

EFL Learners' Cognitive Styles as a Factor in the Development of Metaphoric Competence

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Abstract—The study aims to investigate the effects of EFL learners' cognitive styles on the development of their metaphoric competence, and to examine effective methods of teaching and learning figurative language. The study's participants were 53 university students in Taiwan. Two measuring instruments were developed and adopted: the Metaphoric Competence Test (MCT), to measure the participants' metaphoric competence, and the Group Embedded Figures Test (GEFT), to examine their cognitive styles. The participants were separated into two groups, and each group received one of the following cognitive-oriented methods: instruction adopting conceptual metaphors (CM) or instruction involving metaphoric mappings (MM). The effects of learning, including the participants' performance on awareness and retention, were cross-examined with the participants' cognitive styles. Findings from the study showed that learners with a holistic/field-dependent cognitive style benefited more from CM instruction, while learners with an analytic/field-independent cognitive style performed better when receiving MM instruction. Moreover, through both methods of instruction, learners with an analytic/field-independent cognitive style improved significantly in the delayed posttest; such a finding suggests that learners with a field-independent cognitive style tend to be more reflective in what they have learned. These findings provide new insight into aspects of figurative language studies and pedagogical applications.

Index Terms—metaphoric competence, cognitive styles, conceptual metaphor, metaphoric mappings, English as Foreign Language

I. INTRODUCTION

While cultural globalization is considered one key factor for language learning (Kumaravadivelu, 2008), English learners in a Foreign Language (EFL) context, such as in Taiwan, suffer from limited exposure to an authentic English environment and from rare opportunities of direct language use, and thus they may encounter difficulties in acquiring an advanced level of English proficiency. One noticeable difficulty is learning and using *figurative language*, the language whose intended meaning does not coincide with the literal meanings of the words and sentences used (Glucksberg, 2001). Figurative language can be witnessed through its prevalence not only in art, music, sculpture, and literature, but also in ordinary language (Jakobson, 2003). Contemporary views of figurative language contend that it does not occur primarily in language but rather in thought; people understand the world using metaphors (Lakoff & Johnson, 1980). That is to say, figurative language is believed to be an inherent part of culture in that it reflects the intangibles in a culture (Kövecses, 2005). However, these culture-bound figurative expressions may hinder EFL learners in their comprehension of these expressions, as well as lead to possible consequences like miscommunication (Cakir, 2006) and misinterpretations (Mohammad & Assiri, 2011).

Regarding L2 figurative language learning, research carried out by cognitive linguists (e.g., Boers, 2000a, 2000b; Boers & Demecheleer, 2001; Boers, Demecheleer, & Eyckmans, 2004; Boers, Eyckmans, & Stengers, 2007; Deignan, Gabrys, & Solska, 1997; Dong, 2004; Kövecses, 2001) has made significant progress in this area. Cognitive linguists contend that figurative expressions are motivated by the process of mapping corresponding traits from one conceptual domain to another (Lakoff, 2006); thus, to learn figurative language efficiently, L2 learners need to raise their awareness of such semantic motivation, rather than rely on the rigid memorization of fixed forms (Boers & Lindstromberg, 2006). Among the proposed awareness-raising methods, a cognitive-oriented method proposed by Boers (2000a, 2000b), which adopted the idea of metaphoric themes (a.k.a. *conceptual metaphor* in Lakoff & Johnson's (1980) term), has already received plenty of empirical evidence on its beneficial effects on L2 learners' awareness, as well as on retention enhancement in learning figurative expressions. On the other hand, another cognitive-based method proposed by Kövecses (2001) suggested using *metaphoric mappings* to elaborate the systematic correspondences between two concepts in order to assist awareness and to facilitate comprehension. Both methods are founded on the

operations of learners' cognitive abilities during the process of learning.

