก. หลงทางง่าย โดยเฉพาะในที่ที่ฉันไม่เคยไปมาก่อน

___ข. หาเส้นทางเก่ง แม้จะไม่เคยไปยังสถานที่นั้นมาก่อน

___ค. ไม่ถึงกับหลงทางง่ายแต่ก็ไม่เก่งในการค้นหาเส้นทาง

14. ฉันมีอาการเมารถเมาเรือ

___ก. แทบจะไม่เคยมี

___ข. เป็นประจำ

___ค. บางครั้ง

15. ปกติแล้วฉัน

___ก. ใช้เวลานานในการจัดการงานต่างๆและภารกิจส่วนตัว

___ข. เร่งทำภารกิจส่วนตัวให้เสร็จภายในเวลาที่จำกัดไม่ทัน

___ค. สามารถเร่งทำภารกิจส่วนตัวให้เสร็จในเวลาที่จำกัดได้โดยง่ายดายอยู่เสมอ

16. ฉันชอบทำความเข้าใจ

___ก. ในรายละเอียดและข้อมูลเฉพาะมากกว่า

___ข. จากภาพรวมและพิจารณาทั้งภาพรวมมากกว่า

___ค. ทั้งในรายละเอียดและจากภาพรวมเท่าๆกัน

17. ฉันเรียนรู้ได้เข้าใจที่สุดจากครูที่

___ก. เก่งในการใช้คำประกอบการอธิบายเนื้อหา

___ข. เก่งในการใช้การสาธิต ลีลาท่าทาง และการแสดงประกอบการอธิบายเนื้อหา

___ค. เก่งทั้งการใช้คำและใช้ลีลาท่าทางการสาธิตประกอบการอธิบายเนื้อหา

18. ฉันเก่งในการ

___ก. ใช้ถ้อยคำสำนวนเป็นหลักในการอธิบายสิ่งต่างๆ

___ข. ใช้ลีลาท่าทางและการแสดงประกอบการอธิบายสิ่งต่างๆ

___ค. ใช้ทั้งถ้อยคำสำนวนและลีลาท่าทางการแสดงประกอบการอธิบายสิ่งต่างๆได้ดีพอๆกัน

19. ฉันชอบแก้ปัญหาโดยใช้

___ก. ตรรกะ

___ข. สัญชาตญาณ

___ค. ทั้งตรรกะและสัญชาตญาณ

20. ฉันชอบ

   ___ก. ปัญหาง่ายๆและแก้ไขไปทีละปัญหา

   ___ข. ปัญหาที่ยุ่งยากสลับซับซ้อนและแก้ไขปัญหาเหล่านั้นไปพร้อมๆกัน

   ___ค. ปัญหาและการแก้ไขปัญหาทั้งสองแบบ

21. ฉันมองว่าฝันกลางวัน

   ___ก. เป็นเรื่องไร้สาระเสียเวลา

   ___ข. ถือเป็นเครื่องมือที่มีประโยชน์ในการวางแผนอนาคต

   ___ค. เป็นเรื่องน่าสนุกและช่วยให้ผ่อนคลาย

22. ฉันชอบชั้นเรียนที่มุ่งหวังให้ฉัน

   ___ก. เรียนรู้สิ่งต่างๆที่ฉันสามารถนำไปใช้ได้ในอนาคต

   ___ข. เรียนรู้สิ่งต่างๆที่ฉันสามารถใช้ได้ทันที

   ___ค. เรียนรู้สิ่งต่างๆทั้งที่ฉันสามารถใช้ได้ทันทีและใช้ได้ในอนาคตเท่าๆกัน

23. ฉันเป็นคนที่

   ___ก. ไม่เข้าใจภาษาท่าทาง ฉันอยากให้เขาพูดให้ฟังมากกว่า

   ___ข. ตีความทำความเข้าใจภาษาท่าทางได้เก่ง

   ___ค. เข้าใจในสิ่งที่คนพูดอีกทั้งยังตีความภาษาท่าทางได้เก่ง

24. สมัยเป็นนักเรียน ฉันชอบเรียนวิชา

   ___ก. พีชคณิตมากกว่า

   ___ข. เรขาคณิตมากกว่า

   ___ค. ไม่ได้ชอบวิชาใดมากไปกว่ากัน

25. เมื่อต้องเตรียมตัวทำงานชิ้นใหม่หรืองานชิ้นยากๆ เช่น ประกอบชิ้นส่วนจักรยาน ฉันจะ

   ___ก. จัดเรียงชิ้นส่วนอะไหล่ทุกชิ้นให้ครบครัน วางอุปกรณ์เครื่องมือที่จำเป็นไว้ข้างตัว แล้วปฏิบัติตามขั้นตอนการ
ประกอบจักรยานในคู่มือ

   ___ข. มองแผนผังการประกอบจักรยานครู่หนึ่ง แล้วเริ่มต้นประกอบโดยใช้อุปกรณ์เครื่องมือที่มีอยู่ตรงหน้า และอาศัย
ความรู้สึกเอาว่าอะไหล่ชิ้นไหนน่าจะอยู่ส่วนใดของจักรยาน

