

臺灣地區英語文學習者適用之字彙表：  
依據音節形態及語文知識彙編\*  
A Linguistically-Based Word List for Taiwanese EFL Learners

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摘要

以臺灣地區英語文學習者為對象的學術研究中，似有頗多乃直接援用原本是為英語母語及 / 或英語為第二語的學習者所設計編寫的教材及測驗。由於英語文在臺灣係屬外語，臺灣的英語文學習者所能享有的學習環境及機會，甚難與英語母語及第二語學習者相比擬。有鑑於此，筆者乃依據臺灣地區英語文學習者的英語文程度及其面臨的特殊困難，以 Bauman 及 Culligan (1995) 修訂的 *General Service List* 為素材，精選一份總計約 460 字的英文字彙表。本文詳述筆者編選此英文字彙表所依循的選納及排除的十項原則，筆者相信依據這些原則選列的英文字彙，應該更適合用來教導臺灣地區的英語文學習者及 / 或檢核其學習英文字彙的成效。

**關鍵詞：**英文字彙表、以英語為外語的學習者、音節形態、語文領域知識。

Abstract

Many studies conducted with Taiwanese learners of English as a foreign language (EFL) have tended to utilize materials or assessment instruments originally developed for learners of English as a first language (EL1) and/or English as a second language (ESL), despite the fact that there is a considerable difference among EL1, ESL, and EFL learning contexts. In light of this enormous difference, this paper presents and describes a linguistically-based list of approximately 460 candidate words that may be used both as target items to be taught to Taiwanese EFL learners and as test items to evaluate the effectiveness of vocabulary instruction.

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Carefully selected from the 2,284 headwords in the revised *General Service List* (Bauman & Culligan, 1995), this list of target words took into account the English language proficiency levels of, and the specific difficulties encountered by, Taiwanese EFL learners, especially the “linguistically disadvantaged” ones. These target words were chosen according to five principles of word selection: the level of difficulty and familiarity of words, word length, the degree of phonetic and/or orthographic regularity of words, the six syllable types, as well as the phonological, orthographic, and morphological features of words. Also taken into consideration were five principles of word exclusion: words with more than one possible pronunciation, compound words written as one word or with a hyphen, polysyllabic words containing the letter *x*, words with silent letter(s) that do not serve a useful purpose, and words that have alternative spelling forms.

**Keywords:** English word list, Taiwanese EFL learners, syllable types, linguistic knowledge bases.

## I. Introduction

A substantial number of Taiwanese EFL learners, especially those with limited or low English proficiency, experience serious difficulties in pronouncing, spelling, retaining, and retrieving English vocabulary items. They are particularly intimidated by the “alien big words” (Cunningham, 2009, p. 307)—that is, polysyllabic words with “seven or more letters” (Cunningham, 1998, p. 189) and “two or more syllables” (Cunningham, 1978, p. 609). Both research (e.g., Huang, Lin, & Su, 2004, pp. 64-65) and my 16 years’ experience of English language teaching in Taiwan indicate that what those low English proficiency learners have in common is a severe lack of phonological awareness—knowledge of various aspects of the English sound structure, such as phonemes, syllables, stress patterns, and rhyme, as well as the ability to manipulate sound units of varying size (Henry, 2003, p. 288; Holm & Dodd, 1996, p. 120).

Faced with constant failure in the course of acquiring English vocabulary, Taiwanese EFL learners, particularly those who are “linguistically disadvantaged” (Juel & Deffes, 2004, p. 31), often end up abandoning their attempt to improve their English proficiency. In response to the specific difficulties and serious problems encountered by such learners, I developed an instruction in the principle of phonological syllabification—the division of polysyllabic words into their constituent syllables, as in *di-vi-sion*. Designed to meet the specific needs of Taiwanese EFL learners in general and the linguistically disadvantaged learners in particular, this instruction was aimed to help them improve their learning and acquisition of English polysyllabic words, thereby increasing their interest and confidence in continuing to study English. Moreover, to assess the effectiveness of this instruction, I constructed a Syllabification Skills Test that consisted of four subtests: a phoneme counting subtest, a syllable counting subtest, a syllable division subtest in the multiple-choice format, and a dictated spelling subtest that required the test-takers to spell and divide polysyllabic words into syllables in writing (Lin, 2012). In developing the Test, the first consideration was the selection of appropriate target words that can serve as test and practice items on the four subtests.



Many studies conducted with Taiwanese EFL learners have tended to utilize materials and/or assessment instruments originally developed for EL1 and/or ESL learners, despite the fact that there is an enormous difference among EL1, ESL, and EFL learning contexts (Brown, 2007, pp. 204-206; Ellis, 2008; Krashen, 1997, pp. 43-45; Lan & Oxford, 2003, pp. 339-340). For example, Huang et al. (2004) undertook a study to explore the effects of phonological awareness training on phonics and vocabulary knowledge of students from a university of technology in southern Taiwan. In their study, the El Paso Phonics Survey, taken from *Ekwall Reading List* published in 1979, was utilized as one of the three test instruments.

In light of this significant difference, it would seem necessary and useful to develop teaching materials and assessment instruments that take into account the English language proficiency levels of, and the specific difficulties experienced by, Taiwanese EFL learners. Therefore, the purpose of this paper is to present and describe a linguistically-based list of candidate words that may be used both as target items to be taught and as test items to evaluate the effectiveness of vocabulary instruction, such as the phonological syllabification instruction that I devised and delivered (Lin, 2012). The research questions addressed in the current study are as follows:

1. What are the words in English that may serve as appropriate target words to be taught and/or to be used to assess the linguistic knowledge and skills required to successfully acquire English polysyllabic words and that are targeted to the English language proficiency levels of Taiwanese EFL (as opposed to EL1/ESL) learners?
2. What would the principles of word selection and exclusion be?