Since figurative language learning involves cognitive operations which learners perform during the thinking and learning process, learners' individual characteristics, such as cognitive styles, should be considered an important part of this process. Researchers (e.g., Boers & Littlemore, 2000; Littlemore, 2001a) have claimed that learners with different cognitive styles process metaphors at different speeds and with different strategies, and thus have different learning effects: learners who have a holistic/field-dependent cognitive style are more likely to blend the conception of the target domain with the source domain and thus process metaphors more quickly, whereas those with an analytic/field-independent cognitive style are more likely to draw maps across two distinct domains and hence take more time to process metaphors. These different learning preferences may also influence the ways in which learners deal with difficulties caused by cultural specificity. To suit learners with distinct cognitive and learning styles and to facilitate learning, the learning effects of the two types of instruction methods mentioned above should be investigated.

The present study aims to investigate the effects of EFL learners' cognitive styles and learning strategies on their development of metaphoric competence, and to examine effective methods of teaching and learning figurative language. The following three research questions will be addressed:

Research Question 1: Regarding raising learners' awareness of figurative expressions, which teaching method would be more effective for learners with a field-dependent cognitive style and which would be more effective for learners with a field-independent cognitive style?

Research Question 2: Regarding facilitating longer-term retention of figurative expressions, which teaching method would be more beneficial for learners with a field-dependent cognitive style and which would be more beneficial for learners with a field-independent cognitive style?

Research Question 3: In what ways do EFL learners' cognitive styles and learning strategies influence their development of metaphoric competence?

II. LITERATURE REVIEW

A. Development of Metaphoric Competence

Metaphoric competence refers to the ability that a language learner needs in terms of understanding figurative language, including metaphors and metonymies (Littlemore, 2001a). Low (1988) pointed out that if L2 learners hope to be seen as competent users of the language, they need to develop certain metaphor-related skills, in which native speakers are expected to be fluent. Littlemore and Low (2006) have even suggested that *metaphoric competence* should be equal to *communicative competence* in terms of importance; they further argued that metaphoric competence has a great influence on second language learners' development of communicative competence. Thus, metaphoric competence is indispensable for L2 language learners in acquiring a higher level of proficiency.

Figurative language used to be regarded as a serious problem for L2 students. For one thing, figurative expressions are considered fixed usages with non-compositional meanings, which were mainly learned through a noticing-and-memorization approach in an EFL context (Chen, 2010). However, rote learning may result in short retention and impracticability of what has been taught (Brown, 2000, p.84). In addition, specific cultural conventions that exist in figurative expressions may lead to learning and comprehension difficulties (Deignan, et al., 1997; Littlemore, 2001b, 2011), especially for foreign language learners who rarely have direct access to a target culture. To overcome the binding power caused by L1 entrenchment, L2 learners first should be aware of the existence of new construal systems in the target language (Littlemore, 2009).

Cognitive perspectives on second language acquisition provide promising solutions to the problem of teaching figurative language to EFL learners. Cognitive linguists believe that raising learners' awareness can be beneficial: awareness of similarities and differences between L1 and L2 can help EFL learners to take advantage of universal concepts, as well as to breach the cultural boundary created by the lack of equivalent L1 expressions (Deignan et al., 1997; Dong, 2004). On the other hand, awareness of the semantic motivations behind figurative expressions, namely conceptual metaphors, can assist EFL learners to make logical and systematic inferences between the conceptual domains that are mapped (Boers, 2000a, 2000b; Kövecses, 2001).

The cognitive-oriented approach is realized in various forms of activities, including learning the etymology of the metaphorical language (Boers, 2001; Boers, et al., 2007) and guessing the meanings of imageable metaphorical expressions (Boers & Demecheleer, 2001). However, just because figurative meaning extensions are believed to be motivated rather than arbitrary does not mean that the origins or the etymology of figurative expressions are fully predictable (Boers et al., 2007). Difficulties mainly come from the degrees of conventionalization in the target language and a discrepancy between the cultures of the two languages. Therefore, two methods which draw on more fundamental cognitive operations are suggested: conceptual metaphors (CM) instruction and metaphoric mappings (MM) instruction. These methods mainly follow cognitive linguists' contention that figurative language formulates the conceptual system that employs conceptual mechanisms "by which we understand and structure one domain of experience in terms of another domain of a different kind" (Johnson, 1987, p.15).