   ___ค. นึกถึงประสบการณ์สถานการณ์เดียวกันในอดีต

26. เมื่อต้องติดต่อสื่อสารกับผู้อื่น ฉันรู้สึกผ่อนคลายมากกว่าเมื่ออยู่ในฐานะ

   ___ก. ผู้พูด

   ___ข. พู้ฟัง

   ___ค. รู้สึกผ่อนคลายเท่าๆกันทั้งในฐานะผู้พูดและผู้ฟัง

27. ฉันบอกได้ค่อนข้างแม่นยำโดยไม่ต้องดูนาฬิกาว่าเวลาผ่านไปแล้วเท่าไหร่

    ___ก. ใช่

    ___ข. ไม่ใช่

    ___ค. บางครั้ง

28. ฉันชอบวิชาหรืองานที่

    ___ก. มีการวางแผนมาเรียบร้อยแล้ว เพื่อที่ฉันจะได้รู้ชัดเจนว่าต้องทำอะไรบ้าง

    ___ข. เปิดโอกาสให้มีการเปลี่ยนแผนได้ในขณะที่เรียนหรือดำเนินงานไปเรื่อยๆ

    ___ค. มีทั้งการวางแผนมาล่วงหน้าและเปิดโอกาสให้ปรับเปลี่ยนแผนระหว่างดำเนินงานได้

29. ฉันชอบทำข้อสอบประเภท

    ___ก. ปรนัย (มีตัวเลือก)

    ___ข. อัตนัย (ข้อเขียน)

    ___ค. ชอบทั้งสองประเภท

30. เวลาอ่านข้อความใดๆ ฉันชอบ

    ___ก. คิดวิเคราะห์ข้อคิดที่ได้รับเป็นเรื่องๆไป

    ___ข. คิดประมวลสังเคราะห์ข้อคิดทั้งหมดที่ได้รับก่อนนำไปปรับใช้กับชีวิตของฉัน

    ___ค. ทั้งคิดวิเคราะห์เป็นส่วนๆและคิดสังเคราะห์ในภาพรวม

31. เมื่อฉันอ่านอะไรก็ตาม ฉันชอบค้นหา

    ___ก. รายละเอียดและข้อมูลเฉพาะ

    ___ข. ใจความสำคัญ

    ___ค. ทั้งใจความสำคัญและรายละเอียดเฉพาะ

32. ฉันเพลิดเพลินกับการ

    ___ก. พูดและเขียนมากกว่า

    ___ข. วาดรูปและจัดการสิ่งต่างๆมากกว่า

    ___ค. ทำทั้งสองอย่างข้างต้นเท่าๆกัน

33. ช่างน่าตื่นเต้นสำหรับฉันมากกว่าเมื่อต้อง

    ___ก. ปรับปรุงบางสิ่งบางอย่าง

    ___ข. ประดิษฐ์คิดสร้างบางสิ่งบางอย่าง

    ___ค. น่าตื่นเต้นพอๆกันทั้งสองงาน

34. ฉันมีทักษะในการ
___ก. จัดเรียงความคิดให้เป็นระบบมีเหตุผล
___ข. แสดงความสัมพันธ์ของความคิด
___ค. ทำทั้งสองอย่างได้ดี

35. ฉันเก่งในการ
___ก. นึกถึงสิ่งต่างๆเป็นคำ (เช่น ชื่อ หรือ วันที่)
___ข. นึกถึงสิ่งต่างๆเป็นภาพ (เช่น แผนผัง หรือ แผนที่).
___ค. เก่งทั้งสองอย่างเท่าๆกัน

36. ฉันจำหน้าคนได้ง่าย
___ก. ไม่ใช่
___ข. ใช่
___ค. บางครั้ง

37. เมื่ออ่านหนังสือหรือทบทวนบทเรียน
___ก. ฉันชอบอยู่ในที่เงียบๆไร้เสียงรบกวนใดๆ
___ข. ฉันชอบฟังดนตรีคลอไปพลาง
___ค. ฉันชอบฟังดนตรีคลอเวลาที่อ่านหนังสือเพื่อความบันเทิงเท่านั้น แต่ไม่ชอบฟังเพลงเวลาอ่านหนังสือทบทวน

38. ฉันชอบเรียนรู้ท่วงท่าต่างๆในการเล่นกีฬาหรือการเต้นรำโดยการ
___ก. ฟังคำอธิบายแล้วนึกทำตามในใจ
___ข. ดูและลองทำตาม
___ค. ดูแล้วลองทำตามอีกทั้งปรึกษาคนที่ทำเป็น

39. นั่งในท่าสบายๆพร้อมประสานมือทั้งสองข้างไว้บนหน้าตัก แล้วดูว่าหัวแม่มือข้างไหนอยู่บน
___ก. ข้างซ้าย
___ข. ข้างขวา
___ค. วางเสมอเคียงกัน

การให้คะแนน

ตอบ ก. จำนวน _____ ข้อ

ตอบ ข. จำนวน _____ ข้อ

ตอบ ค. จำนวน _____ ข้อ

จำนวนข้อ ก., ข. และ ค. รวมกันต้องได้ 39 ข้อ

1. จำนวนข้อ ข. ลบจำนวนข้อ ก. ได้เป็น (ผลลัพธ์อาจจะเป็นบวกหรือลบก็ได้) _____

2. ถ้าคุณตอบ ค. 17 ข้อหรือมากกว่า 17ข้อ ให้นำคำตอบจากข้อ 1 (ผลลัพธ์ของจำนวนข้อ ข. ลบจำนวนข้อ ก.) หารด้วย 3 หากเหลือเศษให้ปัดเป็นจำนวนเต็มที่ใกล้เคียงที่สุด (ผลลัพธ์อาจจะเป็นบวกหรือลบก็ได้)

_____

หรือ

หากคะแนนข้อ ค. ของคุณอยู่ระหว่าง 10 – 16 ให้นำคำตอบจากข้อ 1 (ผลลัพธ์ของจำนวนข้อ ข. ลบจำนวนข้อ ก.) หารด้วย 2 หากเหลือเศษให้ปัดขึ้นเป็นจำนวนเต็มที่ใกล้เคียงที่สุด (ผลลัพธ์อาจจะเป็นบวกหรือลบก็ได้)

_____

หรือ

หากคะแนนข้อ ค. ของคุณน้อยกว่า 10 ไม่ต้องหารด้วยจำนวนใดๆทั้งสิ้น คำตอบคะแนนของคุณคือคำตอบจากข้อ 1 (ผลลัพธ์ของจำนวนข้อ ข. ลบจำนวนข้อ ก.) _____

3. วงกลมล้อมรอบคำตอบของคุณจากคะแนนข้างล่างนี้

-11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10 +11

คำอธิบายคะแนนต่อรูปแบบการรับรู้ของซีกสมอง

| 0 | คะแนน | จัดเป็นพวกสมองซีกกลาง (ซ้าย-ขวา) |

-1 ถึง -3	คะแนน	จัดเป็นพวกสมองซีกค่อนซ้าย
-4 ถึง -6	คะแนน	จัดเป็นพวกสมองซีกกึ่งซ้าย
-7 ถึง -9	คะแนน	จัดเป็นพวกสมองซีกซ้าย
-10 ถึง -11	คะแนน	จัดเป็นพวกสมองซีกซ้ายจัด

+1 ถึง +3	คะแนน	จัดเป็นพวกสมองซีกค่อนขวา
+4 ถึง +6	คะแนน	จัดเป็นพวกสมองซีกกึ่งขวา
+7 ถึง +9	คะแนน	จัดเป็นพวกสมองซีกขวา
+10 ถึง +11	คะแนน	จัดเป็นพวกสมองซีกขวาจัด

APPENDIX C

NARRATIVE TASK MATERIAL

Oral Narration Task

Directions: Look at all pictures which are arranged orderly, then tell a story.

