A Lexicographic Approach to Teaching the English Article System: Help or Hindrance?

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Abstract: This article reports on changes in EFL learners' article choice performance before and after receiving lessons on the main rules applicable to article usage combined with dictionary consultation guidance. A sample of 43 Korean college students undertook the same forced-choice elicitation task once as a diagnostic test and again as a post-intervention test at three-month intervals. Unlike the diagnostic test, in which the participants were only asked to choose the correct articles, the post-intervention test asked them to give written accounts of their decision-making procedures as well. The analyses of the diagnostic test results, specifically the items requiring the indefinite article or the zero article, demonstrated EFL learners' struggle with indeterminate nominal numbers, underlining the importance of clear lexicographic treatment of such information. Further, the post-intervention test and the written think-aloud data analyses suggested that although using a bilingualised dictionary for nominal countability is useful in general, dictionary consultation can sometimes impede users from using articles correctly. Specific problem areas are discussed.

Keywords: ENGLISH ARTICLE SYSTEM, NOMINAL COUNTABILITY, ARTICLE USE, BILINGUALISED DICTIONARY, KOREAN EFL LEARNERS

Opsomming: 'n Leksikografiese benadering tot die onderrig van die Engelse lidwoordstelsel: 'n Hulp of 'n hindernis? In hierdie artikel word verslag gedoen oor veranderings in EVT-leerders se keuse van lidwoorde voor en nadat hulle lesse oor die hoofreëls wat van toepassing is op lidwoordgebruik asook leiding oor die raadpleging van woordeboeke ontvang het. 'n Steekproef van 43 Koreaanse kollegestudente het dieselfde opdrag uitgevoer waartydens gedwonge keuses ontlok is, een keer as 'n diagnostiese toets en weer as 'n postintervensietoets drie maande later. Anders as in die diagnostiese toets, waarin die deelnemers slegs die korrekte lidwoorde moes kies, is hulle in die postintervensietoets ook gevra om 'n geskrewe weergawe te gee van die besluitnemingsprosesse wat hulle gevolg het. Die ontleding van die diagnostiese toetsresultate, spesifiek die items wat die onbepaalde lidwoord of die zero-lidwoord vereis het, het getoon dat EVT-leerders sukkel met onbepaalde naamwoordgetalle, wat die belangrikheid van duidelike leksikografiese hantering van sodanige inligting beklemtoon het. Die postintervensietoets en die ontleding van die geskrewe hardop-dink-data het daarop gedui dat, alhoewel die gebruik van 'n verklarende woordeboek met vertalings oor die algemeen nuttig is vir nominale telbaarheid, die raadpleging van 'n woordeboek soms gebruikers kan verhinder om lid-

woorde korrek te gebruik. Spesifieke probleemareas word bespreek.

Sleutelwoorde: LIDWOORDSTELSEL IN ENGELS, NOMINALE TELBAARHEID, LID-
WOORDGEBRUIK, VERKLARENDE WOORDEBOEK MET VERTALINGS, KOREAANSE EVT-
LEERDERS

1.   Introduction

Correct article usage is difficult for learners of English as a second language (ESL) or English as a foreign language (EFL) to master, especially when their mother tongue (L1) does not contain the corresponding function system (García Mayo 2008, Ionin et al. 2008, Mizuno 1999). This has previously been observed in the literature and consistently supported by empirical evidence. Indeed, it is an indisputable fact that the rules governing English article usage are particularly unwieldy, with many exceptions and idiosyncrasies, so that article errors are produced even by highly advanced learners (Lennon 1991, Leroux and Kendall 2018, White 2003). For these reasons, some researchers have even claimed that teaching the article system effectively is an elusive goal (Butler 2002). Working as an EFL writing instructor in Korea for over a decade, the author has also heard students' complaints about written corrective feedback in which their native English-speaking teachers added what seemed to the students to be an unlikely *a(n)* or replaced what the students thought should clearly be *the* with *a(n)*.

A reasonable starting point for correct article usage is to identify the numeral aspects of a noun (Butler 2002, Master 1997), and it is exactly at this point that the problem begins. Of course, some count nouns such as *apple* or *pencil* are physically countable so that we can easily count their number on our fingers. By contrast, the numbers of other nouns such as *atmosphere* or the viral infection *cold* are not so obvious, and these nouns are often paired with deviant article choices in EFL writing. Because they lack a clear understanding that the notion of countability is supposed to be understood in a grammatical — not mathematical — sense, many EFL learners try to determine the countability of the noun in question by visualizing themselves finger-counting the "item," rather than by looking for the information in a dictionary (Xue 2010). Hence, they almost never put *an* before *atmosphere* because *an atmosphere* sounds almost as peculiar as *two atmospheres*. In a sense, the term "count(able) noun" itself can be considered misleading, as there are countless count nouns that we simply do not count. In addition, similar to other classifier languages such as Chinese and Japanese, Korean neither distinguishes between count and noncount nouns nor draws grammatical number distinction. Therefore, correct article usage can be extremely difficult for Korean EFL learners, whose L1 lacks not only an article system but also a singular–plural morphology.

The same holds true for some noncount nouns such as *money*. In theory, it is a mass noun, which is uncountable; in reality, we count money without reservation. Since bank tellers behind a counter can sometimes *miscount* customer

deposits, most banks currently use money *counting* machines that *count* money rapidly. In such circumstances, how can anyone communicate to EFL learners that *money* is, in fact, a noncount noun and thus should not be counted? Who can possibly teach the fact that *cold* is countable, while *flu* is not, when we cannot even confidently identify which of the two illnesses we are suffering from? The unfortunate truth is that students will continue struggling unless they are urged to stop creating a mental image of themselves counting things one by one. Rather, they should be explicitly instructed to turn to dictionaries for nominal countability because grammatical countability cannot be accurately detected by intuition (Butler 2002).

