A Comparison between the Text-based Approach and the Dictionary-based Approach of Vocabulary Learning in a Chinese University

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Abstract

The primary purpose of this study is to find out which approach is more effective, text-based approach or dictionary-based approach, in learners’ mastery of new words and the time duration in learners’ memory. Group A learners received a text containing ten target words with explanations. Group B learners received the material of the same target words with meanings and examples. Ten minutes later, both groups were given the same test. Two weeks later, all of them took the same test as in the first test. Learners in Group A showed statistically more significant gains in their vocabulary knowledge in both tests than Group B learners, and they retained the words for longer than Group B. This study thus demonstrates that the text-based approach is more effective than the dictionary-based approach in mastering and memorizing new words.

**Key words:** text-based approach, dictionary-based approach, effectiveness, vocabulary mastery, vocabulary retention
1. Introduction

With the globalization of Chinese economy, English becomes more and more important for people, especially university students. Chinese university students are required to take the College English Test (CET) to prove their English ability. According to the syllabus of CET, test takers should master about 4,700 English words in CET-4 and 5,500 in CET-6. Teachers and students spare no efforts to improve English vocabulary. In the stream of learning English vocabulary, it is a common scene in Chinese campuses that a large number of young students recite English in their spare time. Some students recite entries from different kinds of dictionaries, such as vocabulary dictionaries for CET 4, or CET6. Some of them recite texts, such as short stories, poems and prose. Which method is more effective for students to master and memorize new words is the question that needs to be explored in China.

1.1 Aim

The aim of this study is to find out which approach is more effective, the text-based approach or the dictionary-based approach, for learners to master and memorize the new words in the long-term memory in second vocabulary learning.

1.2 Material

1.2.1 Materials for tests

There are two kinds of materials for Group A and Group B. The material for Group A adopts the texted-based approach (Appendix 1). It includes the text from Aesop’s Fable ‘The Kingdom of the Lion’, and ten words chosen from this story: neither...nor, wrathful, just, proclamation, assembly, draw up, amity, long to, impunity. These words are also provided with simple meanings in Chinese and English from Longman Dictionary of Contemporary English (2004). The meaning provided is only connected with the text. The material for Group B is the same ten words as in Group A’s material (Appendix 2). The researcher provides the revised dictionary lists. Each word has the same definition as in the material for Group A. Each word is accompanied by information of phonetic symbol, part of speech, synonyms and derivative and inflective words.
The research includes two tests: immediate test and delayed test. The content of these tests is the same (Appendix 3). It has seven multiple-choices items and three sentence-making items. The total score for the test is ten.

1.2.2 Participants

The participants in this study include twelve non-English major sophomore students from a Chinese university. They were chosen in one class according to their scores in Chinese CET 4 and CET6 (College English Test) and subjective assessment by their English teacher. All of them were native Chinese speakers with some experience of vocabulary learning. They were willing to participate in the test and their anonymity was guaranteed.

The students were in three different levels: a higher level, an intermediate level and a lower level. The division of three levels was mainly based on their CET 4’s and CET 6’s scores with an integration of their overall language ability of their classroom performance and term examination.

Students of the higher level had passed CET6 and had a solid foundation in the basic skills: listening, speaking, reading and writing. They performed excellently in language study. Students of the intermediate level had passed CET4 but failed CET6. Their vocabulary was between 4,700 and 5,500. They had no problems in daily communication. However, they sometimes made more mistakes than the students of the higher-level did. The students of the lower level had not passed CET4 and had some difficulty in learning English. Their English vocabulary was below 4,700.

Three pairs of the three levels of students were divided into two groups equally. Each group had two higher-level students, two intermediate level students and two lower level students. The reason was to explore the influence of text-based approach and dictionary-based approach in vocabulary learning to different levels of English learners.

Their English teacher also participated in the experiment as the supervisor to ensure the validity of the tests.
1.3 Method

In order to investigate and evaluate the effectiveness of the two vocabulary learning approaches, an immediate test and a delayed test were applied as the method. Hughes affirms that tests not only urge learners to take vocabulary learning more seriously and prepare for the test but also provides a form of feedback for learners and teachers (2003:1). Parrot also points out that tests “provide teachers with some form of feedback to set against impressionistic judgements about the effectiveness or otherwise of particular materials, techniques or approaches and to help them in making future decisions about using these” (1993:21). Thus, tests offer some objective information for analysis and discussions.

This investigation was conducted through an elaborately and systematically designed procedure. The researcher had an overview of the vocabulary learning theories, such as vocabulary system, vocabulary acquisition and vocabulary teaching strategies. Many literature reviews and vocabulary researches were carefully studied. With a good knowledge of theories and past research results, the researcher began to design the test and the material for the test.

At first, the researcher chose the short story ‘The Kingdom of the Lion’ from Aesop’s *Fable* as the text for Group A’s material. The story is easy to understand and learners could guess unknown words from the text. Then the researcher chose ten words from the story, which included four nouns, three adjectives, two verbs and one conjunction. There were some interviews about these ten words. The researcher chose five university students to judge the difficulty of these ten words before designing the test. These students had similar language abilities with the participants in this research. Two of them failed CET 4; another two had past CET 4 but failed CET 6; and one of them had past CET6. They thought the four nouns and three adjectives were difficult to recognize the meaning, while the two verbs and one conjunction were easy to recognise the meaning but difficult to use them properly in expressions.