- **You have 2 minutes to prepare your narration.**
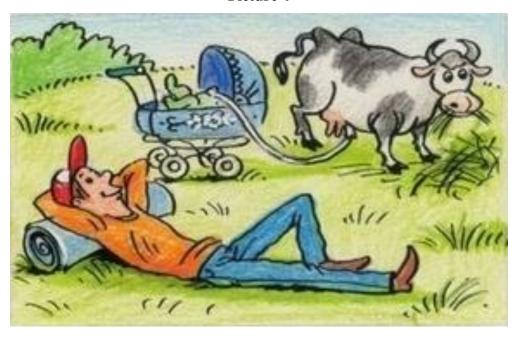- **The story is no longer than 3 minutes.**

Picture 1

Picture 2

Picture 3

Picture 4

Source:

http://wksp.ru/schpargalki-dlya-mamy/425-rasskazy-v-kartinkah-3-10-let-bolschie-

kartochki.html

APPENDIX D

RETROSPECTIVE COMMENT FORM

Retrospective Comment Form

ความคิดเห็นของนักศึกษาต่อกลวิธีการสื่อสารของตนหลังการทำกิจกรรมเล่าเรื่องประกอบภาพ

ชื่อ-สกุล: _____*รหัสนักศึกษา:* _____

วันที่: _____

คำชี้แจง   ให้นักศึกษาอธิบายปัญหาและอุปสรรคทางภาษาพร้อมแนวทาง/กลวิธีแก้ไขที่ตนประสบและใช้
ในขณะที่ทำกิจกรรมเล่าเรื่องประกอบภาพ

ตัวอย่าง

ปัญหาและอุปสรรคทางภาษา	แนวทาง/กลวิธีแก้ไขปัญหา
นึกไม่ออกว่าคำที่หมายถึง รถเข็นเด็ก ใน ภาษาอังกฤษคืออะไร	ใช้คำว่า car for baby แทน

ความคิดเห็นของนักศึกษา

ปัญหาและอุปสรรคทางภาษา	แนวทาง/กลวิธีแก้ไขปัญหา
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.
8.	8.

APPENDIX E

SEMI-STRUCTURED QUESTIONS
FOR
VIDEO-STIMULATED RECALL INTERVIEW

Semi-structured Questions for Video-stimulated Recall Interview
คำถามกึ่งโครงสร้างเพื่อใช้ในการสัมภาษณ์กระตุ้นความจำผ่านภาพวิดีโอ

คำชี้แจง: แบบสัมภาษณ์นี้ใช้เพื่อสอบถามกลุ่มตัวอย่างงานวิจัยเรื่อง "กลวิธีการสื่อสารของผู้เรียน ภาษาอังกฤษที่มีความสามารถทางภาษาและสมองซีกควบคุมต่างกัน" (Communication Strategies of English Learners with Different Language Proficiency and Hemispheric Dominance) หลังจากที่กลุ่มตัวอย่างได้เสร็จสิ้นการดำเนินกิจกรรม เล่าเรื่องประกอบภาพเป็นภาษาอังกฤษ มีวัตถุประสงค์เพื่อใช้ประกอบการวิเคราะห์กลวิธีการ สื่อสารของกลุ่มตัวอย่าง

คำถามเพื่อวิเคราะห์หา Avoidance Strategies
1. ในขณะทำกิจกรรมเล่าเรื่องประกอบภาพ นักศึกษาพูดไม่จบประโยคหรือหยุดพูดเฉยๆบ้างหรือไม่ เพราะ เหตุใด
2. ในขณะทำกิจกรรมเล่าเรื่องประกอบภาพ นักศึกษาเลือกที่จะใช้ภาษาอธิบายสั้นๆบ้างหรือไม่ อย่างไร เพราะเหตุใด

คำถามเพื่อวิเคราะห์หา Achievement Strategies
3. นักศึกษาใช้คำศัพท์หรือโครงสร้างประโยคอื่นๆแทนคำศัพท์หรือโครงสร้างประโยคที่นักศึกษาไม่รู้บ้าง หรือไม่ อย่างไร
4. เมื่อนักศึกษาประสบปัญหาไม่รู้คำศัพท์ นักศึกษาแก้ปัญหาโดยใช้วิธีใด (ถอดความ ใช้คำพ้องความหมาย ใช้คำที่สื่อความหมายใกล้เคียง สร้างคำใหม่โดยอาศัยกฎการสร้างคำภาษาอังกฤษอย่างใดอย่างหนึ่ง)
5. นักศึกษาหยุดพูดหรือพูดตะกุกตะกักเนื่องจากไม่สามารถใช้โครงสร้างภาษาที่พูดอยู่จนจบได้ จึงแก้ปัญหา โดยการเปลี่ยนไปใช้โครงสร้างอื่นที่ตนรู้และสื่อความหมายคล้ายคลึงกันแทนบ้างหรือไม่ อย่างไร
6. นักศึกษาใช้กลวิธีการแปลตามตัวอักษรจากภาษามลายูหรือภาษาไทยบ้างหรือไม่ อย่างไร
7. นักศึกษาใช้วิธีดัดแปลงคำภาษาไทยหรือภาษามลายูให้เป็นภาษาอังกฤษบ้างหรือไม่ อย่างไร
8. นักศึกษาใช้คำไทยหรือคำมลายูและการออกเสียงในภาษาไทยหรือภาษามลายูปะปนอยู่ในการเล่าเรื่อง ประกอบภาพบ้างหรือไม่ อย่างไร
9. นักศึกษาพยายามพูดทวนคำศัพท์หลายครั้งหลายหนเพื่อดึงรูปศัพท์ที่ถูกต้องมาใช้บ้างหรือไม่ อย่างไร
10. นักศึกษาแสดงสีหน้าท่าทางแทนคำพูดหรือเพื่อประกอบการอธิบายเรื่องบ้างหรือไม่ อย่างไร
11. นักศึกษาใช้คำที่สื่อความหมายกว้างๆแทนคำที่สื่อความหมายเฉพาะเจาะจงบ้างหรือไม่ อย่างไร
12. นักศึกษาใช้คำที่ออกเสียงคล้ายๆกันแทนคำศัพท์ที่ตนไม่แน่ใจว่ามีรูปคำสะกดอย่างไรบ้างหรือไม่ อย่างไร
13. เมื่อต้องพูดคำศัพท์หรือส่วนใดส่วนหนึ่งของคำศัพท์ที่ไม่รู้หรือไม่แน่ใจ นักศึกษาใช้วิธีพูดงึมงำพึมพำแทน บ้างหรือไม่ อย่างไร
14. นักศึกษาใช้วิธีเว้นช่วงไม่เอ่ยคำศัพท์ที่ไม่รู้แล้วพูดเล่าเรื่องต่อไปเสมือนว่าตนได้พูดคำดังกล่าวไปแล้วบ้าง หรือไม่ อย่างไร
15. เมื่อคิดว่าตนพูดผิด นักศึกษาพูดแก้ไขคำนั้นเสียใหม่ให้ถูกต้องหรือไม่ อย่างไร
16. นักศึกษาอธิบายความซ้ำโดยการเติมคำใหม่หรือถอดความบ้างหรือไม่ อย่างไร