## II. Method

In addition to a review of relevant literature, the following provides a description of the source material from which the linguistically-based list of suitable target words was selected as well as the principles that were applied in word selection and exclusion.

### A. Materials

Michael West's *A General Service List of English Words*, published in 1953 and composed of approximately 2,000 most frequent word families (a base word with all of its inflections and derivatives), was chosen to be the sole source material from which the preliminary list of candidate target words would be selected. There were two main reasons why this *General Service List* was singled out from among the four major source materials, such as the 570 word families (consisting of 3,110 individual word forms) in the *Academic Word List* developed by Coxhead (2000, 2002), which had been taken into consideration in the compilation of this preliminary list.

First, according to Nation (1990, pp. 13-23; 2001, pp. 11-21), English vocabulary in non-fictional texts can be generally categorized into four types: high-frequency (or general service) vocabulary, academic (or subtechnical) vocabulary, technical vocabulary, and low-frequency vocabulary. Research



has shown that high-frequency words, as a whole, usually cover a very large proportion (“about 87%” is the percentage figure given in Nation, 1990, pp. 14, 19) of the words in a wide range of spoken and written texts on a great variety of topics. Therefore, it seems intuitively evident that high-frequency words are the most important and useful lexical items to which EFL learners should devote their time and attention (cf. Coxhead, 2002, p. 73). Second, as pointed out by Hatch and Lazaraton (1991, p. 39), test instruments used to gather data from learners should be carefully constructed to ensure that their existing knowledge as well as true skills and abilities are properly assessed. It thus seems reasonable to assume that a list consisting of high-frequency words of English—one such as West’s *General Service List*—would contain target words that are representative of the underlying linguistic knowledge bases needed to successfully acquire English lexical items.

To date, West’s classic *General Service List* is still regarded as an essential and useful list among the existing lists of high-frequency English words, although it has been criticized for its size and age (see Nation & Hwang, 1995, pp. 35-36, for more information) and some of its words (e.g., *crown* and *canal*) might not be as essential as they were at the time of its publication. In fact, Coxhead (2000), the developer of the now widely cited and used *Academic Word List*, has demonstrated that “There has been no comparable replacement for the GSL up to now” (p. 214). Coxhead’s conclusion resulted from a comprehensive examination of the *General Service List*’s coverage of fiction texts, nonfiction texts, and the *Academic Corpus* on which the *Academic Word List* was based—up to 90%, 75%, and 76%, respectively.

Nevertheless, due to the consideration that West’s *General Service List* has been out of print and that John Bauman and Brent Culligan have created a revised version of the *General Service List* in 1995, it was determined that Bauman and Culligan’s (1995) version would serve as the source material from which suitable target words would be selected. With the exception of hyphenated and compound words, all of the headwords and their derived forms printed in boldface in the 1953 *General Service List* were included in Bauman and Culligan’s revised version. They categorized the words into word families according to the standard established by Bauer and Nation (1993), who proposed a graded set of seven levels of inflectional and derivational affixes that could be used to determine which related forms of a given word would be included in the family of the word. Applying Bauer and Nation’s standard, Bauman and Culligan grouped into a word family all the words that are related at levels one to four. They also ranked all the words using the frequency numbers from the *Brown Corpus* (Francis & Kučera, 1982, as cited in Bauman & Culligan, 1995). A given word’s frequency number refers to the number of occurrences of the word and its related forms in the 1,000,000 written words of the *Brown Corpus*. For example, the frequency number of the most common word *the* in the revised list is 69975, which means it occurs 69,975 times in the million words of the corpus. The resulting list consisted of 2,284 words, from which the preliminary list of candidate target words was carefully chosen.

## **B. Procedures**



In order to select target words that can serve as practice and test items on the syllable counting task, it was necessary to calculate the total number of words with more than one syllable, as well as the number of syllables in each polysyllabic word, in the revised *General Service List*. Therefore, all of the 2,284 words were examined one by one, and all the words with two or more syllables were identified. Furthermore, the syllables in each polysyllabic word were counted and the number was then recorded. The results are presented in Table 1. As revealed by the data, more than half—1,244 words (54%)—of the 2,284 headwords in the revised *General Service List* have two or more syllables. Of the 1,244 words, 805 words (approximately 65%) are disyllabic.

Provided below is a description of the five principles of word selection and the five principles of word exclusion in the construction of this linguistically-based word list. The five principles of word selection are the level of difficulty and familiarity, the length of words, the degree of phonetic and/or orthographic regularity of words, the six syllable types, as well as the phonological, orthographic, and morphological features of words. Excluded from this list of target words are words with more than one possible pronunciation, compound words written as one word or with a hyphen, polysyllabic words containing the letter *x*, words with silent letter(s) that do not serve a useful purpose, and words that have alternative spelling forms.

**Table 1**

*The Numbers of Types of Polysyllabic Words in the Revised GSL*

Types of polysyllables	No. of words	Percent distribution	Range of frequencies of occurrence	
			minimum	maximum
2-syllable	805	64.7%	0 ( <i>homework, sweeten, &amp;</i>	2035 ( <i>other</i> )
3-syllable	333	26.8%	0 ( <i>bribery</i> )	710 ( <i>develop</i> )
4-syllable	91	7.3%	0 ( <i>cultivator, electrician</i> )	399 ( <i>experience</i> )
5-syllable	15	1.2%	0 ( <i>pronunciation</i> )	256 ( <i>university</i> )
Total	1,244	100.0%		

*Note.* The frequency number represents the number of occurrences per million words of printed texts according to the *Brown Corpus*.

