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Explicit Teaching of Hedges: Bringing Hedging in Academic Writing into the Thai EFL Classroom

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Abstract

Hedging or 'tentative language' is considered one of the essential linguistic features of scientific research articles. However, as proper hedging requires nuanced linguistic skill, it is often difficult for non-native writers to hedge appropriately. This study examined the effectiveness of explicit teaching of hedging for Thai EFL health science undergraduates in a leading university in Bangkok, Thailand, in terms of awareness of the need for hedging and ability to accurately hedge. The data were common lexical hedges found in a pretest, posttest and the discussion section of student research articles. These hedges were analyzed and compared in terms of frequency, variety, use in context and appropriateness of use. A questionnaire was also used to obtain data on learner's perceptions of the direct instruction of hedging and positive results were found. Learners' awareness of the need for hedging was evident in the higher frequencies of hedges found in the posttest and discussion corpora. Their ability to hedge was somewhat improved, which could be seen in the greater variety of hedges used in appropriate contexts after the direct instruction. This study also discussed the pedagogical implications for teaching hedging and recommendations for further research.

1 Introduction

Hedging through the use of terms such as *seems, possible, may, perhaps, quite, likely, suggests* and *relatively* as shown in sentences i, ii, and iii are tentative language commonly used by writers of research articles, including scientific papers. They are generally defined as linguistic devices that authors use to moderate their degree of confidence or commitment in presenting claims, facts or opinions (Hyland, 1998). Therefore, without them, the degree of confidence in stating the sentences i, ii, and iii appears stronger and may be overstated.

(i) It now seems possible that the oxygen carrier function may be feasible because if the hemoglobin in the root were mainly in the tip, it ... (Hyland, 1995)

(ii) …. . Then the attribution style assumed for self-blame is perhaps quite likely. (Vazquez & Giner, 2008)

(iii) This suggests that the family's support for those studying abroad may be relatively more important, thus affecting their choice of modifiers. (Tran & Duong, 2013)

These are three examples from different studies on hedging. Numerous other empirical studies of hedging in research articles have been conducted. These studies indicate that hedges can mostly be found in discussion sections (Hyland, 1994, 1996b, 1998; Martin-Martin, 2008; Yang, 2013), followed by introduction sections (Martin-Martin, 2008) and abstracts (Gillaerts & Van de Velde, 2010). They were found to be used by the authors of research papers to, for example, appropriately

of their interpretations of results (Hyland, 2005a; Petchkij, 2016), persuade readers to accept their findings or agree with their claims (Crismore & Farnsworth, 1990), and demonstrate deference to others in their research community (Markkanen & Schroder, 1997; Vazquez & Giner, 2008). The motivation or reasons for using hedging in research articles can also vary. For instance, authors may hedge because their sample sizes are small, results are still preliminary, evidence is uncertain, or their research methods may not be sufficiently rigorous (Hyland, 1996a, 2005b). Moreover, hedging is considered a convention (Hyland, 1996a) and an essential linguistic feature of effective academic writing (Hyland, 1994; Hyland & Milton, 1997).

However, understanding and using hedging appropriately is not an easy task for many non-native writers (Hyland & Milton, 1997) and difficulty in using hedging among EFL and ESL writers has been specifically reported in several previous studies based on the fewer instances of hedges used by them (Burrough-Boenisch, 2004; Hyland & Milton, 1997; Prasithrathsint, 2015; Vassileva, 1997, 2001; Ventola, 1997), and with less variety when compared with native writers (Hidayati, Muhammad, & Dallyono, 2008; Vassileva, 2001; Ventola, 1997; Yagiz & Demir, 2014). Some also reported inappropriate (Hyland, 1996b; Vassileva, 1997) and ungrammatical use of hedges (Yang, 2013).

Similarly, Thai EFL writers have also been found to have difficulties with hedging. Sukhanindr (2008) found that Thai authors in the areas of applied linguistics hedged less than native writers. Moreover, they tended to use only modal devices limited to *can, could, may* and *might* rather than other lexical hedges. In a study of English medical research articles, however, Petchkij (2016) found that the overall number of some common lexical hedges used by Thai writers in the area of oncology differed little from those of native writers, with the variety of epistemic modals, verbs and adverbs being more limited. Two other studies conducted of hedging in Thai language research articles found that lexical hedges were widely used (Petchkij, Ratsami, Furuhashi, & Pinyarn, 2016; Prasithrathsint, 2014). This suggests that the concept of hedging in research articles is understood by Thai writers, but using hedges in a foreign language poses difficulties for them.

The possible reasons for difficulty in hedging among non-native writers have been discussed in the literature. One of the main factors affecting the ability to hedge is pragmatic competence (Crismore, Markkanen, & Steffensen, 1993). This means that using hedges effectively requires not only linguistic, but also pragmatic competence (Clemen, 1997). How teachers of academic writing courses can help develop these two aspects, the form and function of hedges, in their non-native learners has been previously investigated and discussed, and some studies have suggested that explicit teaching of hedges could be beneficial (Alward, Mooi, & Bidin, 2012; Chick, 1996; Hinkel, 1997; Hyland, 1998; Kasper & Schmidt, 1996). Hyland (1998), for instance, suggested that teaching of hedging to raise learners' awareness could be done through direct instruction. Others have made recommendations on how lessons on hedging should be designed and taught in class (Hinkel, 2005; Hyland, 1996a; 1998; Schmidt, 1993).

Moreover, research focusing on the effectiveness of explicit teaching of hedges to non-native learners can also be found. For example, Wishnoff (2000) studied the effectiveness of the direct teaching of hedges for ESL graduate learners and found a significant increase in the use of hedges in their research papers. Alibabaee and Shahzamani (2013) investigated the effect of the explicit teaching of hedging on awareness of hedging among Iranian EFL university students. The participants received two one-hour lessons on hedging and their posttest writings indicated a significant improvement after the explicit teaching. Alward et al. (2012) studied the role of explicit instruction in Yemeni EFL undergraduate learners' use of hedges and boosters in their pretests and posttests, which were in the form of persuasive writing essays. The results indicated a positive impact on the learners' use of hedges and boosters, and direct instruction of hedges and boosters was recommended. However, to the best of the author's knowledge, empirical studies focusing on the impact of the explicit teaching of hedges in academic writing for Thai EFL learners are limited.