คำถามเพื่อวิเคราะห์หา Indirect Strategies

17. นักศึกษาพูดคำเดิมซ้ำๆบ้างหรือไม่ อย่างไร

18. นักศึกษาใช้วิธีพูดถ่วงเวลาหรือยืดเวลาเพื่อให้การพูดดำเนินต่อไปได้โดยไม่สะดุดบ้างหรือไม่ อย่างไร

19. นักศึกษาพูดประโยคหรือวลีใดๆออกไปบ้างหรือไม่เพื่อบ่งชี้ว่าถ้อยความที่พูดก่อนหน้าหรือที่กำลังจะพูด ไม่ได้สื่อความหมายที่ตรงที่สุดในภาษาอังกฤษ

APPENDIX F:

COMMUNICATION STRATEGY CHECKLIST

COMMUNICATION STRATEGY CHECKLIST

แบบบันทึกรายการกลวิธีการสื่อสาร

คำชี้แจง: แบบบันทึกรายการกลวิธีการสื่อสารฉบับนี้ใช้เพื่อประกอบการวิเคราะห์รายการกลวิธีการสื่อสาร ของกลุ่มตัวอย่างงานวิจัยเรื่อง "กลวิธีการสื่อสารของผู้เรียนภาษาอังกฤษที่มีความสามารถทาง ภาษาและสมองซีกควบคุมต่างกัน" (Communication Strategies of English Learners with Different Language Proficiency and Hemispheric Dominance) จากสคริปต์วิดีโอการเล่าเรื่องประกอบภาพเป็นภาษาอังกฤษ ประกอบด้วย 2 ส่วน ได้แก่
ส่วนที่ 1 รายการกลวิธีการสื่อสาร พร้อมคำอธิบายและตัวอย่าง
ส่วนที่ 2 ตารางบันทึกกลวิธีการสื่อสารของกลุ่มตัวอย่างเป็นรายบุคคล

ส่วนที่ 1 รายการกลวิธีการสื่อสาร พร้อมคำอธิบายและตัวอย่าง

Code	Strategy	Description/Definition	Example
Avoidance Strategies			
Direct Strategies			
CS 1	Message abandonment	Leaving a message unfinished because of some language difficulty.	*It is a person er… who is responsible for a house, for the block of house… I don't know… (laughter)*
CS 2	Message reduction (topic avoidance)	Reducing the message by avoiding certain language structures or topics considered problematic languagewise or by leaving out some intended elements for a lack of linguistic resources.	[Retrospective comment by the speaker] *I was looking for "satisfied with a good job, pleasantly tired", and so on, but instead I accepted less.*
Achievement Strategies			
Direct Strategies			
CS 3	Message replacement	Substituting the original message with a new one because of not feeling capable of executing it.	[Retrospective comment after saying that the pipe was broken *in the middle* instead of *"the screw thread was broken"*] *I didn't know "screw thread" and well, I had to say*

Code	Strategy	Description/Definition	Example
			something.
CS 4	Circumlocution (paraphrase)	Exemplifying, illustrating or describing the properties of the target object or action.	*It becomes water* instead of "*melt*".
CS 5	Approximation	Using a single alternative lexical item, such as a superordinate or a related term, which shares semantic features with the target word or structure.	*Plate* instead of "bowl".
CS 6	Word-coinage	Creating a non-existing L2 word by applying a supposed L2 rule to an existing L2 word.	[Retrospective comment after using *dejunktion* and *unjunktion* for "street clearing"] *I think I approached it in a very scientific way: from 'junk' I formed a noun and I tried to add the negative prefix "de-"; to "unjunk" is to 'clear the junk' and "unjunktion" is 'street clearing'.*
CS 7	Restructuring	Abandoning the execution of a verbal plan because of language difficulties, leaving the utterance unfinished, and communicating the intended message according to an alternative plan.	*On Mickey's face we can see the... so he's he's he's wondering.*
CS 8	Literal translation (transfer)	Translating literally a lexical item, an idiom, a compound word or structure from L1/L3 to L2.	*I'd made a big fault* [translated from French].
CS 9	Foreignizing	Using L1/L3 word by adjusting it to L2 phonology and/or morphology.	*Reparate* for '*repair*' [adjusting the German word 'reparieren'].
CS	Code switching	Including L1/L3 words with L1/L3	Using the Latin *ferrum* for

Code	Strategy	Description/Definition	Example
10	(language switch)	pronunciation in L2 speech; this may involve stretches of discourse ranging from single words to whole chunks and even complete turns.	*'iron'.*
CS 11	Retrieval	In an attempt to retrieve a lexical item saying a series of incomplete or wrong forms or structures before reaching the optimal form.	*It's brake er…it's broken broked broke.*
CS 12	Mime	Describing whole concepts nonverbally, or accompanying a verbal strategy with a visual illustration.	[Retrospective comment] *I was miming here, to put it out in front of the house, because I couldn't remember the word.*
CS 13	Use of all-purpose words	Extending a general, "empty" lexical item to contexts where specific words are lacking.	The overuse of *thing, stuff, make, do,* as well as words like *thingie, what-do-you-call-it;* e.g.: *I can't can't work until you repair my … thing.*
CS 14	Use of similar sounding words	Compensating for a lexical item whose form the speaker is unsure of with a word (either existing or non-existing) which sounds more or less like the target item.	[Retrospective comment explaining why the speaker used *cap* instead of "pan"] *Because it was similar to the word which I wanted to say: "pan".*
CS 15	Mumbling	Swallowing or muttering inaudibly a word (or part of a word) whose correct form the speaker is uncertain about.	*And uh well Mickey Mouse looks surprise or sort of XXX* [the 'sort of' marker indicates that the unintellible part is not just a mere recording failure but a strategy]

Code	Strategy	Description/Definition	Example
CS 16	Omission	Leaving a gap when not knowing a word and carrying on as if it had been said.	*Then… er… the sun is is…hm sun is… and the Mickey Mouse…* [Retrospective comment: *I didn't know what shine was*]
CS 17	Self-repair	Making self-initiated corrections in one's own speech.	*Then the sun shines and the weather get be… gets better.*
CS 18	Self-rephrasing	Repeating a term, but not quite as it is, but by adding something or using paraphrase.	*I don't know the material… what it's made of…*