## **(A). The five principles of word selection**

### **1. The level of difficulty and familiarity**

The first principle of word selection was the level of difficulty and familiarity (i.e., frequency of occurrences) of the words in order to ensure that all the chosen words will assess learners' existing knowledge and skills. However, as Nation (1990, pp. 20-21) points out, frequency should not be the only criterion for word selection because some useful and important words that are familiar to a specific group of language users may not be what are classified as high-frequency words. For instance, the words *bicycle*, *umbrella*, *composition*, *lesson*, and *librarian* (whose frequency numbers are 7, 11, 36, 46, and 65, respectively) occur with relatively low frequencies in the revised *General Service List*, but it seems reasonable and logical to regard them as well-known to the majority of Taiwanese EFL learners,



especially those students in secondary and tertiary education. As a rule, the words selected would be those that have high frequencies of occurrences and/or those that are, in my judgment, fairly familiar to most of Taiwanese EFL learners.

## 2. The length of words

The second principle applied in choosing appropriate words was the length of words (i.e., the number of letters or syllables in words). For the purpose of helping Taiwanese EFL learners improve their acquisition of polysyllabic words, those big, long words with at least three syllables were given priority. However, it should be noted that big, long words—words with more than seven letters—do not necessarily have multiple syllables. For example, the 10-letter word *vocabulary* has five syllables, whereas the seven-letter words *thought*, *brought*, and *through*, the eight-letter word *straight*, and the nine-letter words *strengths* (Celce-Murcia, Brinton, & Goodwin, 1996, p. 85), *scratched*, and *stretched* (“What Is,” n.d.) all have only one syllable, and the eight-letter words *neighbor* and *although* both have just two syllables.

## 3. The degree of phonetic and/or orthographic regularity of words

The third principle of word selection was the degree of phonetic and/or orthographic regularity of words. In English, neither the sound-to-spelling nor the spelling-to-sound correspondences are perfectly regular or consistent. For example, the vowel sound [i] can be spelled in at least 14 different ways, as illustrated in the following words (presented in boldface and in order of the vowel letters *a*, *e*, *i*, *o*, *u*, and *y*): *Caesar*, *quay*, *she*, *tea*, *see*, *receive*, **Leigh**, *people*, *key*, *police*, *believe*, *phoenix*, *mosquito*, and *city* (Fromkin, Rodman, & Hyams, 2007, pp. 223, 247; Parker & Riley, 2005, p. 235; Payne, 1995, pp. xi, 67-70; Silverstein, 1994, p. vii). As another example, the consonant sound [ʃ] can be encoded (i.e., spelled) in at least 15 different ways, as exemplified in the following words: **short**, *fashion*, *vacation*, *differentiate*, *special*, *appreciate*, *ocean*, *machine*, *sure*, *pressure*, *conscious*, *conscientious*, *comprehension*, *profession*, and *anxious* (the letter sequence *xi* represents two consonant sounds [kʃ], see Payne, 1995, pp. 163-166; Rollings, 2003, pp. 212-213; see also Fromkin et al., 2007, p. 224; Hanna, Hanna, Hodges, & Rudorf, 1966, p. 67; Random House Compact Unabridged Dictionary, 1996, p. xxv).

On the other hand, the vowel letter *a* can represent seven distinct sounds in American English, as illustrated in the following words: **orange** [ɪ], **face** [e], **many** [ɛ], **apple** [æ], **father** [ɑ], **small** [ɔ], and **alike** [ə] (cf. Dale & Poms, 2005, p. 3; Payne, 1995, p. 49). As another example, the vowel letter *o* alone can symbolize as many as eight different sounds in American English, as exemplified in the following words: **women** [ɪ], **hot** [ɑ], **dog** [ɔ], **sofa** [o], **woman** [u], **do** [u], **mother** [ʌ], and **correct** [ə] (cf. Payne, 1995, pp. 75, 83, 85, 92, 95, 99, 104; Silverstein, 1994, p. 88).

Despite such asymmetric, inconsistent sound-to-letter and letter-to-sound mappings, the English orthography is still a relatively regular spelling system, and thus manageable, teachable, and learnable to a great extent (Hayes, Kessler, & Treiman, 2005; Henry, 2003, p. 31; Hodges, 1967, p. 31; Joshi, Treiman, Carreker, & Moats, 2008-2009; Kessler & Treiman, 2003; Moats, 2005-2006; Moats, 2010, pp. 109-111). To help Taiwanese EFL learners become more familiar with the sound-to-spelling



correspondences and thus more skilled at spelling, the degree of regularity (i.e., consistency) of words was one of the important considerations in selecting target words. In other words, phonetically and/or orthographically regular words would take precedence. The following are some examples of words whose spellings and/or pronunciations conform to the frequent, regular sound-to-letter and/or letter-to-sound associations: *basic* (vs. *father*), *tidy* (vs. *city*), *duty* (vs. *busy* and *bury*), *fat* (vs. *what*), *letter* (vs. *pretty*), *polite* (vs. *police*), *propose* (vs. *purpose*), *food* (vs. *flood*), *contain* (vs. *certain*), and *county* (vs. *country*) (see Hodges, 1967, p. 34; Spear-Swerling & Brucker, 2003, pp. 100, 103, for more examples).