While dictionaries are primary sources of reference for the numeral features of a noun, there are doubts about whether "the present lexicographic practice of indicating ... nominal countability in learner's dictionaries is transparent enough" (Xue 2010: 541) to help learners "acquire one of the hardest grammatical features of the English language" (Miller 2006: 435). Xue (2010), for instance, noted that the absence of indicating articles or quantifiers used before a noun limits the effectiveness of learner's dictionaries for production purposes. She pinpointed "equivocal and discrepant indication in the noun countability features" and "inefficient exemplification" as the main causes of the difficulties that Chinese learners of English face in their use of the numeral inflection of a noun. Similarly, Chan (2017a) contended that learners often misinterpret dictionary information, which consequently leads to article use errors. She identified a few sources of problems with *Oxford Advanced Learner's English–Chinese Dictionary 8* in helping Hong Kong Chinese ESL learners determine the countability of English nouns, such as "L1 translation of the corresponding English phrase with different syntactic requirements" and the "provision of insufficient information about noun countability." Tsang (2017) posits that learners' difficulty in nominal countability has not received enough attention in applied linguistics, although countability and plural marking are among the most challenging topics for both ESL and EFL learners (Celce-Murcia and Larsen-Freeman 1999, Han et al. 2006). Furthermore, because a substantial number of English nouns can be used in both count and noncount contexts, researchers such as Allan (1980) and Wisniewski et al. (2003) argue that the traditional practice of merely labelling nouns as either countable or uncountable is not adequate.

Given that an English sentence (except for an imperative) cannot be constructed without a noun (which can be a gerund), the teaching of correct article usage is urgently needed (Chan 2016). Especially in choosing an article for a noun phrase that "is non-specific" (*Oxford Dictionaries*), the choice between the indefinite article and the zero article is determined by the lexical classification of the target noun as a count or noncount noun (Yoon 1993). Whether learners can successfully extract a noun's numeral features from a dictionary is an "important preliminary to correct use of articles" (Celce-Murcia and Larsen-Freeman 1999: 273), but there is an overall dearth of lexicographic research investigating English learners' countability judgement processes and associated

article use. To bridge this research gap, this study explores how Korean EFL learners use a bilingualised dictionary to retrieve the needed nominal countability information and what difficulties they encounter along the way.

2.   The study

2.1   Participants

The participants included 43 Korean college students enrolled at a major research university in Seoul, Republic of Korea. They were from two English courses — one offered for humanities majors and the other for education majors — required for all first-year students. The class met for 75 minutes twice per week over a 15-week semester. The participants were 18–20 years old and had learned English at both elementary and secondary schools and private language institutions for an average of approximately 10.5 years by the time they took the course. English was a foreign language for all the participants, and none of them had lived in English-dominant countries for more than one year. Judging from the scores on the school-administered English proficiency test, the participants could be collectively described as intermediate to upper-intermediate learners of English. At the beginning of the semester, they were informed and consented in writing to the possibility that their assignments and test papers would be analyzed for research and teaching-improvement purposes and part of them might be presented in a published paper, with their personal information protected.

2.2   Instrument

A 23-item forced-choice elicitation task (Gass and Selinker 2001) targeting the use of the English articles — *a(n)*, *the*, and zero (Ø) — was created to be used as both a diagnostic test (pre-intervention test) and a post-intervention test. The task contained sentences from various sources such as online newspaper and magazine articles; Ionin et al. (2004); and Yoo (2004) retrieved from MIT OpenCourse-Ware, a web-based publication of MIT course content. Care was taken to ensure that an approximately even number of items were sought for the indefinite article, the zero article, and the definite article for different reference types — anaphoric[1], associative anaphoric[2], and cataphoric[3]. Since revisions were made to the original sentences by shortening the sentence length or changing the sentence structure, four English native-speaking professors — all Ph.D. holders in applied linguistics or in English literature — evaluated the naturalness of the revised sentences. In addition, the professors were asked to choose the most natural-sounding article for each sentence to double-check the correctness of article usage and to determine whether alternate answers were possible. Of the 30 initially prepared test items, seven were removed because there were discrepancies among the professors regarding the use of an article with the target

noun in the given context. The finalized elicitation task is presented in Appendix 1, with the correct answers marked in bold.

2.3   Procedure

This study employed a one-group pre-intervention test–post-intervention test design. Since the same instrument was used for both tests, the post-intervention test was administered approximately three months after the pre-intervention test to minimize practice effects (Bachman 1990). To estimate the participants' current understanding of English article usage, the participants were pre-tested in Week 3 without being allowed to use a dictionary. In Week 14, instruction on the English article system was provided for two consecutive sessions, after which the post-intervention test was given as a take-home task. The course curriculum other than Week 14 was framed with an emphasis on the general features of academic reading and writing, occasionally incorporating narrowly focused mini-lessons on grammar (Ferris and Hedgcock 2005) in cases when the grammar point was directly relevant to the class content of the week (e.g. "parallel structure" for writing stated, or direct, thesis statements).

In Week 14, English article instruction was given using the chapter about the main rules of English article usage in *Top 20: Great Grammar for Great Writing* (Folse et al. 2008) — abbreviated as *Top 20* hereafter — which explains the rules based broadly on "nominal countability" and "definiteness." One week before this instruction, the students were told to read the chapter and work on three (of nine) exercise questions in it — one exercise each for the indefinite, definite, and zero articles — to ensure more class time for instruction and guided practice.

The class in Week 14 took place in a computer lab in which each student could work on a computer independently. During the lesson, the instructor first explained the importance of checking the nominal countability given for each sense of the target noun, as it can easily change according to the meaning in a given context. She then demonstrated how to consult a dictionary for the countability features of a target noun, using exercise questions (other than the assigned ones) from *Top 20*. The online *Naver Dictionary* was adopted for the instruction and subsequent in-class practice because it is by far the most widely used bilingualised dictionary among Korean college students. By default, the *Naver Dictionary* provides information retrieved from the *Oxford Advanced Learner's English–Korean Dictionary*, followed by the English–English definition retrieved from the *Collins COBUILD Advanced Learner's English Dictionary*.