After setting the ten target words, the researcher revised the dictionary lists from the *Longman Dictionary of Contemporary English* for Group B. The researcher presented each word with its characteristics from a grammatical, phonological morphological and translational perspective.
Then from the perspective of test characteristics, the researcher designed a vocabulary test for Group A and Group B. The test included seven multiple-choice items and three sentence-making items. The researcher discussed the material and test with her tutor several times. To improve the test’s reliability and validity, the researcher found a student from the university in China, who had the similar English ability as the participants but had no relation to the participants, to take the test. After he had finished it, the researcher counted his time and asked the appropriateness of the material and test. Gaining his assent and the tutor’s approval, the researcher sent all the material to her assistant in China by e-mail.

The assistant printed out all the material, chose a classroom, organized the experiment and invited the teacher as the supervisor. Before the test, the supervisor asked all the students to shut down the cell phone and e-dictionary. Then the supervisor handed out different materials to different groups. The students in Group A and group B memorized the contents of the materials in silence for ten minutes in the same classroom. Then the supervisor collected the materials and handed out the same vocabulary test. The students had to finish in ten minutes. Ten minutes later, the supervisor collected the test results and handed them to the assistant. The assistant scanned the results and sent them to the researcher by e-mail. The assistant kept all the materials.

Two weeks later, the assistant organized the experiment again. The same students in the same group took the same vocabulary test. The test was conducted in the same way as the last one. No consultation and dictionary were allowed. The results were also sent to the researcher by e-mail.

2. Previous Research and Theoretical Background

This section not only makes a review of previous research related with second language acquisition but also provides background information for the analysis and discussion.

2.1 Previous Research

The methods of teaching and learning English vocabulary as second language have changed throughout time. There are mainly the Grammar Translation Method, the Direct Method, the
Reading Method, the Communicative Language Teaching Theory and lexicographical research. Research about text-based approach and dictionary-based approach are popular recently.

From the end of the eighteenth century, the Grammar Translation Method was popular. Bahlsen pointed out that the Grammar Translation Method was a foreign language teaching method that required students to translate whole texts word for word and memorize numerous grammatical rules and exceptions as well as enormous vocabulary lists (1905:12). Vocabulary was acquired through translation. At the end of the nineteenth century, the Direct Method was introduced in English vocabulary learning. The Famous theorist Sauveur introduced that the Direct Method insisted that only the target language should be used in foreign language learning class and meanings should be communicated directly by connecting speech forms with actions, objects, gestures, and situations (Sauveur 1874). This method stated that interaction was the most important aspect to acquire vocabulary naturally.

The Reading Method appeared in the 1930s. The British linguist Michael West demonstrated that reading and vocabulary skills are closely related. He claimed, “The primary thing in learning language is the acquisition of a vocabulary, and practice in reading” (West 1930: 514). Later, Stern introduced the Communicative Language Teaching Theory, which emphasized that the goal of language learning was communicative competence. The communicative method aimed to help language learners getting close to the target language and preferred fluency to accuracy (Stern 1981). In the late twentieth century, lexicographical research paid attention to the central role of more accurate language description, stressing the L2 learner’s need to use patterns of lexis and collocation (Frawley 1992:386).

In second vocabulary acquisition history, vocabulary has been acquired through translating, reading, communicating and lexical rules, and so on. Nowadays in China, the popular approaches for university students who are learning English vocabulary are text-based approach and dictionary-based approach. The text-based approach is to learn words from certain texts and use them into other contexts, which is mainly related with Reading Method. The dictionary-based approach is to learn words from the information provided in dictionary, which is related with the Lexicographical Method.
The text-based approach belongs to reading and vocabulary research. There are positive opinions of the role of reading contexts in the acquisition of new vocabulary. Nagy and Anderson affirm that many words are learned through extensive contextual exposure (Nagy & Anderson, 1984; Nagy et al., 1987). It is also verified in practice that contexts are highly useful in the aspect of providing useful meaning clues for word learning. (Beck et al., 1983; Konopak, 1988; Schatz & Baldwin, 1986).

Several theorists also have discussed the role of dictionary in vocabulary learning. (Nation, 2001; Nist & Olejnik, 1995). They discussed whether written definitions could be more salient for learners than the nature of definitions themselves, and whether revised definitions could be more salient than the original definitions in the dictionary. McKeown’s test of 60 fifth graders on 12 words revealed that revised definitions were statistically superior to original definitions in helping children produce appropriate examples of the target words (1993:21-22).

There were also discussions about the comparisons about the usefulness of contexts and dictionary definitions. Gardner did research about children’s immediate understanding of vocabulary: contexts and dictionary definitions. He found that significant gains were found for all treatment and reading skill levels. Revised definitions produced significantly greater gains than forward contexts cues, backward context cues, and original definitions. Advanced learners demonstrated significantly greater gains than average or below-average learners (Gardner 2007:331).

### 2.2 Theoretical Background

To begin with, the focus is the two approaches: text-based approach and dictionary-based approach. Then the complex nature of words and the way words are learned are introduced. Mastering word knowledge is the first task for learners, memorizing words in long-term memory is another task. In that way, mental lexicon and memory principles are introduced. At the end, a comparison between text-based approach and dictionary-based approach concerning the mastering and memorizing new words is provided.
2.2.1 The text-based approach

The text-based approach has become very popular in China, as its promising results have been noted in the area of vocabulary acquisition. This approach implies that learning target words through reading texts, such as acquiring words’ meaning and their typical language environment from texts. Thornbury claims that “language always happens as text and not as isolated words and sentences” (2005: 8). Texts include rich word information such as word family, word meaning, lexical chains, and word association. Johns and Davies refer that when using texts in learning and teaching vocabulary, a text can be described as a linguistic object, a vehicle for information and a stimulus for production (1983:1).