#### 4. The six syllable types

The fourth principle of word selection was whether a given word contains a typical example of one of the six orthographic (spelling) syllable types. According to Moats (2010, p. 103), the six fundamental types of orthographic syllables were contrived by Noah Webster in 1806 to regularize and validate the way in which the entry words in his dictionary were divided into written syllables. In the 1960s, Orton-Gillingham teachers began to teach EL1 students to apply their knowledge of the six syllable types to decode (sound out) the sounds represented by vowel letter or letter sequences in unfamiliar polysyllabic words (Stanback, 1992, p. 197). In fact, a quick survey of studies on effective pedagogical methods for improving EL1 students' decoding skills reveals that knowledge about the six syllable types can help struggling readers to predict (decode) the pronunciation of vowel letter(s) within words in a more successful and accurate way, particularly those long words with multiple syllables (e.g., Bhattacharya, 2006; Knight-McKenna, 2008; Spear-Swerling & Brucker, 2003, p. 76; Stanback, 1992, p. 198). It naturally follows that the six spelling syllable types are categorized according to the vowel letter or letter sequences that symbolize the essential vowel sound (the nucleus) in a spoken syllable.

It is both important and useful for Taiwanese EFL learners to learn about the six types of orthographic syllables, although they were originally and primarily devised to be a tool for decoding (pronouncing) big, unknown words (Carreker, 2005a, p. 229). As pointed out by Joshi et al. (2008-2009, p. 10) and Moats (2010, p. 103), knowledge of the six syllable types can help learners understand, memorize, and recall English spelling patterns, such as why and when to double a consonant letter in the middle of many polysyllabic words—one common spelling difficulty experienced by most spellers—as illustrated in the contrasting word pair: *rabbit* (syllable types: closed plus closed) and *la-bel* (syllable types: open plus closed).

The following is a brief description of these six types of syllables in terms of their spelling (Carreker, 2005a, pp. 229-235; Diliberto, Beattie, Flowers, & Algozzine, 2009, p. 20; Hager, 2001, p. 5; Knight-McKenna, 2008, pp. 19-20; Moats, 2010, pp. 103-104; Spear-Swerling & Brucker, 2003, pp. 97-98; Stanback, 1992, pp. 197, 201-202):

##### (1). Closed syllable





A closed syllable ends with one or more consonant sounds. The vowel sound in a closed syllable is always spelled with a single vowel letter and is generally a short vowel sound (i.e., [æ], [ɛ], [ɪ], [ʌ], and [ʌ]). The syllable is *closed* by the syllable-final consonant sound(s), hence the name. Here are some examples: *hat*, *pet*, *sit*, *not*, *cut*, *gym*, *as*, *is*, *on*, *us*, *branch*, *scratch*, *next*, *bas-ket*, *sel-dom*, *wis-dom*, *pub-lic*, and *fan-tas-tic*. However, it should be pointed out to the learners that word stress may distort or affect the sounds of the same vowel letters in stressed versus unstressed syllables (Carreker, 2005a, p. 231). For instance, vowel sounds that would be short in a closed syllable are generally reduced to the schwa sound [ə] when they are in unstressed syllables, as shown in the words *sel-dom* ['sel-dəm] (cf. *con-tent*, n., ['kən-tent]) and *coun-sel* ['kaun-səl]. Of all the various configurations of closed syllables, the structure of one consonant letter plus one vowel letter plus one consonant letter as in the word *man*, referred to as the CVC pattern (Bear, Invernizzi, Templeton, & Johnston, 2008, p. 138), is the most typical. Stanback's (1992, p. 208) investigation into a frequency-based list of 17,602 English words found that the closed syllable type occurs most frequently, accounting for 43.3% of all the syllables found in this list of words.

## (2). Open syllable

An open syllable always ends with a long vowel sound that is spelled with a single vowel letter—that is, the vowel letter says its own name. In contrast to a closed syllable, there are no syllable-final consonant sound(s) to *close* the syllable, hence the name. Example words include *ba-sic*, *fe-ver*, *st-lent*, *lo-cal*, and *mu-sic*. An open syllable can be only one letter if it is a vowel letter (Diliberto et al., 2009), as in the words *a-ble*, *e-ven*, *i-dle*, *o-pen*, and *u-sage*. According to Stanback's (1992, p. 208) study on a list of 17,602 English words, the open syllable type accounts for 28.9% of all the syllables in these words. Added together, these two syllable types—closed and open—constitute 72.2% of all the syllables found in these 17,602 words.

## (3). Vowel-consonant-*e* syllable

This type of syllable always has a silent letter *e*, also known as *magic e* or *marker e*, at the end of the syllable. The final silent letter *e* usually marks the preceding single vowel letter as having a long vowel sound (i.e., it says its own name). Here are some example words: *space*, *sur-name*, *these*, *com-pete*, *drive*, *pro-vide*, *note*, *com-pose*, *cute*, and *com-pute*. In terms of spelling, this type of syllable is often referred to as *split digraphs* (*a-e*, *e-e*, *i-e*, *o-e*, *u-e*) and can be categorized as a “phonologically based . . . conditional [spelling] rule” (Nunes, Bryant, & Olsson, 2003, p. 291).

## (4). Vowel team syllable

Also called *vowel pair* syllable, this type of syllable usually has two adjacent vowel letters that represent one vowel sound. The vowel team represents a specific vowel sound. The following are some examples: *entertain*, *daily*, *day*, *please*, *threaten*, *great*, *keep*, *float*, *choice*, *enjoy*, *school*, *about*, and *snow*.