The aims of this study are to examine whether the explicit teaching of hedging can help raise awareness of hedging among Thai EFL learners and whether it can help increase their ability to hedge in their academic writing in English.

2 Literature review

2.1 Hedges in research articles

Hedges are usually defined based on their function and there are several definitions provided in the literature. Precise definitions which can be used as guidelines for the identification of hedges have been given by several scholars. For example, hedges have been defined as any linguistic form that shows lack of commitment to the truth value of an accompanying proposition (Hyland, 1998, 2005a). The definition given by Crompton (1997), which is used as a guideline for the identification of hedges in this study, is any linguistic form that presents the writer's own propositions rather than precise fact. Based on the functional definitions, any linguistic form appearing in a sentence that exhibits the writer's own claim rather than exact fact is considered as functioning as a hedge in that context. In addition, such linguistic form may function as a hedge in one particular sentence or context, but not in others. For example, the word *suggest* in "The results suggest that…" is a hedge, while it is not a hedge in "We suggest that…". In other words, serving as a hedge is a not an intrinsic property of any particular linguistic form (Darian, 1995). When identifying a hedge, researchers therefore need to look at the context in which it occurs or look at how it is used in a particular context, which is why hedging is considered a pragmatic strategy (Clemen, 1997; Crismore et al., 1993).

In academic writing like research articles, it has been found that some hedges are lexical such as epistemic modals, verbs, adjectives and adverbs, as shown in examples i, ii and iii above. Other forms of hedges can be, for example, passive constructions and conditional clauses (Hyland, 1996b, 1998), as shown in examples iv and v, which could help distance the writers from the propositions of the sentences and consequently reduce the writer's responsibility regarding them. Some others are called strategic hedges – for example, the way authors of research articles mention shortcomings of a method or their insufficient knowledge on an academic issue (Hyland, 1995, 1998), as shown in examples vi and vii.

(iv) The BS fraction is assumed to originate from the center of the … (Hyland, 1996b)
(v) If significant energy is lost by the plasma particles in this process, the plasma will be cooled. (Hyland, 1998)
(vi) The procedure only identifies methylated nucleotides located within the recognition sequences of the sensitive enzymes. In spite of its shortcoming, the method has been widely employed to evidence this type of … (Hyland, 1998)
(vii) We do not know whether the increase in intensity of illumination from 250 to 1000 μ E/m^2 per s causes induction of one specific … (Hyland, 1995)

However, hedges most commonly found in research articles are lexical hedges (Hyland, 1996a) and Hyland (2005a) proposed a list of common hedges for academic writing in which both lexical hedges and phrases are included (see Appendix A for further details).

2.2 Teaching hedging to non-native learners

As hedging is considered part of pragmatic competence, teaching how to hedge to non-native learners falls under the topic of interlanguage pragmatics, which is "the study of the development and use of strategies for linguistic action by nonnative speakers" (Kasper & Schmidt, 1996, p. 150). It is believed that such pragmatic knowledge is teachable (Kasper & Schmidt, 1996) and that instruction is essential for developing L2 pragmatic competence (LoCastro, 1997). Moreover, it has been found that direct teaching can help learners improve in terms of pragmatic choices (Chick, 1996; Kasper & Schmidt, 1996) and that learners who receive instruction in pragmatics generally perform better in terms of second language use (Rose, 2005). For non-native authors of research articles and research reports, teaching them how to hedge would, therefore, help develop their academic writing skills and be beneficial for their future publications. For teachers, they would need to think about how to effectively teach such skills to their non-native students.

Schmidt (1993) suggested that, in the first stage of developing the pragmatic competence of hedging, teachers should design lessons which include examples of hedges for their students to examine and note. In addition, Hyland (1996a) proposed that teachers could help L2 learners understand the concept of hedging and how to use it appropriately by following these two main steps. The first step is to introduce authentic common hedges used by expert writers to the learners. This can help raise students' awareness of hedging. In addition, teachers can raise awareness of the forms and functions of hedging through authentic research articles, concordance and exercises that include hedges both at the sentence and discourse levels. Then, in step two, teachers should develop appropriate use of those forms in their students' writings at both sentence and discourse levels in the genre of their discipline. For the discourse level, teachers should develop students' ability to use hedges in a complete piece of work so that they can learn more about role of hedging in creating and producing larger texts. In addition, the tasks at the discourse level should be as authentic as possible in terms of the roles of genres, objectives, writers and audience. In terms of instruction, teachers may begin with high frequency lexical hedges and focus on other structural and strategic hedges later. Most importantly, Hinkel (2005) stated that "persistence and consistency" of teachers is needed in the direct instruction of the use of hedging for L2 learners. Moreover, Hinkel specifically suggested that, in the classroom, teachers should firstly focus on less difficult hedges such as frequency adverbs like *often*, *frequently*, or *usually,* which are relatively easy to explain and practice. After that, teachers can combine them with some more complex epistemic and possibility hedges such as *likely/unlikely*, *probable/probably*, *possible/possibly* and *perhaps*.

Despite the utility of hedging, it is not often taught explicitly in the classroom (Gilbert, 1991) and the difficulties of teaching hedging in academic writing classes have been noted by various scholars. For example, teaching hedging in the classroom can be difficult for learners who may have little past experience with the use of hedging or the genre in which it is to be applied, thus making learning how to use hedges difficult (Hyland & Milton, 1997). Furthermore, it often takes a considerable amount of time for non-native learners to be able to use hedges efficiently (Ventola, 1992). In this study, the suggestions of Hyland (1996a), Schmidt (1993) and Hinkel (2005) mentioned above were used with Thai EFL learners and the impact of the explicit teaching of hedging was examined.

3 Methods

3.1 Participants

The participants of this study were 32 undergraduate Thai EFL learners. They were 5th year undergraduate pharmaceutical science students in a leading university in the central region of Thailand studying in an EAP (English for Academic Purposes) course for the pharmaceutical profession. Their proficiency levels were intermediate or below based on their grades in the second semester of a fundamental English course they had taken previously at the university, for which most received grades of C+ or C. They were among 4,613 students who took this fundamental course. The range of T-scores for the group were between 43 and 51, with the highest T-score being 59 and the lowest being 31. The EAP course focused mainly on developing their reading and writing skills. The course book used during the time this research was conducted comprised 6 units including two units focusing on reading research articles and writing research articles, which were taught over 6 and 8 hours, respectively. One of the course requirements was that students were asked to write 'mini' research articles as their term paper, and were assigned to groups of 4–5 students each.