Then, the instructor explained the concept of "(in)definiteness" by employing Master's (1990) binary schema, in which Master reduced the four features required to correctly determine the article — definiteness, specificity, countability, and number — and proposed a simplified dichotomy based on classification ([–definite, ±specific], *a(n)* or Ø) and identification ([+definite, ±specific], *the*) as an overarching framework. While the "classification/identification dichotomy

is invoked first, followed by the count/noncount dichotomy" in Master's (1990: 470) schema, the reversed order was adopted in this study because while countability status *can* be checked in a dictionary, the classification vs. identification distinction is not always clear even to English native speakers, let alone EFL learners (Bickerton 1981, Miller 2005). Thus, it was assumed that applying the reverse order would make it easier for the participants to complete the first stage and proceed to the next.

After imparting the lessons that cover the usage rules for each article in relation to nominal countability and definiteness, the instructor had the students form groups of three or four and check their answers for the assigned exercise questions with one another. While the students were engaged in these group discussions, checking the countability status of the target noun if necessary, the instructor circulated around the classroom to answer questions when requested. When the group discussions had been completed, the instructor provided the answer sheet and reviewed the key usage rules for the whole class.

After the second instruction session had been completed, the students were given a take-home post-intervention test, for which they were requested to consult dictionaries unless they were completely certain about the countability feature of a target noun in the given context. Drawing on the view of Ericsson and Simon (1984: 11) that learning is a cognitive process that can be seen as "a sequence of internal states successively transformed by a series of information processes," the students were additionally required to indicate the procedure they followed in choosing the answer in the same manner as they would do the think-aloud protocol, except that they provided written — not verbal — accounts of the thought processes between the introduction of a task to the final product. To assist the students in developing the ability to perform think-alouds independently, the instructor gave demonstrations using one exercise set from *Top 20* consisting of four questions. The demonstrations were given in both Korean and English, and the students were informed that they could choose either language. The assigned task was collected one week later.

2.4   Data analysis

To measure whether giving lessons on the main rules for article usage combined with dictionary consultation guidance facilitated Korean EFL learners' ability to use the English articles correctly, the participants' pre- and post-intervention tests were scored by checking whether the answers given were correct. Then, the post-intervention test scores were compared with the pre-intervention test scores by means of a paired-samples *t*-test. The statistical analysis was performed at a significance level of .05. In addition, to examine what difficulties the participants encountered in the use of the English articles and what specifically caused them to make correct or incorrect article choices, their written think-aloud data were analyzed. Since all participants used Korean in describing their decision-making procedures, the author translated the data into Eng-

lish verbatim. The comments were categorized using thematic analysis and then ranked by frequency.

3.   Results

The paired-samples *t*-test result showed that the mean correct answer rate increased from 65.2% on the pre-intervention test to 82.6% on the post-intervention test. Unsurprisingly, the *p*-value was far lower than the pre-selected alpha ($p < .001$), confirming that the students had made significant improvements in using the articles correctly after receiving the instruction. Although the overall mean score improved meaningfully on the post-intervention test, participants' performance level differed sharply depending on "what purpose the noun is used for (i.e. classification vs. identification)" and "whether required countability information (RCI) is provided for the target noun." Table 1 summarizes the participants' performance according to the nature of the target noun defined by the purpose, the lexicographic treatment of RCI for the nouns used for classification purposes, and the reference types of the nouns used for identification purposes.

Table 1:   Mean correct answer rates for article use purposes and reference types

Purpose (Definiteness)	Lexicographic treatment of RCI / Reference type	Item number	Test	Mean correct answer rate
classification (–definite)	RCI provided	4, 5, 20	pre-intervention	65.8%
			post-intervention	95.3%
	RCI not provided	2, 3, 7, 8, 16, 18, 19, 21, 23	pre-intervention	32.5%
			post-intervention	62.0%
		subtotal	pre-intervention	40.8%
			post-intervention	70.3%
identification (+definite)	anaphoric	9, 11, 13	pre-intervention	100.0%
			post-intervention	100.0%
	associative anaphoric	1, 10, 12, 14	pre-intervention	96.5%
			post-intervention	100.0%
	cataphoric	6, 15, 17, 22	pre-intervention	80.2%
			post-intervention	89.0%
		subtotal	pre-intervention	91.5%
			post-intervention	96.0%
		total	pre-intervention	65.2%
			post-intervention	82.6%

As is apparent from the mean correct answer rates shown in Table 1, the correct article choice for the nouns used for identification purposes seemed quite straightforward, as the mean correct answer rates for both the pre- and post-intervention tests were as high as 91.5% and 96.0%, respectively. Specifically, for the nouns used for anaphoric or associative anaphoric reference, almost all the participants chose the correct answers on both tests. The mean correct answer rates for the nouns used for cataphoric reference were slightly lower —

80.3% on the pre-intervention test and 89.0% on the post-intervention test. Since the participants' overall post-intervention test performance on definite article use was fairly high, the items in this category are not discussed further, except when the participants misunderstood the given discourse context as [–definite] and the lexicographic presentation of the target noun countability caused an article selection error.

For the nouns used for classification purposes, the mean correct answer rate for the pre-intervention test was only slightly over 40%, suggesting EFL learners' difficulties with the indeterminate, variable numeral features of a noun (Butler 2002, Wisniewski et al. 2003, Xue 2010). Although the post-intervention test mean score improved significantly by almost 30% (from 40.8% to 70.3%), the results revealed a substantial post-intervention test performance gap depending on whether the required countability status of the target noun is provided in the dictionary (refer to the discussion section for details). As is illustrated in Table 1, while the mean correct answer rate for the items with the RCI provided was as high as 95.3%, the mean of those without its proper lexicographic treatment averaged only 62.0%.