CM instruction complies with the contention of cognitive linguistics that language is motivated when it is neither arbitrary nor fully predictable (Lakoff, 1987) and that insightful L2 learning through the process of understanding metaphoric themes (a.k.a. conceptual metaphors) should be implemented often in language classrooms. Boers (2000a,

those with an analytic/FI cognitive style are likely to draw maps across two distinct domains and hence take more time to process metaphors. In other words, holistic/FD learners are more likely to treat conceptual domains as one integrated entity, where the associated characteristics are developed deductively, while analytic/FI learners are more likely to conceive of the source and target domain as separate parts and induce several conceptual mappings together to arrive at a representative conceptual metaphor. Boers and Littlemore (2000), in their study with 71 French EFL university students, found that the participants with holistic cognitive style were more likely than those with analytic cognitive style to blend their conception of the target domain with the source domain. Littlemore (2001a) in her study with 82 French EFL university students also found that, when the given time was limited, holistic students managed to recognize metaphors more quickly than analytic students did; she claims that learners with holistic cognitive style, due to their preference of processing metaphors as whole blending concepts rather than discrete individual fragments, could react faster than learners with analytic style. Hashemian and the colleagues (2012), based on the analysis of 80 Persian EFL learners' performances in a metaphor recognition test, claim the similar results as the previous studies that significant differences existed between the FD and FI cognitive styles in the test.

C. *Potential Effect of Cognitive Styles on the Development of Metaphoric Competence*

The differences in the learners' cognitive styles and in their responses to figurative expressions imply that different types of instruction are needed in order to help EFL learners to acquire metaphoric competence. Both CM instruction and MM instruction have empirical evidence that proves their benefits for EFL learners in learning figurative language. However, they are different both in the way they assist learners in learning and in their cognitive operations. CM instruction requires learners to imagine the relationship between two conceptual domains by giving them the topic (the target domain) and the foundation (the source domain). Learners need to develop the structures of both domains and then link corresponding traits between the two domains. On the other hand, MM instruction facilitates learners to link the corresponding traits between domains by showing them the relationships; learners then need to collect all the correspondences and elaborate the patterns. In other words, CM instruction is more deductive-oriented, whereas MM instruction is more inductive-oriented. The two different orientations may thus suit learners with different cognitive styles and learning styles.

III. METHODOLOGY

A. *Participants*

The participants in this study were 69 Chinese learners of English from universities in Taiwan. They were native Chinese speakers and had learned English for at least six years in junior and senior high schools. The participants' English proficiency levels ranged from intermediate to high-intermediate. Learners with such levels of English proficiency possess sufficient English lexical knowledge, although they are still unfamiliar with more advanced language use, and they are believed to be the most responsive group.

The participants were categorized into four groups based on two sets of variables: FD/FI and CM/MM. However, to avoid possible bias caused by researcher expectancy or a suspected Hawthorne effect, the *double-blind* technique was used. The participants were divided into two groups according to two different cognitive styles. The participants in each group were randomly separated further into two groups and received one of two types of instruction. Because the participants were kept from knowing which instruction they would receive, this minimized the influence resulting from the participants' speculations. In addition, it reduced the possibility of bias by the researchers.

B. *Instruments*

Measure of metaphoric competence. The Metaphoric Competence Test (MCT) used in the present study was developed based on Littlemore's (2001) model of metaphoric competence and was adapted from Chen's (2011) study. The test had been pilot-tested three times before it was administered in Chen's (2011) study; the reliability of the test was consistently high (Cronbach's $\alpha > .8$, $n = 48$), which indicated good internal consistency. As for validity, the test was reviewed by three native English speakers to ensure grammaticality and authenticity. In sum, the MCT was found to be highly reliable and valid judging from its previous experiences; thus, it was chosen to measure the participants' metaphoric awareness in the present study.