Texts as linguistic objects are used for language work, specifically grammar or vocabulary (Johns & Davies 1983:1). There are three kinds of texts used in teaching: texts that are written especially with a pedagogical purpose in mind by teachers; authentic texts the teacher has chosen because they contain many examples of a particular feature of language; the authentic texts adapted by teachers to contain or highlight certain features of language.

A text is a vehicle for information means that texts can be chosen because their topic are motivating (Johns & Davies 1983:5). An interesting topic can arouse learners’ affective depth. Learners are interested in certain topics and see new vocabulary repeatedly in a variety of contexts, thus improving their vocabulary. In effect, the students also become experts in this topic by developing a wide knowledge of the issues and vocabulary involved.

A text as a stimulus for production means using a text as a springboard for another task – usually a reading or writing task (Johns & Davies 1983:9). Texts help learners speak and write words rightly. Doing role-play and talking about the text are the ways to speak certain words; writing issues about the text is to use the words in the written form. Both speaking and writing make students use the contexts and collocation words.

Texts are treasures for learners to learn vocabulary. Short literary texts are good choices. Poets often choose their words carefully from phonological and semantic perspectives; they try to use the right words in the right order. For example, Robert Frost’s famous poem “Stopping by Woods
on a Snowy Evening” can be the text for learners who have good knowledge of English to learn
vocabulary:

Stopping by Woods on a Snowy Evening

Whose woods these are I think I know.
His house is in the village though;
He will not see me stopping here
To watch his woods fill up with snow.
My little horse must think it queer
To stop without a farmhouse near
Between the woods and frozen lake
The darkest evening of the year.
He hives his harness bells a shake
To ask if there is some mistake.
The only other sound's the sweep
Of easy wind and downy flake.
The woods are lovely, dark and deep.
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep. (Frost 2004:2)

This poem is a short text, which can be viewed as a linguistic object, a vehicle for information
and a stimulus for production.

As a linguistic object, the poem provides readers new words, phrases and collocations. In this
poem, the complex phrases are presented: i.e. fill up with, think it queer, the sweep of. The word
families are presented, such as stop, stopping, snow, snowy, house, farmhouse. The pattern of
words ending in the similar sound are presented, such as know, though, snow; here, queer, near;
year; lake, shake, mistake, flake; sweep, deep, keep, sleep. The lexical fields are spread in the
poem, i.e. woods, dark, village, farmhouse, snow, wind, flake, horse, harness bell. The text is a
linguistic object filled up with enough information for learners to guess the meaning of new
words. For example, if learners do not know the word hive, they can have a decision-making
process from the sentence He hives his harness bells a shake. The part of speech needs to be
decided: is it a noun, a verb or an adjective, etc. The position and its ending indicate hive is a verb.
The further clue is the word’s immediate collocates. His harness bells is a noun phrase, so hive is
a transitive verb. From the wider context, learners know that he refers to the horse, so hive is an
action doing by horses, which might mean shake or sway.

The text is a vehicle for information. The poem tells learners a simple story on the surface. The
speaker is stopping by some woods on a snowy evening. He takes in the lovely scene in near-
silence and is tempted to stay longer. However, he acknowledges the pull of obligations and the considerable distance yet to be travelled before he can rest for the night. However, this little poem is more than that. Literature motivates advanced students and it is “motivationally effective if students can genuinely engage with its thoughts and emotions and appreciate its aesthetic qualities” (Elliot 1990:197). The poem motivates learners to meditate the deep thought with new words in the poem.

A text is also a stimulus for production. Learners can attempt to write a personalised version of the poem, following a certain pattern from the poem, such as an extended verb phrase: to watch...to stop...to ask...and then following by a subordinate clause, such as without a farmhouse near, if there is some mistake. Thornbury also affirms that the pattern nature of many literary texts, especially poems, and the intricate ‘web of words’ that knits them together, can promote the production of students (2002:54).

In the text-based approach, the learning material is more than a text. There are still the target words with their simple meanings. The target words can be chosen by teachers or by learners themselves. The reason for having target words and meanings is to prevent the results of wrong guessing or just skipping the new words. As pointed out by Nation and Coady, “the very redundancy or richness of information in a given context which enables a reader to guess an unknown word successfully could also predict that the same reader is less likely to learn the word because he or she was able to comprehend the text without knowing the word” (1988:101).

2.2.2 Dictionary-based approach

Another popular method of learning vocabulary in China is reciting dictionary lists. The dictionary, as claimed, is “an essential source, if not indeed the principle source, of information on language for all members of literate societies who might have questions on any aspect of the form, meaning, and/or use of a word or words in their own or in another language” (Kirkness 2004:55). Kirkness talks of second or foreign language (L2) learners, and claims that for these learners, bilingual dictionaries are the most used reference books at all levels (2004:56). Ilson also describes dictionaries as “the most successful and significant book about language” (1985:1).
The significance of dictionary is “shown by the fact that...its authority is invoked, rightly or wrongly, to settle disputes” (Ilson 1985:1). Carter and McCarthy make an observation of this and they suggest that dictionaries for language learning have been largely ignored in the plethora of books and articles that have been published by those who have a stake in language learning and teaching (1988: 126-139).