Overall, the findings of the study suggest that teaching lessons on English article usage combined with dictionary consultation guidance can facilitate EFL learners' ability to use English articles correctly. Nonetheless, the participants continued struggling with correct article use in certain contexts. Causes of weak performance are discussed in the next section.

4.   Discussion

The analyses of the participants' written think-aloud data shed light on possible sources of the difficulties that Korean EFL learners encounter when choosing the right article for a noun used for classification purposes, and the findings reveal five main factors relating to current lexicographic practice with nominal countability presentation. A detailed account of each is given in the sub-sections.

4.1   Equivocal criterion for dividing senses with opposite countability features

A vast majority of the participants reported experiencing difficulty distinguishing between at least two senses with opposite countability for Items 2 (*exercise*), 3 (*business*), 16 (*improvement*), and 21 (*distinction*). The participants' task performance on these items is delineated in two sub-categories below.

4.1.1   Provision of identical English synonyms for multiple senses

For Item 2 (*Any exercise is a / the / Ø good **exercise**, but when it comes to losing weight, nothing can beat running*), the entry for the target noun *exercise* provides

identical English synonyms (*activity/movements*) for both senses 1 and 2, with one being uncountable and the other being countable (see Figure 1). Furthermore, the Korean translations are identical except for the modifying information placed in the parentheses — "exercise (for physical, mental health)" (sense 1) and "exercise [physical exercise] (comprising a series of movements); practice [training] (for sharpening skills)" (sense 2), to translate them into English.

1. ACTIVITY/MOVEMENTS | [U] (신체적·정신적 건강을 위한) 운동

Swimming is good **exercise**. ◄)
수영은 좋은 운동이다.

I don't get much **exercise** sitting in the office all day. ◄)
나는 하루 종일 사무실에 앉아 있어서 운동을 별로 하지 않는다.

The mind needs **exercise** as well as the body. ◄)
몸뿐만 아니라 마음도 운동이 필요하다.

vigorous/gentle **exercise** ◄)
활발한/부드러운 운동

to take **exercise** ◄)
운동을 하다

2. ACTIVITY/MOVEMENTS | [C] (일련의 동작들로 이뤄진) 운동[체조]; (기량을 닦기 위한) 연습[훈련]

breathing/relaxation/stretching **exercises** ◄)
숨쉬기 운동/정리 운동/맨손 체조

exercises for the piano ◄)
피아노 연습

Repeat the **exercise** ten times on each leg. ◄)
그 운동을 각 다리에 열 번씩 하라.

Figure 1:   Senses 1 and 2 of *exercise,* noun, from the *Naver Dictionary*

Nevertheless, 81.3% of the participants successfully chose the correct article Ø. Most of them commented in their written protocols that although the examples following the sense differentiation were by no means distinguishable from each other in terms of a syntactic structure and semantic meaning, they could decide which sense to choose thanks to the similarly constructed example following the first sense. One participant commented:

> I can't tell the difference between senses 1 and 2. However, while one is [U], the other is [C]. Embarrassing. I check examples, looking for a hint. The construction of the first example under the first sense, *Swimming is good exercise*, is almost identical to the question sentence. I pick Ø as in the example.

Considering that EFL learners tend to have a fixed notion that abstract nouns are invariably uncountable (Butler 2002, Master 1994), it seems necessary to direct their attention to the noncount-to-count shift that many abstract nouns undergo (Celce-Murcia and Larsen-Freeman 1999, Greenbaum and Nelson 2009, Master 1988).

Such two-way nouns are generally countable in cases where they denote an instantiated concept (Huddleston and Pullum 2002), as in *You don't meet **a** courage like hers every day* or *You'll need **a** good knowledge of English for that job*. Hence, it might be beneficial to include usage notes of "when abstract nouns can be used as countable or uncountable" so that learners can make an informed decision about which article to use.

4.1.2   Provision of identical or interchangeable Korean translations for multiple senses

For Item 16 (*I believe there is room for   an / the / Ø   improvement in every sportsman*), most participants seem to have encountered a similar type of difficulty: The Korean translations of senses 1 and 2 are interchangeable but have an opposite countability status (see Figure 2). While "few equivalent words in two languages have precisely the same meaning" (Chan 2017a: 201), the corresponding Korean translations — "향상" ("improvement") for the first sense and "개선, 호전" ("improvement, improvement") for the second — are provided without explicit guidance, which inevitably constituted a source of trouble.

1. [U] ~ (in/on/to sth) **향상**

Sales figures continue to show signs of **improvement**. 🔊
판매 수치가 계속 향상되는 흔적을 보이고 있다.

There is still room for **improvement** in your work. 🔊
당신 작품[작업]은 아직 향상 될 여지가 있다.

We expect to see further **improvement** over the coming year. 🔊
다가오는 해에는 더 많은 향상을 보게 되기를 기대합니다.

2. [C] ~ (in/on sth) **개선, 호전**

a significant/substantial/dramatic **improvement** 🔊
중대한/실질적인/극적인 개선

a slight/steady **improvement** 🔊
약간의/꾸준한 호전

an **improvement** in Anglo-German relations 🔊
영-독 관계 개선

This is a great **improvement** on your previous work. 🔊
이것은 당신의 이전 작품[작업]보다 크게 개선된 것이다.

improvements to the bus service 🔊
버스 운행의 질 개선

Figure 2:   Senses 1 and 2 of *improvement*, noun, from the *Naver Dictionary*

Amid the indistinguishable Korean translations, however, 79.0% chose the correct article Ø, with the majority commenting that they took advantage of the similarly phrased example (*There is still room for improvement in your work*) under the first sense. To quote one participant who correctly chose Ø:

> I check both senses carefully. They look the same, but they are divided into two separate senses, not one with a [U, C] code. I read examples carefully. There's a sentence under the first [sense] including the same phrase "room for improvement." I choose "Ø," not "a," solely because of this example.