These 32 learners were verbally informed about the current study and asked for their permission to use their writings and their responses in a questionnaire as data for the study. Written consent forms were obtained from all 32 participants for the use of responses in the questionnaire; however, only 29 permitted the use of their written work. The course instructor had approximately 8 years of experience in teaching EAP courses to science and health science students and 4 years of experience

in teaching this specific course. Learners had some prior experience reading research articles in other courses at their faculty.

3.2 Hedging lessons

The lessons on hedging in this study were designed for teaching both the form and function of common lexical hedges from Hyland's list (2005a) to the participants. The instruction followed the two steps suggested for teachers by Hyland (1996a) as mentioned earlier: Step 1, introducing authentic hedges, and Step 2, developing appropriate use of hedges. However, these two steps were slightly adjusted based on the recommendations of Schmidt (1993), who stated that in the first stage of developing the pragmatic competence of hedging teachers should design lessons which include examples of hedges for their students to examine and note, and Hinkel (2005), who suggested that teachers should firstly focus on less difficult hedges and later combine them with more complex ones, as well as to account for other topics covered in the "Reading research articles" and "Writing research articles" units in the course book, the course requirements and the course time available.

In the reading research articles unit, students learned about the conventional format of scientific research articles known as the IMRD (Introduction-Methods-Results-Discussion) format. They also learned about the components of each section. For the discussion section, they learned that it usually includes a restated research background, answers to the research questions or key results, interpretation of the results, limitations of the study, suggestions for future research and implications of the study (Swales & Feak, 2015). They also practiced reading each section of two research articles for comprehension. After that, these EFL learners were asked to do a pretest writing activity before they learned about the concepts of hedging and techniques for hedging in the writing research articles unit.

For the pretest, learners were asked to read a research article on a general topic that pharmaceutical students of diverse backgrounds could understand. The article was based on survey research which was conducted asking new health science graduates whether they would prefer working in their hometown or in a big city and the reasons for their answer. Only the abstract (A), introduction (I), methods (M) and results (R) sections of the article were provided for them to read. Then they were asked to write a discussion (D) section for the article based on the content given. One hour was allotted for them to complete this task.

3.2.1 Explicit teaching of hedges

In introducing authentic hedges, hedges were firstly introduced to learners when they practiced reading three additional research articles in the reading research articles unit. During this period, the concept of hedging was introduced briefly and some authentic hedges occurring in the discussion section of these research articles were pointed out and used as authentic examples by the teacher as suggested by Hyland (1996a) and Schmidt (2003). After finishing the reading research articles unit, the teacher began the writing research articles unit. In this unit, learners learned about moves and steps in the IMRD sections of a research article as suggested by Swales and Feak (2015) and about some useful language expressions for writing each section. Then the concept of hedging and a list of common lexical hedges were explicitly introduced and taught. These lexical hedges were taken from Hyland's list of common hedges (2005a) and were grouped based on their grammatical categories which are epistemic modal, verb, adjective, and adverb, as shown below.

Modals: could, may, might, should, would
Verbs: appear, assume, estimate, indicate, seem, suggest, suppose, suspect, tend to
Adverbs: generally, mainly, maybe, perhaps, plausibly, possibly, probably, quite, relatively, roughly, somewhat, unlikely
Adjectives: likely, possible, probable, unlikely

This list was presented to the learners along with some examples of sentences using these hedges selected from the discussion sections of a number of pharmaceutical sciences research articles. The

specific contexts in the discussion section where hedges can be used were also introduced to learners. To illustrate, they learned that hedges were generally used when authors of research articles cautiously make claims, interpret results, state limitations and implications of their studies and give suggestions for future studies (Hyland, 1996a; Petchkij 2016). Examples of hedging in these contexts were also given.

For developing appropriate use of hedges, the participants practiced using these hedges by doing several exercises including an authentic task at the discourse level as suggested by Hyland (1996a). In the first exercise, they were asked to identify hedges in sentences and indicate the contexts in which those hedges occurred. In the second exercise, they were asked to hedge some short direct sentences. In the third exercise, they were asked to hedge some longer sentences in which more than one hedge might be needed. In both the second and third exercises, learners were also encouraged to try to use different types of hedges, not only modals. All sentences used in these exercises were from authentic texts; they were selected and adapted from research articles in the pharmaceutical sciences field (see Appendix C for examples of exercises).

After that, learners practiced by completing their own authentic RA group task, which was to write a term paper in groups of 4–5 students. For the assignment, they were instructed to write their research articles based on their own laboratory experiments or senior projects, or they could conduct a small qualitative or quantitative research study based on any pharmaceutical concept, approach or theory. In their IMRD sections, they were instructed to follow the moves and steps they had previously studied. The task was designed to allow students to demonstrate the skills they had practiced using hedges at both sentence and discourse levels. The final drafts of their term papers were submitted in the last class of the semester.

After submitting their term papers, the learners completed a posttest writing task in class and then filled out a questionnaire. In the posttest, learners were asked to revise their pretest writings in terms of the moves and steps of their discussion section and language used. One hour was given for this task. The same RA was used in the posttest as in the pretest, since the class time was limited and also so that learners would have a chance to assess themselves in terms of skill learned by looking at what they had written in the pretest.

3.2.2 Questionnaire

Upon completing the posttest, the learners were given a short questionnaire asking them what they thought about the lessons after receiving the explicit instruction and about their exposure to hedging prior to the direct teaching given to them. This simple questionnaire was designed to gather some supporting data for the study with four simple yes-no questions asking them 1) whether they had known before that hedging was common in research articles, 2) whether they had studied hedging in research articles before, 3) whether they had recognized common lexical hedges before, and 4) whether they thought that hedging was important for writing research articles and the reasons for their answer. A blank space was provided after question 3 for students to write down the lexical hedges they thought they knew before the teaching and after question 4 for them to provide the reasons for their answer. After questions 1-3, a blank space was provided as 'other' for students who might want to respond with other types of answer. In addition, there was a final open-ended question asking them how they felt about the lessons on hedging in research articles and how they thought these lessons could be improved. The design of the questionnaire was done in consultation with an assistant professor of English who is an expert in second language acquisition and has more than 30 years of experience in Teaching English and EAP courses.