There are different kinds of dictionary, such as bilingual dictionary (e.g. a Chinese-English, English-Chinese dictionary), monolingual dictionary (e.g. English), and dictionaries of specialized functions. Learners in China prefer bilingual dictionaries to monolingual dictionaries. They are easy and quick to understand, and they are useful for speaking and writing production. For example, when a Chinese wants to express some ideas of politics and he forgets the word, for instance, “NATO”, he cannot make himself understood. He searches the bilingual dictionary and has no trouble finding the right word. Both bilingual and monolingual dictionaries provide detailed information. There are some pictures print-screened from Longman Dictionary of Contemporary English (English-Chinese version). The word strike has two word classes: verb and noun. They are listed separately as strike\textsuperscript{1}, strike\textsuperscript{2}.

At first, there is a simple list of main points of strike\textsuperscript{1}. The dictionary supplies the pronunciation by using phonemic script /straik/. The verb is an irregular one as its past tense and past participle are struck. Both entries are further sub-divided into their different polysemes. It provides a clear structure of different meanings by listing its simple Chinese and English meanings by one or two words. They are the synonyms of the target words, e.g. strike, think, and notice have a similar meaning. The Chinese meaning is quick to understand and helps learners to map the new words into their conceptual system.

Then the dictionary provides detailed information with contexts in the following picture. Meaning is exhibited by capital letters to draw attention. Grammatical information follows,
including part of speech (e.g. T not in progressive 不用进行时), showing the fact that the verb is transitive [T] and intransitive [I] in certain meanings. Bilingual definitions are written in easy-to-understand language, for example, “if a thought or idea strikes you, you suddenly realize that it is important, interesting, surprising, bad etc 使…突然意识到”. It is an explanation as well as a sample sentence. Typical contextual sentences are following by the definition, which is chosen, to display the word’s meaning as well as its grammatical behaviour. The following three examples use the form \textit{struck} from the word family of \textit{strike}. “The funny side of the affair suddenly struck her”. “It struck Carol that what he’d said about Helen applied to her too”. “Struck here is the past tense”. We were struck by the generosity of even the poorest citizens. \textit{Struck} here is past participle. These examples make learners familiar with \textit{struck}. Common collocations and fixed usages are also provided: \textit{strike the eye, strike for, strikes sb that, be struck by,} etc.

\textit{Strike}^2 is a countable noun. The dictionary list showed below gives a number of collocations of the word, e.g. \textit{go on strike, call a strike, hunger strike, oil strike}. Each collocation has its own example to explain its context and usage. These sample sentences also display the concreteness of the word meaning.
Scott points out the four features of a word that can influence learners’ attention: (a) morphology, (b) a word’s part of speech, (c) the vividness or concreteness of the word’s meaning, and (d) frequency of appearance in written English (2005:72). Learners can acquire knowledge of morphology from the word family in the dictionary list, and have a clear idea of the word’s part of speech. The various sample sentences in the dictionary also make learners have a vivid picture of the word meaning. The target word is frequently used in the sample sentences. Both bilingual dictionaries and monolingual dictionaries provide overall information about a word in morphological, phonological, semantic and pragmatic aspects. Hulstijn claims that “The more a learner pays attention to a word’s morphological, phonological, orthographic, prosodic, semantic and pragmatic features and to intraword and interword relations, the more likely it is that new lexical information will be retained” (1993:285). From his point, dictionary-based approach is effective for learners to retain word knowledge.

However, for the dictionary-based approach, revised definition by teachers or publishers is more popular in China. The use of dictionaries in vocabulary learning is a debate topic for linguistic theorists. McKeown claims that learners needed to do a cognitive processing about the information displayed by dictionary, which can also be revising dictionary definitions as one kind of personal organizing of words (1993:30). Learners need to identify the role of words, such as their word classes in particular situations. Then learners can characterize a word, to fully use the definition and develop a representation for word meaning with its prototypical use. Furthermore; making the word’s meaning accessible to learners themselves in easy and salient terms is important. At last, learners need to pay their attention to the whole definition to avoid the likelihood of interpretation based on a fragment.

McKeown had test 60 fifth graders on 12 words revealed that revised definition were statistically superior to original definition in helping children produce appropriate examples of the target words (p.21-22). Dee Gardner did research about the children’s immediate understanding of vocabulary: contexts and dictionary definitions. He found that significant gains were found for all treatment and reading skill levels. Revised definitions produced significantly greater gains than forward contexts cues, backward context cues, and original definitions. Advanced learners demonstrated significantly greater gains than average or below-average learners (Gardner, 2007).
In summary, the dictionary provides all information about a word. Dictionary-based approach is a kind of deliberate explicit study of words (Thompson 1987:282). Dictionary makers and their critics make high standards for dictionary production. However, learners can only gain a small part of information every time. This information may connect with the already known knowledge and may be stored with these knowledge links.

### 2.2.3 The complex nature of words

The complex nature of words refers that a word has its classes, family, word formation, homonyms, hyponyms, synonyms and antonyms. A word can be gathered in multi-word units and has its own lexical field. Furthermore, a word can be polysemous.