While translations in a bilingualised dictionary are usually regarded as preferably insertable (Gauton 2008) and highly useful for decoding purposes (Cowie 1999), the results of this study suggest that they are "not equally useful for encoding" (Chan 2017a: 201) due to possible syntactic discrepancies between the learners' L1 and the target language. As is shown in Figure 2, the provision of the syntactic specifications — "~ in/on/to sth" for the first sense and "~ in/on sth" for the second — is not very useful, not only because they overlap for the most part but also because the provided specifications are not comprehensive. The last example under the second sense (*improvements to the bus service*) shows that, just like the uncountable *improvement* (sense 1), the countable counterpart (sense 2) can also be followed by *to*, although it is not specified in the sub-entry.

Similarly, for Item 21 (*It is important to draw a / the / Ø distinction between what you want and what you need*), the entry for the target noun *distinction* provides two senses — senses 1 (차이[대조]) ("difference[contrast]") and 4 (구분, 차별) ("distinction, discrimination") — that are immediate synonyms in Korean but are specified with an opposite countability status (see Figure 3).

Figure 3:   Senses 1 and 4 of *distinction,* noun, from the *Naver Dictionary*

Although the first sense provides the syntactic structure "~ between A and B," the very first example under the fourth sense takes the same construction (*The new law makes no distinction between adults and children*). Examples are generally considered "an effective way to demonstrate syntactic behaviour [of a noun] in context" (Xue 2010: 549), but perusing the examples following the fourth sense added to the confusion in this case. However, 62.7% of the participants managed to choose the correct article *a*, thanks to one of the examples under the first sense that includes the phrase "draw a distinction" (*We need to draw a distinction between the two events*). Compared with the rate for the other items for which the dictionary provides a similar or identical phrase as in the given question, the correct answer rate was relatively lower — the fourth lowest of all 23 item mean scores — because approximately one-third of all participants mistook the given discourse context as [+definite] and incorrectly chose *the.* In line with Chan (2017b), the participants in this study frequently used the term "specific" in their written protocols to explain the [+definite] status of target nouns. One respondent explained her choice as follows:

> Regardless of its countability, the correct answer is *the* because "distinction" in this sentence means specific "distinction" *between what you want and what you need*, not just any "distinction."

By contrast, participants sometimes benefited from the provision of distinctive English synonyms for senses with an identical Korean translation. For Item 3 (_A / The / Ø_ *business always has some teams that are hotspots for creativity*), for instance, the entry for the target noun *business* provides indistinguishable — senses 1 (사업, 상업, 장사) ("business, commerce/business, business") and 4 (사업체) ("business/company") — or identical — senses 1 (사업, 상업, 장사) ("business, commerce/business, business") and 3 (사업) ("business") — Korean translations. Despite the ambiguity, 74.4% of the participants correctly chose *a* on the post-intervention test — a 32.2% increase from the pre-intervention test mean score — thanks to the English synonyms provided for each sense (*trade, work,* and *company* for senses 1, 3, and 4, respectively) (see Figure 4). To quote one participant's written comments:

> It's difficult to pick the right sense because all of the first four senses make sense in Korean. Examples under each sense are unhelpful. [I] can't understand why the same meaning is divided into three senses [senses 1–3]. Luckily, there are English definitions that are different from one another. I choose the fourth sense because [the target noun] "business" here means "company" so that there can be "teams" in it. Thus, [the answer is] *a*.

1. TRADE | [U] 사업, 상업, 장사 참고 agribusiness, big business, show business

business contacts / affairs / interests
사업상의 인맥/일/사업가들

a business investment
사업 투자

It's been a pleasure to do business with you.
(당신과) 함께 사업을 하게 되어 기뻤습니다.

She has set up in business as a hairdresser.
그녀는 미용사로 사업을 시작했다.

When he left school, he went into business with his brother.
그는 학교를 마치고 형과 함께 장사를 시작했다.

She works in the computer business.
그녀는 컴퓨터 업계에서 일한다.

2. WORK | [U] (직장의) 일, 업무

Is the trip to Rome business or pleasure?
로마 여행은 출장이세요 아니면 관광차 가세요?

a business lunch
업무상 (하는) 점심

He's away on business.
그 분은 업무차 자리를 비우셨어요.

3. WORK | [U] (회사 등의) 사업 [영업] (실적)

Business was bad.
사업이 잘 안 되고 있었다.

Business was booming.
사업이 활기를 띠고 있었다.

Her job was to drum up business.
그녀의 업무는 영업을 신장시키는 것이었다.

How's business?
사업 잘 되세요?

4. COMPANY | [C] 사업체(회사·가게·공장 등)

to have/start/run a business
사업체를 갖고 있다/시작하다/운영하다

business premises
사업체 구내

Figure 4:   Senses 1, 2, 3, and 4 of *business,* noun, from the *Naver Dictionary*

4.2   Absence of nominal countability information

For Item 6 (*It is hard enough to get   a / the / Ø   job of your dreams, no matter what it may be*), approximately 44% of the participants made an incorrect article choice on the post-intervention test. They all made a similar comment that

because the numeral features of the target noun *job* are not provided in the dictionary, they chose to check examples, in which *job* was mostly preceded by the indefinite article (see Figure 5).

명사

1. PAID WORK | (정기적으로 보수를 받고 하는) 일, 직장, 일자리

He's trying to get a **job**. ◄
그는 취직을 하려고 애쓰는 중이다.

She took a **job** as a waitress. ◄
그녀는 웨이트리스로 취직했다.