### **(5). *r*-controlled syllable**

Also known as *r-colored* or *r-influenced* syllable or *vowel-r combination*, this type of syllable always has at least one vowel letter before the letter *r*. The *r* always comes immediately after the vowel letter(s) (e.g., *ar*, *er*, *ir*, *or*, *ur*, *yr*, and *ear*). Together, the vowel letter(s) and the letter *r* make one unique sound. Some example words are *popular*, *waiter*, *circular*, *actor*, *church*, *martyr*, and *early*.

### **(6). Consonant-*le* syllable**

Also called *final stable*, this type of syllable contains a spelling pattern of one consonant, followed by an *l*, followed by an *e*, as in *ta-ble*, *bi-cy-cle*, *nee-dle*, *peo-ple*, and *ti-tle*. Unlike the other syllable types, consonant-*le* syllables do not stand alone; they are always part of a longer word and are never stressed. They only come at the end of a word and have a schwa vowel sound (Spear-Swerling & Brucker, 2003, p. 98).

## **5. The phonological, orthographic, and morphological features of words**

The fifth principle that guided the selection of target words was whether a given word includes the targeted linguistic components and features that will be assessed, such as knowledge of phonology, orthography, morphology, semantics, and syntax (Apel & Apel, 2011, pp. 54-56). These linguistic knowledge sources have recently become the focus of research on the developmental aspects of spelling skills in EL1 or ESL learners, and there has been compelling evidence that they undergird learners' spelling abilities (e.g., Bahr, Silliman, & Berninger, 2009; Berninger & Fayol, 2008; Bourassa & Treiman, 2001, 2007; Masterson & Apel, 2010; Silliman, Bahr, & Peters, 2006; Treiman & Bourassa, 2000b; Treiman & Cassar, 1997).

Traditionally, learners' performance on most of the classroom and standardized spelling tests was assessed typically and solely by an all-or-nothing (i.e., correct or incorrect, right or wrong) approach (Masterson & Apel, 2010, p. 35; Treiman & Bourassa, 2000a, p. 183). According to such an approach, in order to obtain scores, the examinees must accurately spell out all of a given word's constituent letters that are arranged in the correct sequence. Consequently, the spelling *procrastinetor* for the 14-letter, 5-syllable polysyllabic word *procrastinator* will be rated as incorrect and thus awarded zero points, even though there was only one misspelled letter.

What this means is that a speller who misspells (i.e., omits, adds, substitutes, or reverses) only one of the constituent letters in a given word will receive the same grade (zero points) as will one who cannot spell the given word at all. Quite obviously, such a traditional and widely used scoring procedure fails to reflect substantial variations in the performance of good and poor spellers. Therefore, to conduct a more in-depth, qualitative analysis of learners' performance on written spelling tasks before and after they receive spelling instruction, three of the underlying linguistic categories (or components) of spelling



achievement—the phonological, orthographic, and morphological knowledge—were taken into account in selecting target words that can be used as practice and test items.

In an effort to delve into the undergirding linguistic sources of learners' misspellings, Silliman et al. (2006) developed a linguistically-based measure of spelling ability—the Phonological, Orthographic, and Morphological Assessment of Spelling (POMAS)—to evaluate spelling mistakes both quantitatively and qualitatively. Unlike the traditional right-or-wrong scoring procedure that fails to capture the underlying linguistic knowledge bases that the test-takers apply or do not apply to generate the written spellings of words, the POMAS first classifies test-takers' spelling mistakes according to three broader linguistic categories of phonology, orthography, and morphology. Each spelling mistake will then be qualitatively analyzed in terms of specific linguistic features in each category.

## **(B). The five principles of word exclusion**

### **1. Words with more than one possible pronunciation**

First, words with more than one possible pronunciation were excluded to avoid possible confusion and controversy. Words of this kind can be divided into at least two groups. Words in the first group have one unstressed syllable that immediately follows a strongly stressed syllable and contains the schwa vowel sound [ə]. The unstressed schwa sound in such words is represented by one of the six vowel letters and may be omitted in pronunciation—a process known as *syncope* (Bahr et al., 2009, p. 120; Celce-Murcia et al., 1996, p. 163). Here are some example words, whose pronunciations are based on the *Random House Compact Unabridged Dictionary* (1996), from the revised *General Service List*: *boundary*, *interest*, *different*, *preference*, *several*, *average*, *bravery*, *temperature*, *literature*, *mystery*, *favorite*, *history*, *victory*, *factory*, and *satisfactory*. Words in the second group are often referred to as *homographs* (Dale & Poms, 2005, p. 86), which can function as two parts of speech (noun/adjective and verb) and hence have variant pronunciations. Most of these words are of Latin or Greek origin. When functioning as a noun or adjective, the first syllable in these words is frequently stressed. As a verb, the primary stress usually falls on the second syllable. Below are some examples: *subject* ([ˈsʌbdʒɪkt] vs. [səbˈdʒɛkt]), *present* ([ˈprezənt] vs. [priˈzɛnt]), *record* ([ˈrɛkərd] vs. [rɪˈkɔrd]), and *perfect* ([ˈpɜːfɪkt] vs. [pəˈfɛkt]) (see Celce-Murcia et al., 1996, pp. 264, 135; Miller, 2000, pp. 25, 35; Payne, 1995, pp. 28, 33, for more words of this type).