Take the word *strike* as an example. *Strike*, like many words in English, belongs to at least two word classes depending on the meaning. It is both a noun and a verb. *Strike* also has the word family. Many words having the same base or root are defined in the same family (e.g. strike): striker, striking, strikingly. A word family consists of the base word with its inflexions and derivatives. Suffixes, such as –er, –ful, -cy, -ence, -ication, are common in a word family. A suffix often changes a word’s class, e.g. from a verb to a noun or adjective. Prefixes, such as *un-, de-, pre-, re-*, often change a word’s meaning. The base form *strike* includes the following members in its family: Striker / Strikes / Striking / Strikingly / Struck / Striken / Restrike.

Affixation is a popular way to make new words from old ones. Compounding is also a common way of combining two or more words to create a new one, such as *database, roommates*. In a text, readers often see multi-word units. The most common one is phrasal verbs or multi-part verbs. These multi-word items behave like single words, take *strike* as an example:

- Strike a blow for something
- Strike a pose
- Strike at
- Strike back
Multi-word units are frequently used in daily life. Their meanings are slightly or very different from the meaning of the words when taken separately. The phrasal verb is one of the most difficult constructions for second language learners to master. In addition, it is often difficult to differentiate meanings among similar phrasal verbs. For example, “Strike a blow for something” means “to do something to support something you believe is right”. It slightly connects with the meaning of *strike*. The difference between “Strike back” and “Strike down” is confusing.

Polysemy is another potential source of confusion for learners. Both single words and multi-word units in English have different but overlapping meanings (e.g. *strike*).

**Strike**

**Verb:**
1. Hit against, hit with hand etc, and make violent attack
2. Protest by not working
3. Affect somebody or something suddenly
4. When you think something
5. Press instrument or key
6. etc.

**Noun:**
1. A period of time during which people refuse to work, as a protest about pay or conditions of work
2. A military attack, especially one in which planes drop bombs on an area.
3. A hit or kick of a ball, especially one with which you score a goal or point
4. A discovery of something such as gold or oil by digging or drilling

*Strike down*
1. To make someone die or become so ill that they can no longer live a normal life
2. To hit someone with enough force to make them fall down
3. If a judge or court strikes down a law, they officially end it.

The phenomenon of polysemy in English vocabulary is a complete challenge for second language learners. How to remember the polysemous words is the question that theorists have been exploring for many years.

Another aspect of the complex nature of words is that they are connected with each other in terms of meaning or pronunciation. Homonyms, synonyms, antonyms and hyponyms call for learners’ attention. The homonyms in English vocabulary are rich, such as like, fair, shed, well, live, lead, etc. Synonyms are the words that have a similar meaning. Antonyms are the words that have the opposite meaning. The dictionary lists present all of these related words so that learners will have a clear idea about word web. However, for the slight difference in use of the synonyms, the dictionary cannot give detailed context for every word.

Words are not only connected by meaning or pronunciation, they are also in certain lexical fields. Words that have a thematic relationship belong to the same lexical field. Sunday, egg, candy, witch and painting all belong to the lexical field of “Easter”. Texts contain abundant words that belong to the same lexical field.

The complex nature of a word requires learners to adopt a suitable learning method to memorize and use words properly. The text-based approach is helpful in providing information of word class, word meaning and lexical field. The dictionary-based approach is helpful in providing the information of word family and different meanings of a word with sample sentences.

2.2.4 The way words are learned

Knowing a word entails the knowledge of its form and the knowledge of its meaning. Word knowledge includes receptive knowledge and productive knowledge. Receptive vocabulary use involves “perceiving the form of a word while listening or reading and retrieving its meaning” (Nation 2001:24). Productive vocabulary use involves “wanting to express a meaning through
speaking or writing and retrieving and producing the appropriate spoken or written word form” (Nation 2001:24). Learners firstly need to master word meaning and its context, the spoken and written form, the grammatical behaviour, the word’s deviation, the association of the word, the word frequency and its multi-word units. After understanding the whole aspect of the words, learners try to use certain words in his written or spoken expressions. Hiebert and Kamil also claim that “Receptive vocabulary is the words that we can understand recognize, and productive vocabulary is the words for which we know meanings when we speak and write” (2005:3). In general, recognition or receptive vocabulary is greater than production vocabulary (Hiebert & Kamil 2005: 3).

People need to acquire both receptive knowledge and productive knowledge of vocabulary and store them in memory. Mental lexicon theory suggests that words are not stored randomly or in the form of a list, but stored like a network (Aitchison 2003:84). In the first step, children acquire the meanings of words from three different tasks: labelling, packaging, and network building. According to the definition from Aitchison, labelling is the relationship between the subjects and the words; packaging is the classification of a number of objects under a particular label. (Aitchison 2003:85)

Aitchison also points out that in a human word-web, words seem to be organised in semantic links. There are four links: co-ordinates and collocational links, synonyms and superordinates links. The first two links are stronger than the last ones (2003:86). Co-ordinates refer to words that cluster together on the same level of detail, such as salt, sugar, pepper, or dog, cat, bear. Collocational links refer to words, which are found together with stimulus in connected speech, such as sweet candy, blue sky, lovely girl. Superordination refers to a word that includes the meaning of more specific words. For example, vehicle is the superordinate of words car and truck. Synonyms refer to a word that has the same meaning as other words. Scared, for example, is a synonym for afraid. Human use existed firm connections in conjunction with their reasoning ability to make other temporary links as they are needed.