Chen's Metaphoric Competence Test consists of 48 English sentences collected from dictionaries, a corpus (the British National Corpus), and the internet. Among the 48 sentences, 24 contained figurative expressions, while the other 24 did not; key words or phrases were chosen from the 24 sentences with figurative expressions to create their counterparts, which had no figurative intentions in the expressions. These 48 test items were used as the database for the test used in the present study to create three sets of tests, one each for the pretest phase, the one-week posttest phase, and the three-month posttest phase. To preserve the tests' reliability and validity, 30 test items, which contained 15 sentences with figurative expressions and their 15 counterparts, out of the total 48 items were randomly chosen to create a test set.

The participants of the study were given 15 minutes to finish the test. They were asked to first read each sentence, and then determine whether the sentence contained figurative expressions or whether it needed to be understood by thinking figuratively. The participants were required to rate the certainty of their judgments on a scale of 1 to 5: (1) The

sentence obviously has no metaphor/metonymy; (2) The sentence may not have metaphor/metonymy; (3) This is the middle of the scale. I'm not sure whether it is a metaphor/metonymy or not; (4) The sentence may have metaphor/metonymy; (5) The sentence obviously has metaphor/metonymy. To avoid reading problems caused by unknown vocabulary, one extra option (0) was given as well. The results of the test were interpreted as the effect of raised awareness on figurative language: if awareness was raised, learners would be able to find figurative language uses and to respond more affirmatively. The mean total scores were deemed an indication of a participant's ability to notice and interpret expressions in a figurative sense.

Measure of cognitive styles. The Group Embedded Figures Test (GEFT) was adopted in the present study. It was originally designed by Oltman, Raskin, and Witkin (1971), and is acknowledged as "the most widely used version of test in the second language acquisition research" (Hhatib & Hosseinpour, 2011: 641). The test was later modified and translated into Chinese by Wu (1987); the present study adopts Wu's version. The GEFT is a perceptual test developed to examine a subject's cognitive ability to locate a simple shape embedded within a complex figure, and thus to distinguish FD styles from FI styles.

The participants were required to finish 25 items within 12 minutes. They were asked to trace with a pen the simple figures embedded in the complex geometric figures. In the first two minutes, they were given seven practice items to familiarize themselves with the procedure of the test. In the following 10 minutes, they needed to complete the 18 items that comprised the actual test. The completed tests were collected and scored: one point was given if the shape asked was correctly identified. The full score of the test was 18 points.

The participants who scored greater than one-half standard deviation above the mean were considered FI, while the participants who scored less than one-half standard deviation below the mean were considered FD. The participants who scored one-half standard deviation above or below the mean were considered field neutral.

C. Instructions

The instruction phase consisted of two parts: the first part is for the instructor to explain the idea of *metaphor*, and the second part is for the participants to practice ways of learning proposed by the instructions. A short article written in English was given to both the CM group and the MM group. The article was about how to control emotions and included several figurative expressions of distinct conceptual metaphors or metonymy, such as bottle up the emotions of emotions are the heat of a fluid in a container, (someone) explode of anger is fire, and (the rage) pump up in the arousal of anger is body heat. The participants were asked to read the article first, and then the teacher led a discussion in Chinese about the metaphoric/metonymic expressions used in the article. Students were asked to circle any metaphoric/metonymic expressions used in the article and to categorize those expressions into groups with similar ideas or concepts.

Then, the participants would be given an exercise to guide them through the mapping process. In the CM group, the participants received a list of 15 figurative expressions. The written instructions asked them to categorize these expressions into groups according to the common themes and to identify the clues. Examples are shown in (1) below.

(1) Instructions: The followings are 15 expressions. Categorize these expressions into groups and identify the clues. The first one has been done for you.