### **2. Compound words that are written as one word or with a hyphen**

Second, compound words written as one word or with a hyphen were also excluded. The reason behind this decision was that compound words usually have comparatively clear-cut syllable boundaries between the component words and would thus be less reliable and valid in assessing the test-takers' ability to syllabicate polysyllabic words according to their pronunciations. The following are some of the compound words excluded from the preliminary list of target words: *afternoon*, *nobody*, *inside*, *notebook*,



*everything, newspaper, meantime, railroad, understand, gentleman, homework, network, framework, lipstick, weekday, and old-fashioned.*

### 3. Polysyllabic words with the letter *x*

Third, polysyllabic words with the letter *x* that represents the sequence of two consonant sounds ([ks] or [gz]) simultaneously were excluded from the target words to be used as test and practice items on the dictated spelling subtest because it would be difficult for the test-takers to show the division of such words into syllables in writing. Here are some examples of such words from the revised *General Service List*: *exercise* [ˈɛk-sə-saɪz], *extra* [ˈɛk-strə], *excuse* [ɪk-ˈskjuːz; ɪk-ˈskjuz], *expect* [ɪk-ˈspekt], *expensive* [ɪk-ˈspen-sɪv], *exact* [ɪg-ˈzækt], *examine* [ɪg-ˈzæm-ɪn], *example* [ɪg-ˈzæm-pəl], *exist* [ɪg-ˈzɪst], and *existence* [ɪg-ˈzɪs-təns].

### 4. Words with silent letter(s) that do not serve a specific, useful purpose

Fourth, excluded also were words with silent letter(s) that do not serve a specific, useful purpose. Many words in English contain a letter or letters that do not represent any speech sound at all, hence the term *silent* (or *mute*) *letters*. The issue of silent letters in English words is quite a complicated one (see Venezky, 1999, for an in-depth discussion and analysis) and has often been identified as one of the problem areas in the teaching, learning, acquisition, and retention of the written forms of many English words. In compiling this linguistically-based word list, four primary functions of silent letters in English words were taken into consideration in word exclusion (and selection, too).

The first primary function of silent letters is to serve as *markers* that signal the pronunciation of other letter(s) in the same word (see Venezky, 1999, pp. 83-87, for more information). For example, the silent letter *e* at the end of words generally indicates that the preceding stressed single vowel letter has a long vowel sound (i.e., the vowel letter would say its own name) as in the words *behave* [e], *complete* [i], *provide* [aɪ], *propose* [o], and *confuse* [ju] (cf. Henry, 2003, pp. 37, 77). Here are some more pairs of words that exemplify how final silent *e* functions as a phonetic marker (i.e., a pronunciation guide): *fate* versus *fat* [æ], *(de)lete* versus *let* [ɛ], *site* versus *sit* [ɪ], *note* versus *not* [ɑ], and *cute* versus *cut* [ʌ]. Similarly, the silent consonant digraph *gh* in the following words also serves the function of a marker signaling that the preceding vowel letter *i* says its own name: *fight* (vs. *fit*), *light* (vs. *lit*), *night* (vs. *nit*), *sight* (vs. *sit*), *tight* (vs. *tit*), *right*, *slight*, *delight*, *brighten*, *frighten*, *lighten*, and *tighten*. In addition, the silent vowel letter *u* in the following words marks the preceding consonant letter *g* as the so-called hard *g* for [g] rather than as the soft *g* for [dʒ]: *guess*, *guest* (cf. *gesture*), *guide*, *guilt* (cf. *giant* and *ginger*), and *guy* (cf. *gyrate*).

The second function silent letters can perform is to connect the members of a word family that are related etymologically (i.e., semantically). In other words, silent letters in many English words were retained in orthography (i.e., spelling) to “preserve a word’s . . . morpheme identity” (Venezky, 1999, p. 9), thus reflecting the meaning relationships among the members in the same derivational family. This



close association between English orthography and morphology has been termed “the spelling–meaning connection” by Templeton (1983, 1991, 2002, 2004), who has for a long time argued that this connection between orthographic and morphological knowledge should be integrated into the instruction and learning of English spelling and vocabulary. Additionally, the role of English orthography in the preservation of morphological information (i.e., meaningful units of word parts) in such a way described here has led to the term *morphophonemics*, which is claimed to be a characteristic of English orthography that encodes and reflects morphemes in addition to phonemes, among others (Deacon & Bryant, 2006, p. 401; Henry, 2003, pp. 39, 41, 105, 288; Moats, 2009, pp. 380-381, 385; Moats, 2010, pp. 82, 278; Venezky, 1999, pp. xii, 197-209).

For instance, the silent letter **g** in the word *sign* acts as a meaning link to its other family members in which the letter *g* is pronounced: *signal*, *signally*, *signify*, *significant*, *signature*, *signatory*, and *designate*, among others. As another example, the silent letter **b** in the word *doubt* also serves the specific purpose of semantically relating the word to its other family members such as *dubitable*, *indubitable*, and *dubious*. The following are some more pairs of words of this type with the silent letter being boldfaced: *autumn* and *autumnal*, *column* and *columnist*, *solemn* and *solemnize*, *muscle* and *muscular*, *receipt* and *receptionist*, *debt* and *debit*, *indict* and *indiction*, *bomb* and *bombardier*, *gnosis* and *prognosis*, *mnemonic* and *amnesia*, *malign* and *malignant*, as well as *paradigm* and *paradigmatic* (Fromkin et al., 2007; Moats, 2010, p. 133; Venezky, 1999).

The third function that silent letter(s) can perform is to show the language origins of words. For instance, the word-initial silent consonant letter **p** in the following words indicates that these words are derived from the classical Greek language: *psychology*, *psychiatrist*, *psychic*, and *psychedelic*.