An adult second language learners’ acquisition of vocabulary is different from children’s acquisition of the first language. The most obvious aspect is that adult L2 learners have their first
language and they have an integrated conceptual system with a complex network of words associations. In that way, they need not to label the words and set up the mental lexicon. It is quick and easy for adult L2 learners to understand the meanings and they will not confuse different categories. However, there is a shortage of ready-made conceptual systems. When adult L2 learners meet a new word, they tend to take the short cut of connecting the new words into their familiar mother tongue. Thus, the process of setting up a network of association is insufficient. It often leads to confusion and it is easy to forget the words.

From mental lexicon perspective, if learners learn words from the dictionary approach, they will get abundant information from phonological, morphological, translational and contextual aspects. They will also get the related words of synonyms, antonyms, hyponyms and collocations. For some people, they can choose the information they like to enrich their English vocabulary system. It does not involve the guessing process. As for the text-based approach, when learners meet an unfamiliar word, they may guess the meaning of the word from the context. They will imagine the objects or actions from the related information, and will not rush to map the objects. The guessing process and meaning checking are helpful to remember the words. In summary, text-based approach is helpful to set up co-ordinates and collocational links; and dictionary-based approach is helpful to set up synonyms and superordinates links.

2.2.5 Vocabulary memory

Learning vocabulary is a process of memorizing the information of words. It is an accumulating process, which has three systems: the short-term store, working memory, and long-term memory (Thornbury 2002:23). Thornbury also points out that successful vocabulary learning is more than a short time memory; it needs to be long-term memory.

According to Thornbury, the short-term store is the capacity to memorize limited information in a few seconds (2002:23). For example, repeating a word that people just heard, or dictate words that they have just learned. Working memory refers to the processing of cognitive tasks, such as understanding, reasoning and learning (Thornbury 2002:23). When people receive some word information by listening or reading, they will use their vocabulary store to retrieve related
knowledge from long-term memory. For example, when some learners meet the word “quite”, they will search in their memories and withdraw the similar words (e.g. “quiet”). Some of them then will compare the difference and similarity between these two or more words. Material remains in the working memory for about twenty seconds. The working memory has a limited capacity and no permanent content. Long-term memory refers to a filing system that people used in memorizing words. It is not a permanent vocabulary memory. It also changes from “the quickly forgotten” to “the never forgotten” (Thornbury 2002:24).

In order to achieve successful vocabulary learning, Thornbury has drawn up twelve principles for learners to transform words from the quickly forgotten to the never forgotten. The principles related to this essay are: repetition, retrieval, spacing, use, cognitive depth, personal organising, imaging, motivation, attention/arousal and affective depth (Thornbury 2002:24-25).

Crothers and Suppes found that after seven repetitions of 108 Russian-English word pairs almost all of the learners had mastered all of the words. After seven repetitions of word pairs, most learners learned at least 80% of the words (Crothers & Suppes 1967:99). Thornbury also affirms that it is better to repeat a word in different ways and different forms (2002:24). In the dictionary-based approach, learners will receive as much as repetition as they like. In the text-based approach, it needs teachers to choose or write texts that contain several repetitions of certain words.

“Retrieval” means that learners recall word knowledge from their memory. Learners are more likely to retrieve a word when they have retrieved before. The more times a learner retrieves a certain word, the quicker he retrieves later. For example, good and nice are retrieved quicker than fabulous or exquisite. People use good and nice frequently in daily life so that they retrieve these words quickly. There are activities for each approach to retrieve words. For the text-based one, teachers can ask some questions about texts and target words to help learners recall words. For the dictionary-based approach, learners can have a partner to test each other or just take relative vocabulary tests to retrieve words constantly.
“Spacing” refers to the interval between distributed practices. For example, when teaching students a new set of words, it is better to present the first two or three words, then go back and test these words before presenting new ones, then backtrack again, and so on. It urges students to retrieve words constantly. In text-based approach, some clues remind learners of the text; thus, new words are retrieved constantly. It can be done by speaking, writing or just by thinking. However, dictionary-based approach needs teachers or partners to help learners review new words constantly.

“Use” refers to learner’s activities to put words to work. Learners often use words in working memory and then renew the words in the long memory. When dealing with texts, learners can talk about or write about the main issues with target words in texts, or do some exercises about certain texts. For the dictionary-based approach, learners can make up sentences by imitating the sample ones.

“Cognitive depth” means that the depth and frequency a new word needs about cognitive decisions. The more cognitively demanding decisions are made, the better the word is remembered. In this respect, text-based approach urges learners to make decisions about the meaning of words from the context, then to understand word classes of the new words and their family members. Dictionary-based approach needs learners to make decisions about the connections that the new words connected to the old words, such as morphological analysis.

“Personal organising” refers that if learners organise new words by their own ways, and set up the networks according to his knowledge and emotion, they will remember them longer. The text-based one helps learners to organise new words in according with clues or content of texts. The dictionary-based one helps learners to organise words according to their pronunciation, synonym and morphology.

“Imaging” refers that words that can be easily visualized in a mental picture are more memorable than these are not. The text-based approach provides a perfect context for learners to have imaginations of contents, such as short stories, or the descriptions of an object, or a poem full of
poetic imagery. Dictionary-based approach can provide pictures, antonyms, synonyms and hyponyms. Learners need to connect words by themselves.