He has a <i>ferocious</i> temper.	She <i>blew up</i> at me.	He made <i>inflammatory</i> remarks.
She <i>exploded</i> .	I am <i>boiling</i> with anger.	He was <i>hot under the collar</i> .
Don't <i>snap</i> at me.	He <i>unleashed</i> his anger.	Don't <i>bite</i> my heat off.
She was <i>breathing fire</i> .	She is all <i>steamed up</i> .	He was <i>breathing fire</i> .
She <i>flipped her lid</i> .	<i>Simmer down</i> .	What he said added fuel to the fire.
<u>Anger is fire.</u>		
What he said added <u>fuel</u> to the <u>fire</u>		

In the MM group, the participants received the same 15 figurative expressions, which had already been categorized under conceptual metaphors, and the written instructions asked them to point out the corresponding traits between the source and target concepts. Examples are shown in (2) below. After 20 minutes, the handouts were collected, thus ending the procedure for the first week.

(2) Instructions: Think about the corresponding characteristics and relationships between anger and comparable concepts, and briefly write down these relationships. The first one has been done for you.

ANGER IS FIRE	
If you add fuel to the fire, the fire will rise up and become stronger. → add fuel to the fire = make angry person much angrier!	What he said added fuel to the fire. He made an <i>inflammatory</i> remark. He was <i>hot under the collar</i> . She <i>exploded</i> .

D. Data Collection Procedure

The study's experiment included three phases. In Phase One, the participants were asked to complete the GEFT in 12 minutes. Then, they were given the first set of the MCT and were required to finish the test within 15 minutes. CM

instruction or MM instruction was given after these two tests. One group of participants received a list with randomly arranged expressions and written instructions asking them to categorize those expressions into conceptual metaphors by recognizing their corresponding traits; this half of the participants was the CM group. The other group of participants received a list which had already categorized the same 18 expressions under conceptual metaphors and written instructions asking them to point out the corresponding traits of the source domain and the target domain; this half of the participants was the MM group. The participants spent 20 minutes completing the lists; Phase One was then complete.

Phase Two was held one week after Phase One. The participants received the second set of the MCT and were given 15 minutes to complete it. At the beginning of the test, the participants were asked whether they had self-studied relevant subjects during the week; answers to this question were to ensure that the participants' performances were the result of the effect of learning.

Phase Three was held three months after Phase Two. The participants received the third set of the MCT and took 15 minutes to complete it. As in Phase Two, the participants were asked at the beginning of the test whether they spent time studying relevant subjects during the past three months; the answers to this question not only minimized the possible bias from the participants' self-studies but also offered a clue to whether the participants' interest in figurative language was enhanced.

IV. RESULTS AND ANALYSIS

A. Results of the GEFT

The performances of the participants in the GEFT were analyzed and used to determine the participants' cognitive styles. Although 69 students initially participated in Phase One, due to occasional absences and those who dropped the class during the semester, only 53 students participated in all three phases of the experiment. The results of the GEFT are reported in Table 2.

TABLE 2.
DESCRIPTIVE RESULTS OF THE GEFT

	<i>N</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>
GEFT Scores	53	3	18	13.34	4.24

According to the test criteria, the participants who scored greater than one-half standard deviation above the mean (i.e., those who scored 15 or higher) were regarded as FI learners; on the other hand, those who scored less than one-half standard deviation below the mean (i.e., those who scored 11 or lower) were considered FD learners. The remaining learners were deemed field neutral.

Among the 53 participants, 40 participants were found to be learners with FD or FI cognitive styles. The distribution of the participants with different cognitive styles in each instruction group is displayed in Table 3.

TABLE 3.
NUMBER OF PARTICIPANTS FOR EACH COGNITIVE STYLE IN THE CM GROUP AND THE MM GROUP

	CM Group ^a	MM Group ^b
Field-independent (FI)	14	12
Field-dependent (FD)	8	6
Total Number	22	18

a The number of participants judged as field neutral was 8.

b The number of participants judged as field neutral was 5.