His brother's just lost his **job**. ◄
그의 형[동생]이 얼마 전에 실직을 했다.

a summer/holiday/**Saturday**/vacation **job** ◄
하계/방학[휴가]/토요일/방학[휴가] 중에 하는 일 [일자리]

a temporary/permanent **job** ◄
임시직/영구직

I'm thinking of applying for a new **job**. ◄
난 새로운 직장에 지원을 해 볼 생각이다.

The takeover of the company is bound to mean more **job** losses. ◄
그 회사의 기업 인수는 틀림없이 더 많은 실직 사례가 생길 것을 의미한다.

Many women are in part-time **jobs**. ◄
많은 여성들이 파트타임직으로 일하고 있다.

Did they offer you the **job**? ◄
그들이 당신에게 그 (일)자리를 제의했나요?

He certainly knows his **job**. ◄
그는 자기 일에 대해 확실히 안다.

I'm only doing my **job**. ◄
난 내가 (보수를 받기 때문에 해야) 할 일을 하고 있을 뿐이다.

He's been out of a **job** for six months now. ◄
그는 이제 실업자가 된 지 6개월째이다.

She's never had a steady **job**. ◄
그녀는 한 번도 안정된 직장을 가져 본 적이 없다.

Figure 5:   The entry for *job,* noun, from the *Naver Dictionary*

The analysis of the protocol data suggested two possibilities: Either those who wrongly chose *a* misunderstood the given discourse context as being [–definite] because they memorized the phrase "get a job" as a fixed collocation; or, in the absence of the required lexicographic information, they became preoccupied

with the nominal countability search to the point where they became oblivious to the fact that they had another decision to make — whether the noun is used for identifying or classifying purposes. Either way, all the participants who answered this item incorrectly chose *a* in place of *the* in the post-intervention test, and the correct answer rate for the post-intervention test remained unchanged from that for the pre-intervention test (55.8%), yielding the third lowest of all the mean scores. The following quotations from two participants who wrongly selected the indefinite article outline their reasons for such a decision:

> There is no countability symbol [for this word]. However, fortunately, I know for sure that *job* is countable because I've heard of the phrase "get a job" countless times. The correct article is *a*.

> While we *must* check the countability status for each definition, there is no such information! I read the examples under the first [correct] sense carefully to check which one [article] is most common. I count the [occurrence] number [of each article], and [the one for] *a* is the largest. It's either "~ a job" or "~ possessive + job." Over 90 percent. No "Ø job." Therefore, I choose *a*.

4.3   Provision of both countable and uncountable features without explicit usage notes

For Items 7 (*crisis*), 18 (*food*), and 19 (*shortage*), the *Naver Dictionary* labels the countability of their target nouns as [C, U], meaning that the noun is used mostly as countable but can be used as uncountable as well. The analyses of the students' written think-aloud data revealed that almost all the participants relied heavily on checking examples to decide which countability status to apply.

For Items 7 (*However, it [getting your dream job] will get even harder for anyone if _ a / the / Ø _ worldwide financial **crisis** occurs*) and 19 (*The United Nations estimates that the world will face _ a / the / Ø _ severe water **shortage** by 2025*) — whose target nouns are preceded by *a*, which is consistent with the countability label — the mean correct answer rates for the post-intervention test were 74.4% and 93.0%, respectively.

In the case of Item 18 (_ A / The / Ø _ Korean **food** is known for being spicy*), by contrast, the target noun *food* takes the zero article, the use of which is defined by its lexicographic label [C, U] as less frequent than that of the indefinite article. Possibly due to the incongruity between the article to be used (Ø) and the lexicographic label suggesting which countability status takes priority, the post-intervention test mean score dropped by 14% from the pre-intervention test and averaged out at 79.0%. Almost 30% of the 34 respondents who correctly chose Ø were found to have wrongly chosen the first sense (labelled as [U]), which happened to lead to the correct article choice. Most of the remaining students (who correctly chose the second sense) commented that although the noun is labelled as countable first and uncountable second, it

would be "safer" to follow the similarly phrased example (*Do you like Italian food?*) rather than merely to rely on the [C, U] abbreviation (see Figure 6).

Figure 6: The entry for *food*, noun, from the *Naver Dictionary*

Given that almost all the participants commented that they had to examine the examples exhaustively for further specifications about the use of a determiner, it is posited that presenting a noun as both countable and uncountable using [C, U] or [U, C] specifications without any usage notes can result in confusion rather than assurance (Xue 2010). As Chan (2017a: 203) has pointed out, most learners cannot possibly discern the "subtle differences between the countable and uncountable uses of the target noun." In the case of Item 18 (*food*), it was obvious that the absence of usage notes adversely affected the participants' determination of the numeral features of the target noun and the associated article selection. Therefore, it seems essential to supplement the marking of countability for two-way nouns with adequate contextual usage examples so that learners can correctly apply the concept in production activities (Hausmann and Gorbahn 1989).

4.4 Inadequate labelling of nominal countability

Of all items, Item 23 (*Scholarships can ease the costs of __a / the / Ø__ college **education**) had by far the lowest mean correct answer rates on the pre- and post-

intervention tests — 0.0% and 4.6%, respectively. While the target noun *education* can be preceded by both Ø and *a*, its countability in the corresponding sense (sense 1) is simply marked as [U, sing.] (see Figure 7).

명사

1. [U , sing.] **교육**

primary / elementary education
초등 교육

secondary education
중등 교육

further / higher / post-secondary education
고등 교육

students in full-time education
풀타임[전 시간] 교육을 받는 학생들

adult education classes
성인 교육 수업들

a college / university education
대학 교육

the state education system
국가 교육제도

a man of little education
교육을 거의 못 받은 남자

She completed her formal education in 1995.
그녀는 1995년에 정규 교육(과정)을 마쳤다.