The fourth function that silent letters can serve is illustrated in the case of *assimilated prefixes* (also referred to as *absorbed* or *chameleon prefixes*) found in a large number of prefixed, polysyllabic words. Simply put, an assimilated prefix is one whose final letter changes due to sound assimilation to the first letter of the following root (Henry, 2003, p. 286). For instance, the extremely common Latin prefix **ad** becomes an assimilated prefix in the following words: *abbreviate*, *accommodate*, *affect*, *aggressive*, *allocate*, *announce*, *append*, *arrive*, *assist*, and *attention* (Henry, 2003, pp. 176-178; Schleifer, 1995, p. 269). Such spelling changes occur at the syllable juncture within polysyllabic words, and are the result of euphony (Henry, 2003, p. 106); that is, changes in spelling happen in order to make it easier to pronounce the prefixed words (Glazier, 1993, p. 6). As can be seen from the example words above, this assimilation process almost always results in double consonant letters that represent only one sound, thus creating a silent letter within prefixed, polysyllabic words.

In short, words were excluded that contain silent letter(s) that do not serve a useful purpose and thus must be rote memorized, such as *answer*, *sword*, *whole*, *listen*, *whistle*, *castle*, *foreign*, *scissors* (cf. *incise*), *scenery*, and *nuisance* (cf. *ruin*).

## 5. Words that have alternative spelling forms



Fifth, words that have alternative spelling forms were also excluded from the candidates for test and practice items that would appear on the dictated spelling task in order to avoid unnecessary confusion or controversy and to simplify the subsequent process of scoring and analyzing. Some examples of such words are *inquiry* (also spelled as *enquiry*), *defense* (also spelled as *defence*), and *traveled* (also spelled as *travelled*).

### III. Results and Conclusions

The result of the five principles of word selection and the five principles of word exclusion was a preliminary list of about 460 target words (see Table 2). Targeted to the English proficiency levels of Taiwanese EFL learners, these words were deemed appropriate candidates for target items to be taught and/or test items to be used to assess learners' linguistic knowledge and skills required to successfully acquire English vocabulary, especially those words with multiple syllables.

**Table 2**

***The Linguistically-Based List of Suitale Target Words***

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**1. One-syllable words:**

- (1). as, eat, (edge,) in, on, up, he, by, so, die, toe, boy, most, find, kind, mind, box, fix, mix, next,
  - (2). make, take, name, same, late, hate, rate, sale, these, time, like, life, line, side, ride, size, rise, smile, drive, price, pride, home, hope, note, those, use, type, have, eye, give, live, come, some, love, above, move, prove, improve, lose, while
  - (3). face, place, space; age, cage, page, stage,
  - (4). cat, man, bad, hat, let, set, pet, red, big, fit, sit, rid, ship, lot, dot, job, bus, but, shut, sun, cut,
  - (5). staff, stiff, off, stuff, small, smell, fill, kill, still, skill, class, glass, grass, mass, less, bless, dress, kiss, miss, loss, cross,
  - (6). catch, match, scratch, stretch; edge, bridge, judge,
  - (7). train, tree, try, drink; branch, (small,) thing, back,
  - (8). wait, fail, sail, rain, train, brain, vain, faith, main, pain, paint, faint, plain, chain, claim, aim, mail, praise, straight, say, day, play, see, feel, keep, seem, dream, teach, please, taught, school, float, load, friend, large, first, church,
  - (9). change, might, night, sight, weight, bought, thought, straight, sign, climb, doubt,
- 

**2. Two-syllable words:**

- (1). pencil, basket, public, system, seldom, wisdom,
- (2). able, table, baby, lady, lazy, favor, fever, recent, equal, even, ever, duty, city, pity, river, easy, open, moment, local, total, program, basic, music, silent, ticket, chicken, kitchen, limit, student, picture, pleasure, daughter, straighten, neighbor, frighten, morning, patient, special, social, precious, angle, single, title, gentle, handle, idle, needle, uncle, circle, double, humble, noble, tremble,



- trouble, people, simple, sample, purple, temple,  
flower, shower, power, ancient, daily, corner, language, knowledge, effort,
- (3). rabbit, happen, happy, carry, marry, apple, matter, battle, yellow, fellow, better, letter, lesson,  
message, settle, little, middle, village, ribbon, bitter, dollar, borrow, follow, bottle, bottom,  
sudden, butter, button, puzzle, rubber,
- (4). enjoy, hotel, police, polite, without, surprise, **arrive**, attend, apply, collect, correct, connect,  
support, offend, afraid, contain, remain, explain, complain, complaint, complete, compete,  
combine, produce, decide, provide, propose, pronounce, behave, (detail,) invent, prevent,  
event, confuse, confess, across, address, discuss, (progress,) concern, exact, expect, although,
- 

### 3. Three-syllable words:

- (1). family, camera, salary, animal, satisfy, classify, hospital, bicycle, medicine, holiday, yesterday,  
company, popular, elephant, radio, president, industry, organize, recognize, serious, curious,  
various, influence, relative, quality, citizen, agency, regular, theater, telephone, generous,  
probable, confident, confidence, fortunate, civilize, favorite, actual, educate, operate, origin,  
scientist, article, terrible, character,
- (2). another, important, umbrella, remember, department, together, decision, **musician**, expensive,  
imagine, attractive, develop, dependent, consider, continue, determine, **effective**, electric,  
entertain, attention, invention, prevention, objection, permission, admission, discussion,  
essential, advantage, determine, ambition, ambitious,
- (3). engineer, interrupt, represent, recommend, employee,
- 