Indirect strategies

Code	Strategy	Description/Definition	Example
CS 19	Self-repetition	Repeating a word or a string of words immediately after they were said.	[Retrospective comment] *I wanted to say that it was made of concrete but I didn't know 'concrete' and this is why "which was made, which was made" was said twice.*
CS 20	Use of fillers	Using gambits to fill pauses, to stall, and to gain time in order to keep the communication channel open and maintain discourse at times of difficulty.	Examples range from very short structures such as *well; you know; actually; okay,* to longer phrases such as *this is rather difficult to explain; well, actually, it's a good question.*
CS 21	Verbal strategy markers	Using verbal marking phrases before or after a strategy to signal that the word or structure does not carry the intended meaning perfectly in the L2 code.	E.g.: (strategy markers in bold): (a) marking a circumlocution: *On the next picture…* **I don't really know what's it called in English**… *it's uh this kind of bird that … that can be found in a clock that strikes out or*

Code	Strategy	Description/Definition	Example
			[laughs] comes out when the clock strikes.
			(b) marking approximations: *It's some er… **it's some kind of** er paper.*
			(c) marking foreignizing *a panel [with an English accent],* **I don't know there's a name in English or not** *[laughter] just it's a panel flat.*
			(d) marking literal translation: *It's er… a smaller medium flat and in,* **we call them** *block house, but it's not it's not made of blocks.*
			(e) marking code switching: *The bird form the clocks come out and say "kakukk"* **or I don't know what**.

ส่วนที่ 2 ตารางบันทึกกลวิธีการสื่อสารของกลุ่มตัวอย่างเป็นรายบุคคล
คำชี้แจง: ใส่เครื่องหมาย / ในช่องกลวิธีการสื่อสารที่พบจากวิดีโอสคริปต์ของกลุ่มตัวอย่างแต่ละคน

กลวิธีการสื่อสาร / รหัสสคริปต์	CS 1	CS 2	CS 3	CS 4	CS 5	CS 6	CS 7	CS 8	CS 9	CS 10	CS 11	CS 12	CS 13	CS 14	CS 15	CS 16	CS 17	CS 18	CS 19	CS 20	CS 21	รวม

PAPER

Ka-J, W. *&* Teo, A. (2016). Communication strategy use in an oral narrative task among English learners with different hemispheric brain dominance. *LEARN Journal,* 9(2), 188-198.

Communication Strategy Use in an Oral Narrative Task among English Learners with Different Hemispheric Brain Dominance

Wilaiwan Ka-J
Faculty of Liberal Arts, Prince of Songkla University, Hat Yai Campus, Thailand
k.wilaiwan@gmail.com

Adisa Teo
Faculty of Liberal Arts, Prince of Songkla University, Hat Yai Campus, Thailand
adisa.s@psu.ac.th

Abstract

Certain functions are neurologically indicated to be lateralized to different brain hemispheres. Among numerous studies on impacts of communication strategy use and brain dominance on second language learning, only a small number of them, specifically in the Thai context, comprehensively explore possible relationships between learners' communication strategy use and their brain dominance. This paper aimed at exploring the communication strategy choices in an oral narrative task applied by English learners with different hemispheric brain dominance and discovering their different uses. The sample included 100 EFL Thai undergraduates. The instruments covered the Brain Dominance Inventory (BDI), a 4-picture series, retrospective comments, and semi-structured interviews. The study was based on Dörnyei and Scott (1997)'s communication strategy taxonomy. Descriptive statistics and Kruskal Wallis Test were applied in data analysis. The findings indicated that the whole-brained learners were the highest users of message replacement, restructuring, all-purpose words, mumbling, self-rephrasing, fillers and verbal strategy markers. All of these belong to achievement strategies. The left-brained learners most preferred message abandonment, which is an avoidance strategy, literal translation, retrieval, omission, and self-repetition. The right-brained learners most frequently used message reduction, which is the other avoidance strategy, circumlocution, approximation, mime, similar sounding words, and self-repair. Code switching was equally highly applied by both the left-brained and the right-brained learners.

Keywords: communication strategies, brain dominance, oral narrative task

Introduction

Language learners with poor linguistic competence face difficulties during their communication, sometimes resulting in communication failure. Consequently, learners seek strategies to bridge the gap between their linguistic and communicative competences. Individuals' communication strategies vary according to different factors, among which is hemispheric brain dominance. It is neurologically indicated that certain functions are lateralized to different brain hemispheres upon the maturity of the human brain (Brown, 2000). Accordingly, brain hemispheric functioning plays a vital role in the process of language acquisition. The hemispheric brain construct is beneficial to second language acquisition in defining second language learners' learning styles based on their brain hemispheric dominance. It reflects a feature of the learner, resulting in their learning strategies, while a feature of the language brings about communication strategies (Bialystok, 1982).

Communication strategies relate to cognitive processes presented in different communication strategy taxonomies, specifically those which are based on the cognitive approach placed within a psycholinguistic framework. Among them are Færch and Kasper's (1983) speech model covering two phases: *a planning phase* and *an execution phase*, and Kellerman and Bialystok's (1997) model of language proficiency consisting of two processing components: *analysis of knowledge* and *control of processing*. Brain hemispheric functioning, accordingly, seems to affect the learner's communication strategy use. This assumption was the impetus for a larger number of studies on the relationship between language learners' brain hemispheric dominance and their communication strategy use.

Literature review

Definitions and classifications of communication strategies

First raised by Selinker (1972), communication strategy (CS) is a component of communicative competence (Dörnyei & Thurrel, 1991). Many prominent researchers define CS differently according to their perspectives. In the traditional perspective, Tarone (1977), Færch and Kasper (1983), Ellis (1997) and Saville-Troike (2006) define CS as a communicative device applied when trying to overcome linguistic deficiency in the second language (L2) in order to reach a particular communicative goal. A few years later Tarone introduced a broader definition in the interactional perspective where CS is considered as a tool for interlocutors used in jointly negotiating meaning (Dörnyei & Scott, 1997). Brown (2000) suggests CS based on the perspective of error resources for he views it as the process of interlingual transfer.

From the extended perspective, Dörnyei and Scott (1997) extend previous CS definitions by including "every potentially intentional attempt to cope with any language-related problem of which the speaker is aware during the course of communication (p.179)". Reviewing nine different CS taxonomies, Dörnyei and Scott (1997) discover many similarities in spite of significantly varied terminologies and specificity levels. For example, "reduction strategies" (Varadi, 1973; Færch & Kasper, 1983), "avoidance strategies" (Tarone, 1977), and "message adjustment strategies" (Corder, 1981) share the common aim of preparing one's message based on one's resources by changing, reducing or leaving the original content (all cited in Dörnyei and Scott, 1997). They suggest their updated taxonomies which integrate their first four classifications communication problems (resource deficit, processing time pressure, own performance of problems, and other performance problems) with three basic categories (direct, indirect, and interactional strategies). Accordingly, in their latest taxonomies, each subcategory includes the same four types of communication problems with different subtypes. As this study focuses on learners' one-way productive communication strategies used in an oral narrative task, interactional strategies are excluded from the discussion in this part.