B. Results of the Metaphoric Competence Test

To investigate the learning effects of the participants after receiving the different types of instruction, the differences between the mean total scores of FI and FD participants in each instructional group were calculated. Table 4 shows that, in both groups, the FI and FD participants did not have significant differences between them before receiving their respective instruction ($t = .30, p > .05$; $t = 0.64, p > .05$). In the CM group, the mean total scores of both FD and FI participants in the two posttests were improved; however, the mean scores of the FD participants were consistently higher than those of the FI participants, although not significantly ($t = -1.34, p > .05$; $t = .55, p > .05$).

On the other hand, in the MM group, the mean total scores of the FI participants in the one-week and the three-month posttests increased, whereas the mean total scores of the FD participants increased in the one-week posttest yet decreased in the three-month posttest. The mean total scores of the FI participants in the three-month posttest were significantly higher than those of the FD participants. Since the two groups of participants did not differ in their metaphoric competence before receiving their respective instruction, the significant improvement in the scores of the FI participants regarding their ability to find figurative intentions in expressions could be reasonably attributed to their learning experience during MM instruction.

To further determine the reason why the FI participants outperformed the FD participants significantly in the three-month posttest, a comparison of the participants' performance on test items with and without figurative expressions was carried out. Table 5 shows that the FI participants performed significantly better than the FD

participants in judging sentences with figurative expressions ($t = 3.84, p < .01$). On the other hand, no significant difference in judging sentences without figurative expressions was found between the FI and FD participants. The results indicate that the FI participants achieved significantly higher mean total scores than the FD participants in the three-month posttest due to the significant improvement in their awareness of figurative intentions.

TABLE 4.
COMPARISON OF MEAN TOTAL SCORES BETWEEN FI AND FD PARTICIPANTS

COMPARISON OF MEAN TOTAL SCORES BETWEEN FI AND FD PARTICIPANTS					
Stage	Cognitive Style ^a	<i>M</i>	<i>SD</i>	<i>t</i> ^b	<i>p</i>
<i>Performances of the Participants Receiving CM Instruction</i>					
Pretest	FI	80.57	9.12	0.30	0.76
	FD	79.12	13.50		
One-week Posttest	FI	80.07	14.05	-1.34	0.19
	FD	87.75	10.31		
Three-month Posttest	FI	85.07	15.02	-0.55	0.58
	FD	88.37	9.97		
^a For FI group, <i>n</i> = 14; for FD group, <i>n</i> = 8. ^b For all the tests, <i>df</i> = 20.					
<i>Performances of the Participants Receiving MM Instruction</i>					
Pretest	FI	83.25	13.38	0.64	0.53
	FD	79.00	13.02		
One-week Posttest	FI	87.00	12.25	0.28	0.78
	FD	84.67	23.94		
Three-month Posttest	FI	97.75	14.09	2.83	0.01*
	FD	79.67	9.24		
^a For FI group, <i>n</i> = 12; for FD group, <i>n</i> = 6. ^b For all the tests, <i>df</i> = 16. * <i>p</i> < .05					

TABLE 5.

COMPARISON OF MEAN TOTAL SCORES OF SENTENCES WITH AND WITHOUT FIGURATIVE EXPRESSIONS BETWEEN FI AND FD PARTICIPANTS IN THE MM GROUP IN THE THREE-MONTH POSTTEST

GROUP IN THE THREE-MONTH TESTS					
Stage	Group ^a	<i>M</i>	<i>SD</i>	<i>t</i> ^b	<i>p</i>
Sentences with Figurative Expressions	FI	64.83	5.36	3.84	0.00**
	FD	53.17	7.41		
Sentences without Figurative Expressions	FI	32.92	9.78	1.50	0.15
	FD	26.50	4.93		
^a For FI group, <i>n</i> = 12; for FD group, <i>n</i> = 6. ^b For all the tests, <i>df</i> = 16. ** <i>p</i> < .01					

To ensure the effect of the two different instructions on the participants with different cognitive styles, comparisons of the participants' performances in each group of instruction were conducted. Table 6 shows that the FI participants of the MM group achieved higher mean total scores than those of the CM group in all three tests; particularly, in the three-month posttest, the FI participants of the MM group performed significantly better than the CM group ($t = -2.21, p < .05$). As for the FD participants, the mean total scores of the CM group were consistently higher than those of the MM group in all three tests, although no significance was reported.