3.3 Data

Data were common lexical hedges found in RA discussion sections written by the study participants in their pretest, posttest and term papers. 29 pretest writings (Pre), 29 posttest writings (Post) and 8 discussion sections from 8 term papers of 29 students (D) were typed and compiled to make

three corpora using the Microsoft Word program. The Pre corpus (8,177 words) was used as a baseline before the direct instruction on hedges. The Post (9,691 words) and D (3,491 words) corpora were used as data after the direct instruction. The D corpus was also used as data from an authentic discourse level task created by the students themselves and as another measure to support the effectiveness of the instructional treatment in this study. These three corpora were utilized as sources for analyzing the hedges used by the participants in terms of frequency, variety, use in context and appropriateness of use. Another set of data was the responses in the questionnaires completed by the 32 learners which were used to analyze learners' perceptions on the direct instruction and to support and check against the findings from the corpora.

3.4 Data analysis

Common lexical hedges occurring in the Pre, Post and D corpora were searched using Microsoft Word. For each lexical hedge found in the corpus, its function as a hedge was also checked and some were excluded if they were found not to function as a hedge in the context in which they occurred. The identification of hedges was done based on the definition given by Crompton (1997) which states that hedges are any linguistic forms that present the writers' own propositions rather than exact facts.

The verb *seems* in example (1) functions as a hedge. In (1a), however, when this verb is taken out of the sentence, the degree of commitment in stating the proposition of the sentence (that PE03 have best activity among the five compounds) is stronger. Therefore, example (1) presents the information as the writers' own proposition rather than an exact fact. Please note that grammatical errors and misspellings found in the students' writings are left as they are.

(1) In five compounds, PE03 seems to have best activity. (D)
(1a) In five compounds, PE03 Ø have best activity. (D)

The common lexical hedges found in each corpus were categorized based on their grammatical categories, which are epistemic modal, verb, adverb and adjective. Then, their frequencies were counted and were compared among the three corpora. As the size of each corpus was different, the frequency of each group was compared using the standardized size of 1,000 words to help provide a basis for comparison. Then the various hedges in each group were listed and compared.

In terms of use in context, the contexts in which these hedges occurred were also analyzed. For example, the word *seem*s in example 1 was used in the context of making a claim about the activity of PE03. The appropriateness of the students' hedging was also analyzed in terms of grammatical errors and the effect of the hedging. For the grammatical errors, only immediate syntactic constituents before and after a hedge were used as co-text for analysis. Other errors occurring away from the hedges were not included. As shown in example (2), the modal verb *may* was ungrammatically used with *because of* to reduce the degree of proposition in this sentence. This example shows an ungrammatical usage of the hedge *may* with a preposition *because of*.

(2) It may because of incomes in rural areas is too law. (Pre)

For the analysis of the effect of the hedging, a lexical form that appeared to be used as a hedge, but did not help reduce the degree of commitment in stating the proposition of the sentence was considered inappropriate. For example, the modal *could* in sentence 3 appears to be used as a hedge. However, in this context, it functions as the past tense of *can* referring to ability in the past, rather than the writers' own proposition.

(3) In concordance with our finding, high concentration of ethanol could reduce the number of colonies of E. coli significantly. (D)

Responses for each item in the questionnaire were combined, counted, analyzed and summarized. Finally, the effectiveness of the explicit teaching of hedges was interpreted and conclusions were drawn based on the results.

4 Results

The results section is divided into 5 parts: frequency, variety, use in context, appropriateness of use and learner's perceptions toward the direct instruction on hedging.

4.1 Frequency

As shown in Table 1, after the direct instruction, the numbers of common lexical hedges found in the Post (21.88 per 1,000 words) and D (13.46 per 1,000 words) corpora were much higher and slightly higher than those in the Pre corpus (12.23 per 1,000 words), respectively.

Table 1, Frequency of hedges in the three corpora

No. of H	Pretest n = 29	Posttest n = 29	Discussion n = 8
in each corpus	100 H / 8,177 w	212H / 9,691 w	47 H / 3,491 w
per 1,000 words	12.23	21.88	13.46

H = hedges w = words

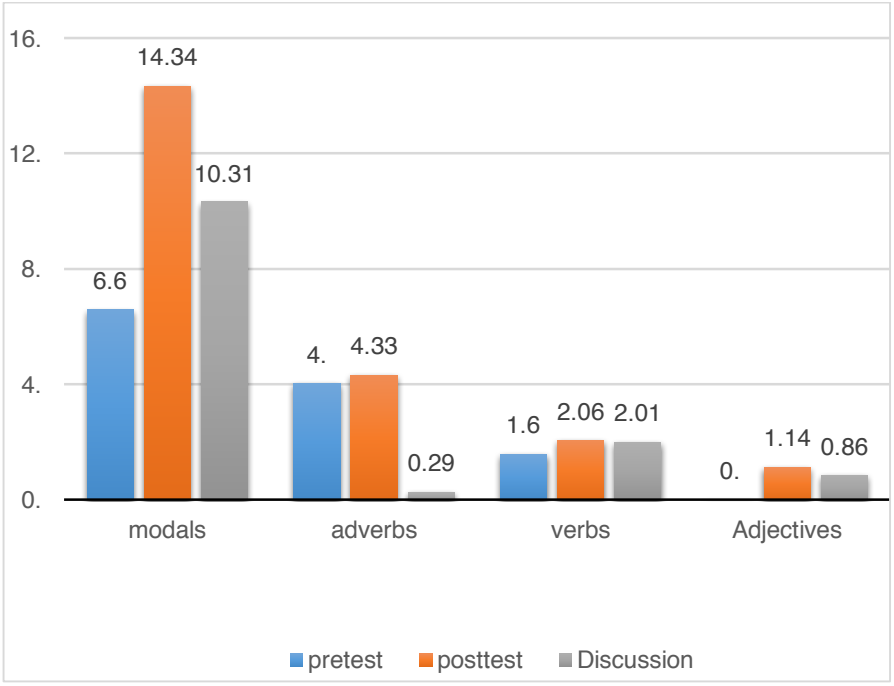

Fig. 1. Frequencies of hedges when compared among the three corpora

Figure 1 shows the comparison of frequencies among four types of common lexical hedges (modals, adverbs, verbs and adjectives) in the three corpora. In the pretest corpus, the highest frequency per 1,000 words was found in modals (6.6), followed by adverbs (4.04), verbs (1.59) and adjectives (0), respectively. After the direct instruction, the frequencies of all types were much higher with the highest occurring in the posttest (14.34, 4.33, 2.06 and 1.14). In the D corpus, the

frequencies of modals (10.31), verbs (2.01) and adjectives (0.86) were also higher than those in the Pre corpus, except adverbs (0.29) which were used least when compared among the three corpora. This may imply that adverbs are more difficult for these Thai EFL learners to use and more instruction and practice may be needed.