A. Direct strategies

Learners, with deficiency in their communicative resources, might use various types of problem-solving strategies including message abandonment, message reduction, message replacement, circumlocution, approximation, use of all-purpose words, word-coinage, restructuring, literal translation, foreignizing, code switching, use of similar sounding words, mumbling, omission, retrieval and mime. They might adopt the means of either self-rephrasing or self-repair on their own performance

problems. Most traditional communication strategies are found in this category.

B. *Indirect strategies*

To process time pressure, learners might use fillers or repeat what they utter. Aware of their own performance problems, they can use verbal strategy markers. Indirect strategies focus on facilitation of conveyance of meaning directly to prevent communication breakdowns, rather than providing alternative expressions of intended meanings.

Hemispheric dominance and learning of English

Brain hemispheric dominance refers to different functioning of left and right cerebrals which significantly affects learning style and strategies (Brown, 2000). Left hemispheric dominant learners are field-independent, with logical and analytical thoughts, preference of talking, writing, multiple-choice tests, logical problem solving, and planned and structured processing information. They are good at mathematics, controlling feelings and remembering names, and poor at interpreting body language with rare use of metaphors. In contrast, right-brained learners are field-dependent, processing holistic, integrative and emotional information. With good synthesis, they prefer open-ended questions and intuitive problem solving. They are good at interpreting body languages and remembering faces. They can learn more efficiently through demonstration. Previous studies discover significant relations between brain hemispheric dominance and achievements in learning of English. Oflaz (2011) and Ashraf et al. (2014) are consistent as they find that left-brained learners perform well in their reading comprehension because they are good at applying logic to solve problems. On the other hand, learners with right brain dominance successfully achieve in vocabulary and writing tests due to their excellent response to demonstrations and responses (Oflaz, 2011). In agreement with the previous study, Weisi and Khaksar (2015), who investigated relationships between Iranian EFL learners' brain hemispheric dominance and their creativity in EFL writing, discovered that the right-brained learners could perform better. According to Mireskandari and Alavi (2015), language learners with different brain hemispheric dominance were not significantly different in their spoken communication strategies. However, significant difference was discovered in their use of specific compensatory of speaking strategies, that is, whole-brained learners applied compensatory communication strategy differently from left-brained and right-brained ones.

Task types and communication strategy use

A learning task is basically defined as a classroom activity with goal orientation (Ellis, 2003; Nunan, 2006; Oxford, 2006), involving learners' comprehension, production, and interaction in the target language (Towndrow, 2007). It encourages learners to use the target language with a more focus on the conveying of meaning rather than on the practice of form (Ellis, 2003; Nunan, 2006). Task-based learning activity can improve learners' language proficiency, specifically their speaking skills (Lochana & Deb, 2006 cited in Rohani, 2011). It also promotes learners' greater use of positive communication strategies, with less use of reduction and abandonment strategies which are considered negative (Rohani, 2011). Ghout-Khenoune (2012) discovers that learners try to use the target language more frequently in communicative tasks: writing and speaking, rather than retrieving communication strategies rooted in their learned language. It is additionally found that learners' communication strategies vary with each different task. They apply more interlingual-based strategies than

L1/L2-based strategies in their picture description task (Ghout-Khenoune, 2012).

Among studies on EFL learners' oral communication strategies, hemispheric brain dominance has been rarely taken into consideration. In addition, investigations of communication strategies through oral narrative tasks, which are more authentic than questionnaires, have been scarcely conducted. Specifically, these topics have never been studied among Thai EFL participants whose mother tongue is Pattani-Malay, a Malay dialect, some words of which are similar to English. To fill these gaps, the present study aimed to explore communication strategies applied by Thai EFL learners with different brain hemispheric dominance in an oral narrative task. Findings will promote more understanding of differences in learners' communication strategy use possibly resulting from different hemispheric brain patterns. This comprehension could later initiate more varieties of learning activities promoting learners' more effective oral communication strategies.

Research questions

Based on the above purpose of the study, the following questions were raised:

1. What communication strategies are used by left-brained, right-brained and whole-brained English learners in an oral narrative task?

2. Are there any differences in communication strategies used by English learners with different hemispheric brain dominance in an oral narrative task? If so, how and to what extent?

Methodology

Participants

Of a population of 134 third and fourth-year Thai EFL undergraduates, of academic year 2015, majoring in English at a private university in southern Thailand, 100 students were drawn and stratified by brain hemispheric dominance. Their average language proficiency was at the elementary level (A2) based on their scores of the Oxford's Quick Placement Test. The majority of them were Pattani-Malay-native speakers residing in the three southernmost provinces of Thailand, while a smaller number was from the other provinces of the country speaking Thai as their mother tongue.

Instrumentation

In the present study, data were collected by using (1) the Brain Dominance Inventory (BDI), (2) a four-picture series, (3) retrospective comments, (4) semi-structured interviews, and (5) Dörnyei and Scott (1997)'s communication taxonomy.

The Brain Dominance Inventory (BDI), widely used and accepted in previous studies on brain hemispheric dominance (Dulger, 2012; Kok, 2013; Mireskandari & Alavi, 2015), was a modified version of Davis et al. (1994) which was originally in English and translated into Thai to avoid participants' misunderstanding or misconception of the items in the survey. The inventory including 39 items with three options each was used to determine if the respondent was primarily left-brain, right-brain, or bi-lateral dominant.

A narrative task material was a free-copyrighted four-picture series presented in the correct order and formed a coherent storyline. The pictures depicted a man, a woman, a baby in a baby carriage and a cow eating grass. The setting was at the

backyard of a house. The man was asked by the woman to bottle feed the baby. The milk was up and the baby needed more milk so the man solved the problem by attaching a rubber tube to the cow breast. The fourth picture presented a humorous sense.

For more in-depth investigation of the phenomenon of the participants' communication strategy use in an oral narrative task, the participants were asked to write their retrospective comments in the given form immediately after they completed their task.

Finally, to probe for the participants' use of communication strategies including avoidance strategies in an oral narrative task, video-stimulated recall interviews were conducted at the final stage with 12 participants purposively drawn based on their video-recorded task performance and retrospective comments.