TABLE 6.
COMPARISON OF MEAN TOTAL SCORES BETWEEN CM INSTRUCTION AND MM INSTRUCTION

		Instruction	<i>M</i>	<i>SD</i>	<i>t</i> ^b	<i>p</i>
<i>Performances of the FI Participants</i>						
Pretest	CM	80.57	9.13	-0.60	0.55	
	MM	83.25	13.38			
One-week Posttest	CM	80.07	14.05	-1.33	0.20	
	MM	87.00	12.25			
Three-month Posttest	CM	85.07	15.02	-2.21	0.04*	
	MM	97.75	14.09			
^a For CM group, <i>n</i> = 14; for MM group, <i>n</i> = 12. ^b For all the tests, <i>df</i> = 24. * <i>p</i> < .05						
<i>Performances of FD Participants</i>						
Pretest	CM	79.13	13.51	0.02	0.99	
	MM	79.00	13.02			
One-week Posttest	CM	87.75	10.32	0.33	0.75	
	MM	84.67	23.94			
Three-month Posttest	CM	88.38	9.97	1.67	0.12	
	MM	79.67	9.24			
^a For CM group, <i>n</i> = 8; for MM group, <i>n</i> = 6. ^b For all the tests, <i>df</i> = 12.						

V. DISCUSSIONS

The first research question examined the preferred instruction to raise metaphoric awareness for each type of cognitive style. For the FI participants, the instruction involving metaphoric mappings was more beneficial in raising their awareness of figurative language, compared to the instruction adopting conceptual metaphors. More specifically, MM instruction helped the FI participants to become more attentive to figurative intentions of expressions. On the other hand, the FD participants performed better than the FI participants in the short-term and the long-term posttests after

receiving the instruction adopting conceptual metaphors, although not significantly. Moreover, the FD participants performed better after receiving CM instruction rather than MM instruction. Such findings, though they may not be conclusive due to the lack of statistical significance, suggest that the instruction adopting conceptual metaphors was more beneficial to the FD participants than the instruction involving metaphoric mappings.

The second research question considered the preferred instruction to enhance retention for each type of cognitive style. Although the FD participants who received CM instruction did not outperform those who received MM instruction in the beginning, they showed greater improvement in the delayed posttest, which suggests that CM instruction was beneficial to enhancing retention for learners with an FD cognitive style, who tended to look at the learning task comprehensively. On the other hand, the FI participants showed significant improvement in the three-month posttest, which suggests that MM instruction led to a greater metaphoric awareness for learners with an FI cognitive style. Interestingly, the FI participants also gained important improvements in the delayed posttest even when receiving CM instruction. The findings also correspond to Brown's (1987) claim that FI learners tend to be reflective in what they have learned, and thus the FI participants managed to perform well even after a period of time.

The third research question investigated the ways each method benefitted the participants. MM instruction, which illustrated the detailed relationships between target domains and source domains, and thus provided learners more structural, systematic, and logical clues to relate their knowledge to finding and comprehending metaphoric and metonymic expressions, proved useful in raising awareness of figurative expressions for learners with an FI cognitive style. This suggests that MM instruction may have facilitated construal buildings when learners encountered culturally-specific expressions. Moreover, the detailed mapping processes may have compensated for the vague analogical relations between subject concepts, which is lacking in CM instruction.

Contrarily, CM instruction provided general mapping relationships rather than logical mapping processes; therefore, learners needed to utilize their analogical reasoning to retrieve mappings between two subject concepts. If the conceptual metaphors encountered were missing from the learners' native language, they may have had a hard time perceiving and establishing a new construal system due to the lack of clues. Such a method was beneficial for blending and relating the conception of a target domain with a source domain for learners with an FD cognitive style.