### 4. Four-syllable words:

- (1). secretary, necessary, difficulty, mechanism, valuable, ceremony, customary, dictionary,  
ordinary, miserable,
- (2). ability, librarian, impossible, responsible, discovery, immediate, delivery, comparison,  
material, simplicity, experience, particular, society, variety, political, especially, photography,  
apology, grammatical, congratulate,
- (3). scientific, sympathetic, conversation, population, imitation, education, opposition, composition,  
reputation, electrician, confidential,
- 

### 5. Five-syllable words:

- (1). imaginary, imaginative,
- (2). university, opportunity, representative,
- (3). congratulation, pronunciation, association, classification,
- 

The word *stage*, for example, was included because it can simultaneously assess learners' knowledge of at least three linguistic features, which is part of the required knowledge bases underlying the key to vocabulary acquisition. First, the word-initial consonant cluster *st* can assess learners' knowledge of when a voiceless stop consonant sound (such as [t] in this case) will be aspirated (Fromkin et al., 2007, p. 230). Second, it can assess learners' knowledge of the vowel-consonant-*e* (or final silent *e*)



syllable type. Acting as a sound marker, the silent *e* signals the preceding single vowel letter as having a long vowel sound (i.e., the letter *a* says its own name). Third, this word can assess learners' knowledge of the "soft *c* and *g*" (Henry, 2003, p. 77) orthographic (spelling) rule. This rule states that the letters *c* and *g* generally make a soft sound (i.e., [s] and [dʒ]) when they are immediately followed by the vowel letters *e*, *i*, and *y*. Thus, the silent letter *e* at the end of the word *stage* indicates that the preceding letter *g* makes the soft *g* ([dʒ]) sound instead of the hard *g* ([g]) sound as in the word *stag*.

As another example, the word *effective* was chosen because it can assess learners' knowledge of the "assimilated prefix" feature in the morphological category. Taiwanese EFL learners possessing this linguistic knowledge will have a better chance to correctly spell prefixed, polysyllabic words such as *effective*. In other words, if they are aware that the prefix *ex-* in this word was assimilated to *ef-* by the following root *-fect-*, then they will be more likely to accurately spell this word with two *f*s, despite the fact that there is only one [f] sound in the word.

The words on this list can be further organized according to the six syllable types and the linguistic (phonological, orthographic, and morphological) categories and features that teachers of English wish to teach and/or to test their EFL students. For instance, those words that can illustrate the "Floss" orthographic rule (Carreker, 2005b, p. 281; Henry, 2003, p. 36) can be regrouped. This rule prescribes that the consonant letters *f*, *l*, and *s* are generally doubled when they appear immediately after such short vowel sounds as [æ], [e], [ɪ], [ɔ], and [ʌ] spelled with a single vowel letter, as in the words *staff*, *smell*, *kiss*, *loss*, and *discuss*. (In fact, these double consonant letters serve the function of signaling that the preceding single vowel letter makes a short vowel sound.) As shown in Table 3, these words were first divided into three groups according to the word/syllable-final double consonant letters *ff*, *ll*, and *ss*; then they were further sorted into five columns according to the vowel letters *a*, *e*, *i*, *o*, and *u*. Teachers can explicitly teach learners this rule through this sublist of words. Alternatively, if time permits, teachers can present these words in a random order and ask learners to sort them into groups, thus enabling them to discover this rule on their own.

**Table 3**

***Syllable Type: Closed. (The Floss Rule) (Double Consonant Letters)***

<b>staff</b>		<b>stiff</b>	<b>off</b>	<b>stuff</b>
	<b>smell</b>	fill		
		kill		
		skill		
		still		
<b>mass</b>	<b>less</b>	<b>kiss</b>	<b>loss</b>	<b>discuss</b>
class	bless	miss	cross	
glass	dress		across	
grass	address		<b>[floss]</b>	
	progress			





Moreover, teachers of English can conduct an in-depth analysis of these candidate target words before or while selecting words to be taught or tested. Table 4 presents two example words that were analyzed in a linguistically-based method. Drawing on the work of other researchers (Arndt & Foorman, 2010, p. 65; Bahr et al., 2009, p. 121; Masterson & Apel, 2010, p. 44; Silliman et al., 2006, p. 123), I listed, in addition to the six syllable types involved, almost all the specific linguistic features identified in these two target words. (The linguistic features within the morphological category were based on the *Random House Compact Unabridged Dictionary* [1996].) These specific linguistic features can then be used to guide the qualitative analysis of learners' incorrect spelling responses, if any.

**Table 4**  
*Syllable Types and Linguistic Features Contained in Two Target Words*

Target words	6 syllable types	Phonology	Orthography	Morphology
arrive	VCe syllable	Diphthong [aɪ];  Silent e	Spelling choice of diphthong [aɪ] (cf. <i>right</i> )	Assimilated prefix: <i>ad-</i> to <i>ar-</i>  The root: <i>river</i>
musician	Unstressed open syllable: <i>mu-</i>  Exception to stressed open syllable: <i>si-</i>	Consonant alternation: <i>c</i> [k] changes to <i>ci</i> [ʃ]	Spelling of [ʃən]: <i>-cian</i> (Spelling choice: <i>-cian</i> or <i>-tion</i> )	Derivation: Noun suffix: <i>-ian</i>

In summary, this linguistically-based list of candidate words could be a valuable and useful source of suitable words for teachers of English. Carefully selected to assess linguistic knowledge and features required to successfully acquire English vocabulary, this list of words may be used both as target items to be taught and as test items to evaluate the effectiveness of vocabulary instruction.

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