These all 4 instruments were previously validated and tested for their practicality and appropriateness by a panel of three experts: two in the Second Language Acquisition and one in Testing. The communication strategy taxonomy was inter-rated by three raters in the pilot study with 30 pilot participants' video scripts. The inter-rater reliability (IRR) was 80.95%.

Procedure

To have three homogeneous brain groups of 100 participants, the BDI was administered to 136 English major undergraduates. Purposively drawn and categorized into three strata: 26 left-brained learners, 22 whole-brained learners, 52 right brained learners, the total of 100 participants performed an oral narrative task individually with the researcher. Given four pictures numbered orderly with clear instructions, the participants have two minutes to prepare a narration of the event in the picture, and three minutes later to tell a story in the picture series. The narration was video recorded.

Upon completing the task, they went to a next-door room prepared for a retrospective comment session for a more in-depth investigation of the phenomenon of using their communication strategies. They filled in a form of retrospective comment about their linguistic problems they had faced during performing the task and their immediate solutions. Time is not limited for this session. Then they left the room without meeting their friends waiting outside to prevent telling what activity they had done. These steps were facilitated by a research assistant.

After that all of narrations were transcribed and all of communication strategies were identified by the researcher. Finally, a few weeks later, 12 participants, four of each brain pattern, with the widest use of their communication strategies were drawn for joining the video-stimulated recall interview. Quantitative data obtained from identified communication strategies elaborated with qualitative data from retrospective comments and stimulated recall interviews were analyzed using the SPSS software.

Results
Communication strategy use in an oral narrative task

To identify communication strategies (CS) applied by the participants in performing an oral narrative task, the video scripts elaborated by the data from the retrospective comments were rated and tallied into the CS taxonomy. Descriptive statistics of overall participants' communication strategy use in Table 1 showed large gaps of CS use among most and least frequently used strategies. An individual's

maximum use of overall strategies was 54 times, a minimum use was 2 times. Word-coinage and foreignizing strategies were not found. Indirect achievement strategies: use of fillers ($\overline{X} = 9.14$) and self-repetition ($\overline{X} = 4.10$) were most frequently used. The third and fourth frequency rankings fell into direct avoidance strategies: message reduction ($\overline{X} = 0.87$) and message abandonment ($\overline{X} = 0.84$), respectively. However, they were closely followed by another three direct achievement strategies including approximation ($\overline{X} = 0.81$), self-repair ($\overline{X} = 0.81$) and literal translation ($\overline{X} = 0.78$), respectively.

Communication strategy use by hemispheric brain dominance

To discover use of communication strategies in an oral narrative task by three learner groups categorized by their hemispheric dominance: left-brained, right-brained, and whole-brained, the data were analyzed using descriptive statistics. Overall, shown in Table 1, communication strategies were more applied by the whole-brained and the left-brained learners ($\overline{X} = 22.64$, S.D. = 13.00 and $\overline{X} = 21.50$, S.D. = 7.58, respectively) than the right-brained learners ($\overline{X} = 17.63$, S.D. = 8.99). Similarly, the achievement, the direct, and the indirect strategies were found more highly used among the whole-brained and the left-brained learners than their right-brained counterparts. The reverse, however, was shown in the avoidance strategies where the right-brained learners became the highest users ($\overline{X} = 1.79$, S.D. = 1.24), very closely followed by the left-brained ($\overline{X} = 1.69$, S.D. = 1.41) and the whole-brained ($\overline{X} = 1.55$, S.D. = 1.06) learners.

Table 1

Descriptive Statistics of Hemispheric Brain Dominance on Communication Strategy Use

Strategies	Total (n=100)				Left-brained learners (n=26)		Right-brained learners (n=52)		Whole-brained learners (n=22)	
	Minimum Use	Minimum Use	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.
1. Avoidance Strategies										
1.1 Direct Strategies										
Message abandonment	0	5	0.84	1.16	1.08	1.38	0.73	1.10	0.82	1.01
Message reduction	0	5	0.87	0.84	0.62	0.75	1.06	0.89	0.73	0.70
2. Achievement Strategies										
2.1 Direct Strategies										
Message replacement	0	3	0.32	0.65	0.38	0.70	0.21	0.57	0.50	0.74
Circumlocution	0	1	0.09	0.29	0.04	0.20	0.13	0.34	0.05	0.21
Approximation	0	3	0.81	0.76	0.77	0.71	0.83	0.73	0.82	0.91
Word-coinage	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restructuring	0	2	0.20	0.51	0.23	0.59	0.12	0.38	0.36	0.66
Literal translation	0	4	0.78	0.98	0.85	1.05	0.73	0.84	0.82	1.22
Foreignizing	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Code switching	0	2	0.10	0.39	0.12	0.43	0.12	0.43	0.05	0.21
Retrieval	0	5	0.24	0.71	0.42	0.81	0.23	0.78	0.05	0.21

Strategies	Total (n=100)				Left-brained learners (n=26)		Right-brained learners (n=52)		Whole-brained learners (n=22)	
	Minimum Use	Minimum Use	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.	$\overline{X}$	S.D.
Mime	0	1	0.09	0.29	0.04	0.20	0.12	0.32	0.09	0.29
Use of all-purpose words	0	6	0.49	0.93	0.50	0.91	0.38	0.63	0.73	1.42
Use of similar sounding words	0	3	0.16	0.53	0.15	0.46	0.17	0.58	0.14	0.47
Mumbling	0	1	0.05	0.22	0.04	0.20	0.04	0.19	0.09	0.29
Omission	0	2	0.08	0.31	0.15	0.37	0.04	0.19	0.09	0.43
Self-repair	0	6	0.81	1.25	0.77	1.11	0.87	1.36	0.73	1.20
Self-rephrasing	0	2	0.33	0.55	0.27	0.53	0.29	0.46	0.50	0.74
2.2 Indirect Strategies										
Self-repetition	0	18	4.10	4.16	4.50	4.43	3.77	3.59	4.41	5.14
Use of fillers	0	34	9.14	6.85	10.42	5.14	7.67	6.33	11.09	9.00
Verbal strategy markers	0	5	0.24	0.75	0.15	0.61	0.13	0.40	0.59	1.30
Overall strategy	2	54	19.74	9.85	21.50	7.58	17.63	8.99	22.64	13.00
Avoidance strategies	0	5	1.71	1.24	1.69	1.41	1.79	1.24	1.55	1.06
Achievement strategies	1	53	18.03	10.03	19.81	7.67	15.85	9.19	21.09	13.18
Direct strategies	1	14	6.26	2.66	6.42	2.44	6.06	2.35	6.55	3.54
Indirect strategies	0	41	13.48	8.68	15.08	6.51	11.58	7.89	16.09	11.57

Upon consideration of the use of specific communication strategies, message replacement, restructuring, all-purpose words, mumbling, self-rephrasing, fillers and verbal strategy markers, all belonging to achievement strategies, were most highly used by the whole-brained learners. Message abandonment, an avoidance strategy, literal translation, retrieval, omission, and self-repetition were most frequently applied by the left-brained learners. Message reduction, the other avoidance strategy, circumlocution, approximation, mime, similar sounding words, and self-repair were most highly applied by the right-brained learners. Code switching was equally highly applied by the left-brained and the right-brained learners.