4.2 Variety of hedges

In the group of modals, it can be seen in Table 2 that these EFL learners used the same five epistemic modal verbs with different degrees of frequency in the three corpora, which are *should (23,36,7), may (19,47,11), might (6,13,1), could (3,25,16) and would (3,18,1)*. In the Pre and Post corpora, *should* and *may* were used most, while in the D corpus, *could* was used most. For *might* (6, 13, 1) and *would* (3, 18, 1), they were used more in the posttest, but used least in the D corpus.

In terms of adverbs, seven different epistemic adverbs (*quite* (14), *approximately* (10), *often* (3), *maybe* (2), *mostly* (2), *probably* (1), and *usually* (1)) were found in the Pre corpus. After the direct instruction, four more different common epistemic adverbs that the students learned from the class were found in the Post corpus, *somewhat* (3), *mainly* (2), *possibly* (2) and *apparently* (1). However, in the D corpus, only one adverb was used as a hedge, *probably* (1).

In terms of epistemic verbs, in the Pre corpus, three common verbs from Hyland's list were found, *tend to* (11), *seem* (1), and *assume* (1). After the direct instruction, two more verbs were found in the Post corpus which were *suggest* (1) and *appear* (1), while only one new different epistemic verb, *suppose* (1), was used in the D corpus. Even though the variety and frequencies of these verbs were quite low, they may reflect that learners at least acquired and recognized some more new epistemic verbs from the instruction.

For epistemic adjectives, none was used in the Pre corpus (0), but some were found in the Post (1.14) and D (0.86) corpora, which may demonstrate the effectiveness of the direct instruction of hedges. To elaborate, after the direct instruction, two common epistemic adjectives, *likely* (6) and *possible* (5), were used in the Post corpus, and only *likely* (3) was found in the D corpus.

When lexical choices among these three corpora were compared, it can be seen that, after the direct instruction, some new lexical hedges were used by learners in the Post and D corpora. As shown in the last column in Table 2, these were 6 adverbs (*somewhat, mainly, possibly, apparently, potentially,* and *often*), 2 verbs (*suggest* and *appear*) and 2 adjectives (*likely* and *possibly*). These words are common lexical hedges taught in class which may indicate the positive effect of the explicit teaching of hedges. However, in the D corpus, which comprised data collected from students' term papers designed and written by themselves, modals were still used most (36), while only 1 adverb (*probably*), 3 verbs (*seem, suggest, suppose*) and 1 adjective (*likely*) were found. This indicates that modals remained the preferred choice for the students and that it would likely take more than one semester to develop their hedging skills to a more appropriate level.

Table 2. Variety of hedges and their frequencies

Hedges	Pretest	Posttest	Discussion	New forms learned
modals	should(23), may(19), might(6), could(3), would(3) (54H)	may (47), should (36), could (25), would (18), might (13) (139H)	could (16), may (11), should (7), might (1), would (1) (36H)	-
	6.6 / 1,000 w	14.34 / 1,000 w	10.31 /1,000w	
adverbs	quite (14), approximately (10), often (3), maybe (2), mostly (2), probably (1), usually(1) (33H)	approximately (12), quite (12), probably (3), somewhat (3), mostly (3), mainly (2), possibly (2), maybe (2), apparently (1), usually (1), often (1) (42H)	probably (1) (1H)	somewhat mainly possibly apparently potentially often
	4.04 / 1,000 w	4.33 / 1,000 w	0.29 / 1,000 w	
verbs	tend to (11), seem (1), assume (1) (13H)	seem (9), tend to (7), suggest (1), assume (2), appear (1) (20H)	seem (5), suggest (1), suppose (1) (7H)	suggest appear
	1.59 / 1,000 words	2.06 / 1,000 words	2.01 / 1,000 w	
adjectives	-	likely (6), possible (5) (11H)	likely (3) (3H)	likely possible
	0 / 1000 w	1.14 / 1000 w	0.86 / 1000 w	10

4.3 Use in context

As mentioned earlier, the contexts in which hedges are commonly used in RA discussion sections were also introduced to the participants with several examples. After the explicit teaching, it was found that some of the common lexical hedges were used by these learners where they thought appropriate. To illustrate, they used common lexical hedges to (a) reduce the degree of their claims as shown in examples 4–6. In addition, hedges were also found when they wrote (b) interpretations of the results (7-9), (c) limitations of the study (10–12), (d) recommendations for future studies (13–15) and (e) implications of the study (16–18). However, hedging in these contexts was also found

in their pretest, which was done before the explicit teaching. This might have been influenced by the lessons on key components of an RA discussion section in the reading unit they studied before the direct instruction, as well as their experience in reading research articles from other courses at their faculty. Examples of use in context from the three corpora are as follows. Please note that grammatical errors and misspellings found in their writings are left as they are.

(a) Claims making:

(4) The current attitudes of new medical, dental and pharmacy graduated towards rural work were quite positive. (pre)

(5) In addition, we found that medical graduates admitted through CPIRD/ODOD tend to prefer to work at rural area. (post)

(6) According to the experiment, the formulations which contain micronized titanium dioxide are likely to be better for skin protection from UVB than conventional titanium dioxide. (D)

(b) Interpretation of results:

(7) Therefore, from all of these reasons and factors, it may be the reason that the graduates have the positive attitude to working in rural areas but it be strange that the graduates was choose to work in rural areas less than half of all. It may because of incomes in rural areas is too law.