2. [U , sing.] **(특정한 종류의) 교육[지도/훈련]**

health education
건강 교육

Figure 7:   The entry for *education,* noun, from the *Naver Dictionary*

Although the *Naver Dictionary* shows a phrase (*a college/university education*) under the first sense showing the target noun being used as countable, embedding the phrase in such a manner without any guiding notes seems to have done more harm than good to its users. Undoubtedly, the participants' disappointing performance on this item may be attributed to the lexicographic failure to mark "the different uses of nouns associated with any differences in their countability status" (Lock 1996: 24) and the related use of determiners in a user-friendly format.

Given the circumstances, it was rather unexpected that two students who correctly chose the indefinite article on the post-intervention test opted to check the examples when the entry information for the target noun seems quite straightforward in terms of countability. To quote one of their protocol data:

It's weird that the dictionary shows [U, sing.] for *education* — an abstract noun. The [U] code already implies that *education* is used exclusively as singular, but then why the redundant [sing.] code? I happened to spot the phrase *a college/ university education,* which was weirder as it contradicts the dictionary specification. I am very weak in English grammar, so generally using the articles is tricky, but this one is insane.

4.5   Incongruent countability presentation of the English–English definition with that of the bilingualised version

For Item 8 (*There is a significant difference between an interview and   an / the / Ø interrogation*), the mean correct answer rate for the post-intervention test was the second lowest (9.3%). Three of four respondents who correctly chose *an* commented that they checked the English–English definition for further clarification of the countability symbol [UC], not [U, C] with a comma in between "U" and "C" (see Figure 8).

명사

1. [UC] 질문, 심문; 의문

2. 의문 부호

3. 질문장

영영사전

[NOUN] An interrogation is the act of interrogating someone.
the right to silence in police interrogations. ◀》

출처:Collins Cobuild Advanced Learner's English Dictionary

숙어 (12건)

note[point, mark] of **interrogation** 미국식 ◀》 영국식 ◀》
물음표 ((?))

conduct an **interrogation** 미국식 ◀》 영국식 ◀》
심문을 행하다.

an **interrogation** mark 미국식 ◀》 영국식 ◀》
의문부호

quit an **interrogation** 미국식 ◀》 영국식 ◀》
질문을 그만두다.

Figure 8:   The entry for *interrogation*, noun, from the *Naver Dictionary*

Despite the incomprehensible countability notation, the three respondents who took the time to scroll down to the English–English definition and the following Phrasal Expression ("숙어") sections managed to choose the correct article. Interestingly, they almost unanimously wrote in their written think-aloud comments that it was deemed safer to go with the English–English definition, which provides an example (in which *interrogation* is used in its plural form, denoting its countable status), than with the Korean version, which offers the puzzling [UC] code only. The majority of the participants also similarly related in their protocols that they wondered whether [UC] is a typing/printing mistake in the dictionary for [U, C] or for [U] because this notation is not used in the *Naver Dictionary* for any other (more than 100) target nouns they consulted for the exercise questions in *Top 20*. (There is no user's guide available on the *Naver Dictionary* explaining why such a code is used.) The following written think-aloud data vividly depict the struggle that English learners can encounter in such situations:

> Definitely, more information is needed. [UC] — I wonder what that means. Possibility (1): U̲n̲C̲ountable; possibility (2): U̲ncountable, but C̲ountable [is] okay too. I check the usage example [section] and count the instances of each [article usage] shown on the first page. "Uncountable" seems to stand a fairer chance. I choose Ø. Why on earth do I have to calculate the probability even when using a dictionary?

1. [U] ~ (in/on/to sth) 향상

Sales figures continue to show signs of **improvement**. 🔊
판매 수치가 계속 향상되는 흔적을 보이고 있다.

There is still room for **improvement** in your work. 🔊
당신 작품[작업]은 아직 향상 될 여지가 있다.

We expect to see further **improvement** over the coming year. 🔊
다가오는 해에는 더 많은 향상을 보게 되기를 기대합니다.

2. [C] ~ (in/on sth) 개선, 호전

a significant/substantial/dramatic **improvement** 🔊
중대한/실질적인/극적인 개선

영영사전

[NOUN] If there is an improvement in something, it becomes better. If you make improvements to something, you make it better.
the dramatic **improvements** in organ transplantation in recent years 🔊

[NOUN] [usu sing, oft N on n] If you say that something is an improvement on a previous thing or situation, you mean that it is better than that thing.
The new Prime Minister is an **improvement** on his predecessor 🔊

출처:Collins Cobuild Advanced Learner's English Dictionary

Figure 9:   The entry for *improvement,* noun, from the English–English dictionary section of the *Naver Dictionary*

In a similar vein, for Item 16 (*I believe there is room for   an / the / Ø   improvement in every sportsman*), approximately one-quarter of the participants commented that they additionally referred to the English–English definition for further clarification (as discussed earlier in Section 4.1.2, the entry for the target noun *improvement* provides two senses whose Korean definitions are interchangeable). As one student explained,

> *Improvement* in the English–English dictionary is defined as a countable noun — "~ an improvement" and "~ improvements" (see Figure 9). Initially, my choice leaned toward [U] after checking the examples. However, since the English–English dictionary says otherwise, I am confused. I choose *an* according to the English–English definitions, but I feel somewhat uncomfortable [with the choice].

5.   Conclusion and implications

Although the findings of this study have important pedagogical and lexicographical implications, several limitations should be noted. Obviously, one major limitation concerns the data collection setting. Due to the limited class time available (the instructors teaching the course from which the participants were drawn had to complete the syllabus written by the school, which outlines specific parts of the required textbook that have to be covered), valid pre-intervention test–post-intervention test designs could not be implemented. As described earlier, the pre-intervention test was conducted in class, whereas the post-intervention test was administered as a take-home task, which must have affected the participants' performance. In addition, since this study adopted a quasi-experimental design with no control group, but with the pre-intervention test results acting as a set of control data, it cannot be attested whether the improvement in article choice performance in the post-intervention test resulted solely from the experimental intervention. Arguably, previous exposure to the same task (the pre-intervention test) could have primed the participants for the post-intervention test, or they could simply have become familiar with the types of test items by the time they took the post-intervention test, which led to better performance.