Due to abnormal distribution of data, the Kruskal Wallis Test was carried out to explore differences in communication strategies used by the English learner participants with different hemispheric brain dominance in an oral narrative task. Table 2 indicated that only message reduction (Chi-square = 6.602, p = 0.04) and use of fillers (Chi-square = 6.024, p = 0.05) strategies were applied differently among the left-brained, the right-brained and the whole-brained learners. The message reduction strategy was quite similarly applied by the left-brained ($\overline{X}$ = 0.62, S.D. = 0.75) and the whole-brained ($\overline{X}$ = 0.73, S.D. = 0.70) learners, while the right-brained learners' application ($\overline{X}$ = 1.06, S.D. = 0.89) became nearly double of their counterparts. The reverse was presented in the use of fillers strategy which was much less frequently applied by the right-brained learners ($\overline{X}$ = 7.67, S.D. = 6.33) than the other two groups who possessed similar applications.

Table 2
Kruskal Wallis Test of Hemispheric Brain Dominance on Communication Strategy Use

Strategies	Left-brained learners (n=26)		Right-brained learners (n=52)		Whole-brained learners (n=22)		Kruskal Wallis Test	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Chi-Square	Asymp. Sig.
Message reduction	0.62	0.75	1.06	0.89	0.73	0.70	6.602*	0.04
Use of fillers	10.42	5.14	7.67	6.33	11.09	9.00	6.024*	0.05

* $p \leq 0.05$

Discussion

This study specifically aimed at investigating differences in communication strategy use among the left-brained, the right-brained and the whole-brained learners in oral narration of a 4-picture series. The above findings indicated a vital role of brain hemispheric dominance in learners' application of communication strategy choices when performing the oral narrative task. The learners with left brain dominance most frequently applied message abandonment, literal translation, retrieval, omission, and self-repetition strategies. The right-brained learners, on the other hand, most frequently used message reduction, circumlocution, approximation, mime, similar sounding words, and self-repair strategies. The whole-brained learners were reported the highest users of fillers, all-purpose words, verbal strategy markers, message replacement, self-rephrasing and restructuring strategies. Different hemispheric brain dominance indicates differences in individuals' cognitive styles. These differences could be clarified by hemispheric brain functions.

Word retrieval and literal translation mainly function in the left hemisphere which is specialized in speech and sequential procedures (Sousa, 2002). According to Price (2012) cited in Ries, Dronkers & Knight, 2016), word retrieval is associated with left hemisphere regions of the frontal and temporal lobes. Literal translation involves morpho-syntactic procession of the word in the first language and needs sequential information processing. Left-brained learners show judgement based on analytical process. These cognitive styles result in left-brained learners' most frequent use of the word retrieval and the literal translation strategies.

Right-brained learners are good at interpreting body language; hence, they use mime to explain their narration. Additionally, circumlocution and approximation strategies are associated with the right hemispheric functioning on sentence processing and semantic integration (Mashala et al., 2008).

Learners with whole-brain dominance have more flexible function of hemispheres. That is, both left and right hemispheres function collaboratively. They try the best to achieve a communicative goal. Their applied strategies include message replacement, restructuring, use of all-purpose words, mumbling, self-rephrasing, use of fillers and verbal strategy markers, all of which belong to achievement strategies.

Learners of different hemispheric brain patterns applied message reduction and fillers strategies differently. The left-brained and the whole-brained learners share similar tendency of using these two strategies. On the other hand, the right-brained learners' use was shown distinctively different. It is interesting to further explore influential factors to this phenomenon.

Implications and suggestions for further research

Implications

This study raises some pedagogical implications in relation to learning activities in an English speaking class. Teachers should design various speaking activities and tasks to facilitate and suit learners of different brain hemispheric dominance which is invisible from their physical appearance but clearly noticeable from their empirical performance. Left-brained learners with analytical thinking need time for processing sequential information. Impromptu speaking tasks are not much suitable for them and possibly result in their poor performance. Right-brained learners with creative ideas enjoy telling a story according to their imagination. Accordingly, speaking task types and topics should be varied and not orientating to specific brain dominance. To encourage students to speak fluently and naturally both in class and out of class, proper use of communications strategies should be introduced to them (Færch and Kasper, 1983). When facing linguistic problems during performing a speaking task, they should be encouraged to apply message replacement, restructuring, all-purpose words, mumbling, self-rephrasing, fillers and verbal strategy markers, which are all achievement strategies. Highly used by whole-brained learners, these strategies function in the bilateral hemispheres. Individual students of different hemispheric dominance can mutually enjoy practicing the strategies. At the same time, the message abandonment and the message reduction strategies should be gradually and naturally eliminated from left-brained and right-brained learners, respectively, through various collaborative speaking tasks. For example, oral narrative tasks with impromptu and prepared situations can be assigned to students working in pairs and in groups. First, individual learners might do a brain dominance inventory and assess their own weak and strong communication strategies. Then the learners with different brain dominance and weak and strong communication strategies pair off to practice speaking tasks. This might help to improve their weak achievement strategies individually.

Suggestions for further research

The findings of the present study are inconsistent with many previous studies. However, there are some limitations in the study which might influence the results. Use of different length of time, with a maximum of 3 minutes, in the oral narrative task could affect frequency of communication strategy use. A future study should specify equal time length for task completion. For example, each participant might need to take 2 minutes to finish a narration. Given the control on time length for task completion, a replication of this study is worth pursuing for the confirmation of its results. It is also interesting to further explore communication strategy use among English learners who share the same hemispheric dominance but with different language proficiency. Up to this point, it is not known whether low left-brained proficient and high left-brained proficient learners use the same communication strategies.

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VITAE

Name   Wilaiwan Ka-J
Student ID   5711121016
Educational Attainment

Degree	Name of Institution	Year of Graduation
Bachelor of Arts (English)	Prince of Songkla University	2002

Scholarship Awards during Enrolment

Scholarship supported by Liberal Arts, PSU, Hatyai Campus

List of Publication

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