(8) From this study, The attitude of graduate to work in rural areas seems to be nice, ... (post)

(9) In addition, the effect of hand sanitizer is better than expected. It might be cause of ... (D)

(c) Limitations of study:

(10) Other limitation is respondents may have bias to answer questionnaire. (Pre)

(11) One of the shortcoming would be that there is no adequate data about factors … (Post)

(12) A few shortcomings of this study might be that size and colony numbers were ... (D)

(d) Recommendation for future studies:

(13) … the further study might be access the result of salary to workplace selection … (Pre)

(14) Furthermore, the attitudes toward working in rural area of general professional in medical care should be collected in future studies. (Post)

(15) This study suggests that we need to deal with the expert of pharmacognosy ... (D)

(e) Implications:

(16) The future policies should increase a porportion of CPIRD/ODOD admission program to distribute health workforce to rural areas. (Pre)

(17) The implication of this study should be using special track recruitment of rural workplaces is potentially good way to apply in other specialists as pharmacists, dentists and nurses. (Post)

(18) Furthermore, the finding about sensitivity difference to medication in each stage of cancer may contribute to further studies for finding the most effective cancer drug ... (D)

4.4 Incorrect use

The data of this study also show learners' incorrect use of hedges in terms of ungrammatical use (4.4.1) and hedging effect (4.4.2). For ungrammatical use, three main grammatical errors were found: (a) *wrong word order*, (b) *wrong active and passive constructions with modals* and (c) *wrong grammatical forms of hedges*.

4.4.1 Ungrammatical use

4.4.1.1 Wrong word order

This type of ungrammatical use includes the use of hedges in the wrong word order with other words immediately occurring before and after them. For example, the epistemic modal *may* was ungrammatically used with the modal *can* in a series as shown in example (19), the use of the epistemic verb *seem* with a verb *influence* in series without an infinitive *to* (20), and the use of the past form of verb *showed* after the epistemic modal *would* in example (21). Please also note that in the following examples there are also other grammatical errors and misspellings and they will be left as they are to show the authenticity of examples.

(19) First, the sample may can't represent all of profession because of ... (Pre)

(20) Special track recruitmet seem positively influence the selection of rural workplaces... (Post)
(21) In conclusion, protein extract from L. squarrosulas would showed the potency on … (D)

4.4.1.2 Wrong active and passive constructions with modals

This type of incorrect use was found when the learners used epistemic modals. In some passive constructions, some learners used base forms of verbs (e.g. *depend*) instead of participles (e.g. *depended*) after an epistemic modal and an auxiliary verb *be* as shown in example (22). Moreover, some learners used epistemic modals in passive constructions instead of active constructions (23), while some used them in active instead of passive constructions (24).

(22) These might be depend on varied Factors of each professions. (Pre)
(23) I would like to suggest that this research should be spent more time to collect data. (Post)
(24) It could conclude that CU laboratory's hand sanitizer is effective in sterilizing. (D)

4.4.1.3 Wrong grammatical forms

Some learners in this study used wrong grammatical forms of hedges when hedging. For example, the adjective *probable* was used when the adverb *probably* should have been used as shown in example (25), the use of the adjective *likely* as an adverb in example (26) and the use of *would* instead of *could* in example (27). However, this type of grammatical errors was not found in the discussion sections of the students' term papers.

(25) Therefore the pharmacists was probable (probably) work in rural area ... (Pre)
(26) Rural colleagues are likely nice and friendly and Rural colleagues are helpful. (Post)
(27) A positive correlation between the various factor and the preference toward in rural areas would be overestimated as the dataset of this survey confined only in student ... (Post)

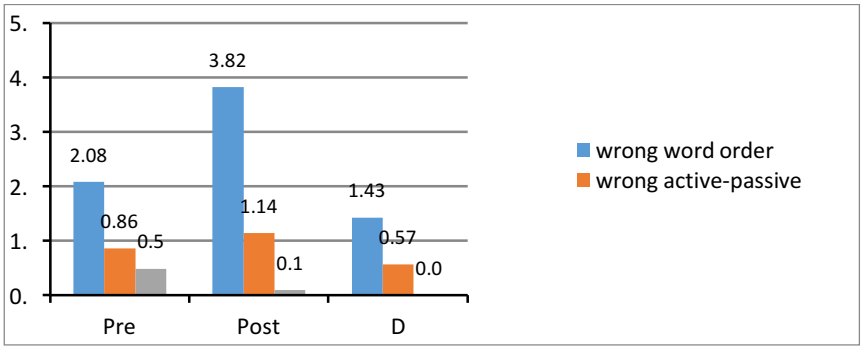

Fig. 2. Each grammatical error per 1,000 words in the three corpora

Figure 2 shows the frequencies per 1,000 words of each grammatical error and their comparison among the three corpora. The numbers of hedges that fell into the *wrong word order* type were 2.08 (17) in the Pre, 3.82 (37) in Post and 1.43 (5) in D corpora. For hedges in the *Wrong active and passive constructions* group, their frequencies were 0.86 (7) in the Pre, 1.14 (11) in Post and 0.57 (2) in D corpora, while the frequencies of hedges in the *wrong grammatical forms* group in the three corpora were 0.49 (4) in the Pre, 0.10 (1) in Post and 0 (0) in D corpora. Figure 2 also shows that after the direct instruction the number of hedges with wrong word order and wrong active/passive constructions tended to increase in the posttest and then decrease when these learners wrote the discussion sections in their term papers. In contrast, the numbers of wrong grammatical forms were reduced in these two corpora after the direct instruction. This implies that when introducing hedges to intermediate level students and lower, relevant lessons on English syntax should also be provided by teachers. Moreover, other grammatical forms of a lexical hedge may also be given as inputs.

4.4.2 Hedging effects

This type of inappropriate use was found when a lexical hedge was used, but the statement was still direct. In this study, this difficulty was found only when the learners used the modal *could*, whose meaning can also be about ability, not possibility, as shown in example (3) earlier and example (28) below.

(28) This study couldn't conclude the effectiveness of the Alcohol gel to kill S. aureus ATCC 25923 because of … (D)

4.5 Learners' responses to the direct instruction on hedging

How these EFL learners thought about the direct instruction on hedging in this study were gathered from the questionnaire. Their responses were divided into two parts covering their experiences on hedging before and after receiving the explicit teaching of hedges.