“Motivation” refers that a strong initiative to learn new words is likely for readers to spend more time on rehearsal and practice, which in end will pay off in terms of memory. Texts, especially literary texts, are motivating. Literature holds high status in many cultures and countries. For this reason, students can feel sense of achievement at understanding a piece of highly respected literature (Schulz 1981:44).

“Attention/arousal” means that improved recall seems to correlate with a high degree of attention (also called arousal). For example, words that trigger a strong emotional response are more easily recalled than ones that do not. In this sense, the text-based approach has its advantages and disadvantages. Texts motivate students to explore their feelings through experiencing those of others (Oster 1997:86). Dictionary-based approach urges learners to pay attention to the rich information and to the frequency of the target words.

“Affective depth” means that affective (i.e. emotional) information is stored with cognitive (i.e. intellectual) data, and may play an equal role in how words are stored and recalled in the memory. Learners can choose contents and types of texts. If learners are interested in one type of text, they will pay much attention to it and acquire new words quickly. If learners hate one type of content, they have the resistant emotion and refuse to learn new words from the text. They can also choose types of dictionary to recite.

In the above memory principles, the test-based approach is good for learners to make cognitive decisions about new words, retrieve and use new words. The clues of texts also call for learners’ imagination and attention. The dictionary-based approach is good for learners to repeat words, organise the word information into a personal lexicon.
2.2.6 Comparisons between the text-based approach and dictionary-based approach

Due to the complex nature of vocabulary, the two approaches have their own advantages. The text-based approach focuses on the meaning, so it is helpful for students to recognize the meaning of words, including polysemes. It has advantages in receptive vocabulary. The dictionary-based approach focuses on the use of words, so it has more advantages in the productive knowledge.

Texts provide more contexts than dictionary lists. Anderson and his colleagues also point out that “one very important value of context in learning vocabulary is that a variety of contexts will evoke a variety of enriching instantiations” (Anderson et al. 1978:149). That means in language comprehension, learners use their knowledge of the world and the analysis of the linguistic context to create particular instantiations of the words and phrases they comprehend. There is also experimental evidence to show that providing a sentence context, or several contexts, as well as a definition when learning words helps learning. Gipe and Arnold argue that contexts with definitions are superior to synonyms, short definitions, a classification task, or using the dictionary (1979:284). Nist and Olejnik demonstrate that when learners see the words in context and then look at a definition, the context helps their performance on a multiple-choice test which requires them to choose a correct example of use of the word (1995:185). It seems that text-based approach has advantages in word recognition items, such as multiple-choice tests.

With regard to the production knowledge of vocabulary, there are debates about it. The dictionary approach gives more detailed information about vocabulary instruction. Nagy points out that extensive vocabulary instruction requires giving students both definition and contextual information, such as what a word means and how it is used (2005:28). The dictionary-based approach can provide sample sentences for learners to imitate writing, while the text just gives words in context. So it seems that the dictionary-based approach has advantages at productive knowledge of words.

In the experiment, these two approaches were adopted in the materials for two groups. The two groups were tested twice to find out which approach is more effective in mastering and memorizing new words both in the receptive and productive knowledge. The results and the discussions are in the following parts.
3. Analysis and Discussion

This section is divided into four subsections. The first subsection is the analysis of materials for Group A and Group B. the second one is the analysis of the content of the test used in this research. The third part is the discussions of the test results. The discussion is from the general to the specific. At first is the discussion about the overall test results and the general conclusion. Then are the discussions about the results of multiple-choice items and sentence-making items. All the tables and histograms in this section are based on the results of the test (appendix 4).

3.1 Analysis of materials

The materials used in the tests are designed according to the mentioned theories. Group A’s material is adopted text-based approach (appendix 1). There is a text and ten targets words. The text for group A is the story “The Kingdom of the Lion” from Aesop's Fables.

The Kingdom of the Lion

The beasts of the field and forest had a Lion as their king. He was neither wrathful, cruel, nor tyrannical, but just and gentle as a king could be. During his reign he made a royal proclamation for a general assembly of all the birds and beasts, and drew up conditions for a universal league, in which the Wolf and the Lamb, the Panther and the Kid, the Tiger and the Stag, the Dog and the Hare should live together in perfect peace and amity. The Hare said, "Oh, how I have longed to see this day, in which the weak shall take their place with impunity by the side of the strong." And after the Hare said this, he ran for his life.

This text is a typical example of a linguistic object, a vehicle of information and a stimulus of production. It is also easy for learners to cause affective depth and imaging. The story makes learners to make decision about the part of speech of new words and their family members. It also makes learners imagine the story in a vivid way.

The words chosen as target words are four nouns, three adjectives, two verbal phrases and one conjunction. Proclamation, assembly, amity, impunity are four difficult words to remember and are easy to be confused with other words. Wrathful and tyrannical are two adjectives that come from the nouns wrath and tyranny. Just and long are typical polysemous words. Draw up is a common verbal phrase.
This text is good for guessing unknown words from their contexts, such as word class and word meaning. As for the new words, such as wrathful, tyrannical, students can get inspiration from the familiar words cruel. Three words wrathful, cruel and tyrannical are the coordinate and synonyms. Two words just and gentle are the antonyms to these three words in the text. Learners can guess the meanings of these adjectives from their connected content. Another example is the noun phrases of Wolf and the Lamb, the Panther and the Kid, the Tiger and the Stag, the Dog and the Hare. Learners only need to know one word of the two, and then they can guess wolf is the enemy of lamb; lamb is the weak one and wolf is the strong one; these two cannot live together in peace and amity. If learners do not know the meaning of lamb, they will search their animal knowledge to find an animal that match the implication from text.