However, MM instruction proved effective in fostering retention, no matter what cognitive styles the learners possessed. Regardless of the degree of improvement made by either groups of participants, both FD and FI participants who received MM instruction managed to perform better in the three-month posttest. Since metaphoric mappings organize the embedded cognitive structures systematically and hierarchically, according to Asubel's meaningful learning theory (1968), the subsumption process of new concepts and stored concepts facilitates learning and retention. In other words, MM instruction resulted in a deep level of cognitive processing on learners with whichever cognitive styles and thus enhanced a longer-term retention.

VI. IMPLICATIONS FOR THEORIES AND PEDAGOGIES

The present study aims to suggest a promising way of helping EFL learners develop and improve their metaphoric competence. Findings from this study may shed light on several perspectives. In terms of figurative language studies, the present study provides empirical evidence for two cognitive-oriented methods. Moreover, this study takes learners' individual variables into consideration, and the findings of the learning effects of MM instruction complement the findings from previous research that focused mainly on CM instruction. The associations drawn by the present study between cognitive styles and cognitive-oriented methods also provide.

In terms of the development of metaphoric competence, the present study provides further insight into and comments on the Metaphoric Competence Test, which was originally developed by Chen (2011). Since metaphoric competence is an inevitable competence that L2 learners have to acquire, the development of a reliable and valid measurement is also needed. Chen's version has been used in her own studies many times, and it is claimed to be highly consistent in reliability. However, Chen also admits that the test has limitations, such as the number of test items might lead to the participants' exhaustion in answering them. The present study reexamines the reliability of the test items, which may provide suggestions for future revision. Given the growing importance of metaphoric competence in the globalized world, a valid and reliable measurement of metaphoric competence should be developed.

Last but not the least, the results of this study provide pedagogical implications for EFL teachers in teaching figurative expressions and for EFL learners in acquiring metaphoric competence. Individual differences on cognitive styles and learning strategies have been considered influential for L2 learners' performances and learning effects (Green & Oxford, 1995; Flowerdew *et.al.*, 2008; Riding & Sadler-Smith, 1997; Tuan, 2011). Particularly in the ubiquitous EFL contexts which lack exposure to authentic texts in the surroundings, extra considerations should be given to learners themselves. EFL teachers should thus accommodate students' cognitive styles as well as their preferences of learning strategies in order to improve the effectiveness of training. Moreover, EFL teaching materials should adapt both instructional methods in order to support learners with different learning styles.

VII. CONCLUSION

The study aims to investigate the impact of EFL learners' cognitive styles on their development of metaphoric

competence. The results indicated that cognitive-oriented methods are effective in facilitating EFL learners' development of metaphoric competence, i.e., awareness and retention. The finer-grained analyses showed that EFL learners with Field-dependent cognitive style learned better and had relatively longer retention when learning though the instruction adopting the idea of conceptual metaphor. On the other hand, EFL learners with Field-independent cognitive style performed better and retain what had learned for the longer time when receiving the instruction of metaphoric mappings. Such findings suggest that, for EFL learners of distinct cognitive styles, an adaptive instruction should be provided.

Though the present study gains a better grasp of EFL learners' acquisition of figurative language, the results of this study should be interpreted with caution. First, the small number of participants in this study may limit the generalizability of the results. Unexpected classroom incidences, such as unexpected dropping or occasional absence, increased the difficulty of the control of the experiment. Besides, the study chose FD and FI as two cognitive styles under examination; other relevant individual factors, such as genders, learning strategies, or other dimensions of cognitive styles like verbal and imagery dimension, could be also taken into consideration. Future studies should expand the scope of research and investigate complicated factors involving in EFL learners' learning process. With the understanding of figurative language, EFL learners can advance not only language proficiency but their communicative competence, which is indispensable for learners in their quest to become globalized.

ACKNOWLEDGEMENT

This research was sponsored by the National Science Council of Taiwan (NSC 101 - 2410 - H - 155 - 054 -).

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