Before receiving the explicit teaching, 96.9 % of the students stated that they had not known that hedging was a common linguistic feature in research articles and 43.75 % of them had never studied about how to hedge in research articles before. However, 40.63% of them claimed that they had recognized some common lexical hedges before, which were epistemic modals *may*, *might*, *could*, *would*, *should*; epistemic verbs, which were *appear*, *seem*, and *tend to*; the adjective *likely*; and epistemic adverbs, which were *almost*, *probably*, *perhaps*, and *maybe*.

After the instruction, all 100% of the learners stated that they realized the importance of hedging in the research article genre, giving various reasons. The first reason was that hedging could help protect them when they made claims or drew conclusion from their findings (65.63 %). Second, hedges could be used to show politeness to others involved (12.5%). Moreover, 25% of the learners mentioned that hedging could help prevent readers from misunderstanding, and 6.25% thought knowledge on hedging was beneficial for their reading comprehension. 9.38% did not give any reason why they felt hedging was important. These findings likely reflect the effectiveness of explicit teaching of hedges in raising their awareness on hedging in academic writing.

Furthermore, when these learners were asked what they thought about the lessons on hedging, 28.13% said they felt satisfied with the lessons. Regarding how to improve the lessons, 40.63 % felt that they needed to do more exercises on hedging, 1.25% stated that they needed more examples of how to use hedges in research articles, 1.25% felt they needed more class time for lessons on hedging, and 1.25% stated that they needed more class time for lessons on English grammar.

5 Discussion

This study examined the effectiveness of explicit teaching of hedging to undergraduate EFL learners in the Thai classroom context using the two steps of teaching suggested by Hyland (1996a) and the recommendations of Schmidt (1993) and Hinkel (2005) to see whether it could help raise their awareness of hedging and improve their ability to hedge in their academic writing.

In terms of awareness, the results suggest that the Thai EFL learners in this study were more aware of the need to use hedging in their writing after they had been directly taught. This can be seen from the higher frequencies of common lexical hedges in the Post and D corpora when compared to those found in the pretest. This is in line with Wishnoff (2000), who found a significant increase of hedges used in research papers written by ESL learners receiving direct teaching. In this study, the results from the questionnaire also support this. Most of the respondents said they had not realized before that hedges were common in research articles, but, after the explicit instruction, all of them stated they understood the importance of hedges and gave various reasons why hedging was important. This also supports the findings of previous studies which indicated that direct instruction of hedges could help raise learners' awareness of hedging (Bloor & Bloor, 1991; Hinkel, 1997; Hyland, 1998).

In terms of the ability to hedge, the positive effect of the explicit teaching of hedges can be seen in the increased variety of hedges used and how the learners used them in different contexts in the research article discussion section in the Post and D corpora. This can be noticed from the occurrence of 10 new forms of common lexical hedges used in the Post and D corpora (as shown in Table 2) which indicates that the leaners recognized more forms of lexical hedges and were able to use them where they thought appropriate. However, this is in contrast with the study of Wishnoff (2000), who found no significant changes in the variety of hedges used in the pretest and posttest. For the ability to hedge in context, the different contexts in the discussion sections of their mini-research articles where these learners used common lexical hedges after the direct instruction indicates the positive effect of the explicit teaching of hedges where research article authors would normally hedge. Several reasons the learners gave in the questionnaire about why hedges should be used in research articles, particularly that hedging could help protect them when they made claims or drew conclusion from their findings and that hedges could be used to show politeness to others involved, also support this. However, this ability was also indicated in their pretest. The possible explanation could be that they were 5th year pharmaceutical students who had experience in reading research articles in previous classes, and the research articles that they had read may have functioned as inputs for them.

In agreement with previous studies, these findings plausibly support the ideas that pragmatic knowledge is teachable (Kasper & Schmidt, 1996) and that instruction is needed for increasing L2 pragmatic competence (LoCastro, 1997). Also, the results appear to support Chick (1996) and Kasper and Schmidt (1996), who believe that direct teaching can help learners to improve in terms of pragmatic choices and language use patterns. Moreover, the grammatical errors and the problems in hedging found in this study seem to be in line with Hyland and Milton (1997), who found that learning how to use hedges is often difficult for non-native writers and that teachers need to have persistence and consistency, as well as good instruction plans and time management (Hinkel, 2005).

It was found in this study that the two teaching steps suggested by Hyland (1996a) and the recommendations of Schmidt (1993) and Hinkel (2005) were practical for the teaching of hedging. The study also has a number of other pedagogical implications for teaching the subject. Firstly, when teaching hedging, teachers should consider using common hedges from Hyland's (2005) list, as many authentic examples can easily be found in research articles read in class and out-of-class. Moreover, from the list, teachers may want to start with common lexical hedges as was done in this study if the levels of proficiency of students are intermediate or below as recommended by Hinkel (2005), so that teachers may firstly focus on less difficult hedges. Secondly, teachers may also introduce some other specific authentic hedges to students. For example, other grammatical forms of common lexical hedges may also be introduced to give learners more inputs, such as the noun forms of the verbs *tend to* and *possible*, which are *tendency* and *possibility*. Furthermore, other forms of hedges that are not in Hyland's list (2005a) and appear in research article reading exercises might also be introduced. It was found in this study that these hedges could serve as extra inputs for students as some participants in the study also used grammatical forms of hedges like *tendency* and *possibility* and various other hedges not in Hyland's list (2005a) such as *potentiality* and *imply*. These hedges appeared in the research article reading exercises in the course book and the teachers introduced them to the learners. Finally, for students with intermediate and lower proficiency, teachers may need to prepare mini-lessons on relevant general grammar and devote some class time to teaching it.

There are certain limitations of this study that should be considered. First, the sample size of the study was relatively small and the corpora, especially of the discussion section of the term papers done as group work, could have been larger in order for the results to be more reliable and generalizable. Secondly, hedges occurring in other parts of the research articles provided to students to read before taking their pretest and posttest might have influenced the hedges used by learners. Even though the higher number and greater variety of hedges in the posttest and discussion sections indicate a positive effect of the direct instruction in this study, future studies may wish to design and

use pretests and posttests differently in order to more directly confirm the effectiveness of the explicit teaching of hedges in the research article genre in addition to using a larger sample size and corpus.