Notwithstanding these limitations, this study has several strengths. It explained some of the perennial problems encountered with article use, suggesting that giving EFL learners explicit instruction on the main rules for article usage combined with dictionary consultation guidance can foster their ability to use the English articles more correctly. In particular, the results indicate that the use of the indefinite article and the zero article can be a straightforward task for most learners (Miller 2005) if they take the time to check the countability status of the target noun in a dictionary. As one participant's comment "never in my wildest dreams did I expect a change in countability status in relation to a sense" well illustrates, most EFL learners tend to wrongly assume that countability is a static property that is not affected by the sentence context

(Butler 2002). However, the participants' newly — albeit not necessarily voluntarily — formed habit of consulting a dictionary for nominal countability after receiving the instruction seems to have contributed positively to their improved post-intervention test performance.

For lexicographic practice, the findings are valuable because a number of problems have been identified with regard to the present lexicographic practice of presenting the solicited nominal countability information, and the dictionary users' authentic voices reported in this study would be useful to lexicographers in improving their products. The identified problem areas include, but are probably not limited to, applying equivocal criteria for dividing senses with opposite countability status; failing to provide nominal countability features; presenting both countable and uncountable features without their distinct usage information; inadequately labelling countability features, resulting in some examples with conflicting countability status; and supplementing an English–English definition that does *not* accord with the countability status labelled in the bilingualised version. Such observations accentuate the importance of clear lexicographic indications of the numeral features of a noun in a bilingualised dictionary according to semantic differences as well as syntactic requirements. As Kirkness (2004: 78) has rightly maintained, dictionaries should consistently serve their role as "the single most valuable source of linguistic information ... of the target language," actively accommodating "lexicographic needs arising in concrete situations" (Xue 2010: 550).

In addition, since a number of noncount nouns (e.g. abstract nouns such as *beauty, truth, crime, law,* or *education*; and mass nouns such as *cheese, wine, tea, chocolate,* or *aspirin*) can also have a countable form without substantially changing the meaning (Celce-Murcia and Larsen-Freeman 1999), a learner's dictionary should supplement usage information for two-way nouns so that its users can decide whether the indefinite or the zero article is appropriate in a given discourse context. Given the general tendency for such nouns to be used as countable when referring to a particular type or instance — as opposed to referring to the abstract concept — it might be also useful for ESL/EFL teachers to design instructional materials that present a set of sentences containing the same noun in different contexts to alert students to "the variability of noun countability and related article use" (Chan 2017a: 202).

Although the English article system has been seen by some linguists as strangely immune to instruction and acquirable only through exposure (e.g. Doughty and Williams 1998, Lightbown and Spada 2013), a growing body of research indicates the contrary, presenting empirical data that many aspects of the English article system are in effect teachable because of the clearly defined rules associated with it (e.g. Ferris 2011, Master 1994). The findings of this study provide additional support for the lexicographic approach to teaching article usage for nouns used for classification purposes under the condition that learners are clearly provided with their countability status. Since the problems investigated are relevant to almost anyone using a dictionary, and particularly

second language learners, it is suggested that this study is replicated with other language combinations. Meanwhile, teachers need to acquaint their students with the fact that nominal countability is a variable, context-sensitive feature that should be checked by consulting a dictionary.

Acknowledgements

Endnotes

1. Anaphoric reference means that a word in a text refers back to other ideas in the text for its meaning, as in *An elegant, dark-haired woman entered the compartment, and I immediately recognized **the woman*** (Lyons 1999).
2. Associative anaphoric reference means that first mentions of new referents within a discourse can be identified via another, already present referent, as in *I have a bicycle, but **the gears** are out of order* (Allan 2009).
3. Cataphoric reference means that a word refers to ideas later in the text, as in *I remember **the beginning** of the war very well* (Chesterman 1991).

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Appendix 1: Forced-choice elicitation task

Circle the correct answer for each question.

1. We went to a wedding yesterday. A / **The** / Ø bride was wearing a lovely dress.

2. Any exercise is a / the / **Ø** good exercise, but when it comes to losing weight, nothing can beat running.

3.–5. **A** / The / Ø business always has some teams that are hotspots for creativity, and a / the / **Ø** creative ideas need **a** / the / Ø special climate to grow.

6.–7. It is hard enough to get a / **the** / Ø job of your dreams, no matter what it may be. However, it will get even harder for anyone if **a** / the / Ø worldwide financial crisis occurs.

8. There is a significant difference between an interview and **an** / the / Ø interrogation.

9. Julian ordered a cup of coffee and a dessert, but he didn't touch a / **the** / Ø dessert.

10.–12. At a gallery, I saw a beautiful landscape painting. I really wanted to meet an / **the** / Ø painter of a / **the** / Ø painting, but a / **the** / Ø gallery owner said he didn't have her contact information.

13. Robert was discussing an interesting book in his class. I went to discuss a / **the** / Ø book with him afterwards.

14. We have just arrived from New York. A / **The** / Ø plane was five hours late.

15. A / **The** / Ø happiness that I felt when Charlene became pregnant was beyond description.

16. I believe there is room for an / the / **Ø** improvement in every sportsman.

17. A / **The** / Ø tea that I received for my birthday is high-quality.

18. A / The / **Ø** Korean food is known for being spicy.

19.–20. The United Nations estimates that the world will face **a** / the / Ø severe water shortage by 2025 if we continue to use a / the / **Ø** water at today's rates.

21. It is important to draw **a** / the / Ø distinction between what you want and what you need.

22. An / **The** / Ø anger he felt after the accident nearly ended his career.

23. Scholarships can ease the costs of **a** / the / Ø college education.