6 Conclusion

In conclusion, direct instruction on hedging was observed to have a positive effect on the Thai EFL undergraduate learners in this study, with results indicating that learners had benefited from the instruction with improved understanding and use of hedging. Although there is an existing body of research on the teaching of hedging in academic writing, bringing those theories and knowledge into the classroom still poses a number of difficulties for teachers. The findings of this study indicate the effectiveness of the teaching steps and techniques guided by Hyland (1996a), Schmidt (2003) and Hinkel (2005) and could also be used as guidance for academic writing classes taught by other EAP teachers. However, future research that results in more effective instruction for teaching hedging skills would be of clear benefit for both teachers of EFL and their students.

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Appendices

Appendix A: Common hedges in Hyland (2005a)

about, almost, apparent, apparently, appear, appeared, appears, approximately, argue, argued, argues, around, assume, assumed, broadly, certain amount, certain extent, certain level, claim, claimed, claims, could, couldn't, doubt, doubtful, essentially, estimate, estimated, fairly, feels, felt, frequently, from my perspective, from our perspective, from this perspective, generally, guess, indicate, indicated, indicates, in general, in most case, in most instances, in my opinion, in my view, in this view, in our view, largely, likely, mainly, may, maybe, might, mostly, often, on the whole, ought, perhaps, plausibly, possible, possibly, postulate, postulated, postulates, presumably, probable, probably, quite, rather x, relatively, roughly, seems, should, sometimes, somewhat, suggest, suggested, suggests, suppose, supposed, supposes, suspect, suspects, tend to, tended to, tends to, to my knowledge, typical, typically, uncertain, uncertainly, unclear, unclearly, unlikely, usually, would, wouldn't

Appendix B: The questionnaire used in this study

1. Before taking this course, did you know that hedges could commonly be found in research articles?
   ☐ Yes ☐ No ☐ Other (please specify) _____

2. Before taking this course, had you ever studied about hedging in research articles?
   ☐ Yes ☐ No ☐ Other (please specify) _____

3. Before taking this course, did you know these common lexical hedges and their functions?
   ☐ Yes ☐ No ☐ Other (please specify) _____

   If yes, common lexical hedges that you knew before taking this course are:

   _____

4. After learning about hedging, do you think that hedging is important when writing research articles?
   ☐ Yes ☐ No Why? Please specify your reasons.

   _____

   _____

5. What do you think about the lessons on hedging that you learned in this course? And, do you have any suggestion for making the lessons better?

   _____

Appendix C: Exercises used to develop appropriate use of hedges in step 2

The first exercise

Instructions: Underline the hedges used in the following excerpts and name the hedging strategies

1. Future research may consider using longer periods of dietary reporting, in addition to more biomarkers of oxidative stress and antioxidant capacity, in an attempt to best characterize the oxidative status of exercise-trained men and women with regard to their habitual nutrient intake.

Strategy: _____

2. In this study, vitamin C was negatively correlated to MDA, suggesting that higher intake of vitamin C may better protect against lipid peroxidation. The correlations appear to be sex specific, suggesting that perhaps diet may have more of an effect on men than on women in relation to oxidative stress. This could partially be explained by the higher resting MDA levels observed in men compared with women.

Strategy:_____

3. In conclusion, the present study indicates that the flower and bark of S. asoca can be considered as a good source of gallic acid and ellagic acid. This information can also be used for authentication and quality evaluation of commercial samples.

Strategy: _____

4. While the results of this study are informative and useful, interpreting self-reported information has limitations due to normative behavior and socially desirable responses. While the data was collected anonymously, it is possible that social desirability bias resulted in underestimation of the sale of alcohol or overestimation of respondents who didn't think pharmacies should sell alcohol.

Strategy: _____

Suggested answers for strategies:

1. To provide suggestions or recommendations for future research as options

2. To give possible explanations or interpretations of the findings

3. To reduce the degree of certainty of claims or findings and to introduce the implications of the findings to readers as options

4. To introduce limitations with caution

The second exercise

Instructions: Reduce the degree of commitment in the following statements using common lexical hedges.

1. This group plays a critical role in orienting the carboxyl function.

_____

2. T cells are the most important part of the initial immune response to thyroid antigen in each patient.

_____

3. The lack of the crDNA methylation in cv Platenese results in enhanced amounts of mRNA in choroplasts.

_____

4. The activity against both types of bacteria is indicative of the presence of a broad spectrum of antibiotic compounds.

_____

5. The antibacterial nature of the ethanol extract and the ET fraction is related to the high flavonoid and phenolic acid contents [16], particularly luteolinand chlorogenic acid.

_____

Suggested answers for this exercise

1. It seems that this group plays a critical role in orienting the carboxyl function.

2. These results suggest that T cells are likely to be the most important part of the initial immune response to thyroid antigen in each patient.

3. It might be speculated that the lack of the crDNA methylation in cvPlatenese could result in enhanced amounts of mRNA in choroplasts.

4. The activity against both types of bacteria may be indicative of the presence of broad spectrum antibiotic compounds.

5. The antibacterial nature of the ethanol extract and the ET fraction might be related to the high flavonoid and phenolic acid contents [16], particularly luteolin and chlorogenic acid.

The third exercise

Instructions: Rewrite the following sentences using appropriate hedging devices. You may paraphrase the sentences if necessary. Use at least two hedging words or phrases for each item. Do not use the same hedging term more than once.

1. Based on recent data, mastectomy rates are increasing.

_____

2. Our approach to surveillance differs from other programs in both the selection of candidates and the criteria for intervention.

_____

3. In the future, advances in technology such as magnetic resonance imaging reduce the need for biopsy during active surveillance through identification of high-grade cancer.

_____

4. Second-line therapies provide benefit to some patients, where response is strongly dependent on time to progression with first-line therapy.

_____

5. Imbalances in the therapy have confounded the ability of this trial to demonstrate a survival difference between the two groups.

_____

6. Hence, the survival time presented in our analysis is shorter than what we expect if the analysis had been performed from initial presentation.

_____

7. Additionally, this article supports the hypothesis that thymoma and thymic carcinoma are distinct clinical entities, and future trials must clearly separate these populations.

_____