As for the polysemous words, the text provides enough contexts for learners to remember the meaning. For example, long here is a verb, which means “want something very much”. It is not an adjective, which means “lasting long time”. The context from the text is that “how I have longed to see this day”. Here long is in its verb phrase long to do something and is used in the present perfect tense. One of its family members is longed. If learners cannot guess that it means “want to”, at least, they can see that it is a verb, and not an adjective.

Below the text in the material for Group A are the given definitions both in English and Chinese. The reasons for giving definitions are that learners can check their guessing of the new words and have the repetitive and retrieval process in their mental lexicon. Guessing definitions of new words from the texts is not accurate. On the one hand, learners may skip new words in the text and continue reading. On the other hand, learners may guess the words in a wrong or vague way. For example, the weak shall take their place with impunity by the side of the strong is the context for the word impunity. If learners understand that the sentence means the weak and strong stand together, the meaning of impunity can be pleasure, fearlessness, happiness, easiness, etc. It is wise to give a clear definition for learners to check their guessing meaning for new words.

Another reason for giving the definitions is that it is a good way for learners to repeat and retrieve new words. It involves the subtle activity of match definitions to words in the text. When learners see the definition “Proclamation: an official announcement about something important 正式的
“公告”，他们将重复“proclamation”这个词在他们的记忆中，并在他们的词汇网中检索这个新词。

如果他们有这个词的图象并猜对了它的意义，他们将更容易将它存储在长期记忆中。如果没有图象，他们将返回到文本中寻找这个词。

如果两个意义不同，他们将返回到句子来调整第一个意思来适应上下文。

重复和检索的过程帮助他们将工作记忆中的新词变成长期记忆。

The material for group B is the revised definitions of the same ten words in the material for group A. It is one example of presenting word knowledge for learners. It includes the process of choosing words, choosing word information and set up related word-webs.

The information provided in the material for the conjunction *neither... nor* is:

*Neither... nor*: something is not true of two or more people, things, actions, qualities, or ideas. e.g., “*Neither* his son *nor* his daughter was at the funeral.” “I’m sorry but I can *neither* confirm *nor* deny the allegation.”

The list includes English and Chinese translation, for the Chinese translations speed up the process of fitting new words into their integrated conceptual system. Adult learners need not to label words; they just set up a new mental lexicon with the help of the first language. English definition helps learners to check whether the new word’s concept in Chinese translation is the same one as the English concept. Giving two meaning in both English and Chinese is also a way for learners to repeat the meaning of new words. Comparing the difference or similarity of meaning written in different languages also helps learners to work on the words, such as making decision and organizing the new words in an individual way.

The examples given are two common uses of target words. One is to negate two nouns and the other is to negate two verbs. “*Neither* his son *nor* his daughter was at the funeral”. This sentence provides the context that *neither... nor* is a conjunction of the complete negation. The following predicate is in the singular form. The other example is to deny two actions. “I can *neither* confirm *nor* deny the allegation.” From this sentence, learners can guess that the *neither... nor*
can deny two actions and two objects. Learners repeatedly see the target words in context and learn to use them from typical examples.

As for the adjective, take *tyrannical* as an example, the information is:

*Tyrranical:* [ti rænikəl] [Adj.] using power in a cruel and unfair way 残暴的，专横的. Synonym: dominating, imperious, bossy. Tyrannize: [verb]. 施暴政. Tyranny: [Noun] 专制政府. e.g., “She works for a *tyrannical* new boss.” “She married to get away from her *tyrannical* mother.”

In this entry, phonological information is provided. Learners cannot only pronounce the word, but also separate the target word into small spelling parts according to the pronunciation: [ti] to *ty*, [ræni] to *ranni*, [kəl] to *cal*. Word class is also given. The reason for presenting English and Chinese meaning is the same as *neither...nor*. Synonyms of the target words are given. These words are all adjectives; they are in the same semantic field so that it is easy for learners to link them together in a word web. The reason for presenting other words from the same word family is that these words have the same root and a similar pronunciation. They are changed according to grammatical rules. In this example, *Tyranny* is the root. When a word is inflected, *y* is often changed to *i*, the suffix *–ize* is often used to change a noun to a verb, the suffix *–cal* is often used to change a word to an adjective.

Two example sentences are given which provide the contexts and the collocation links for learners, such as *tyrannical new boss*. Learners can also reflect the word knowledge in the sentences, such as word class, word meaning and word association. This involves several working processes, thus it is more possible to store the words in the long-term memory.

### 3.2 Analysis of the content of the test

After reading the material in a limited time, there was an immediate test and delayed test for these target words. The test aimed to find out how much word knowledge learners could master and memorise. It also included the process of repetition, retrieval and use. Doing the test is one kind of repeated rehearsal of material. The test has two parts, multiple-choice items and making-up sentence items. The seven multiple-choice items in “A Test for Vocabulary” are a combination to recognise definition, synonym and context for the target words. They are
designed not only for learners to separate target words from other words which have similar forms or meanings in their word-web, but also need to fix them in their proper contexts.

Item one is to choose the synonym for *assembly*, answer A is the right one; answer B is to confuse *assembly* with the word *resemble* which means *look similar*. Some learners also are deceived by the suffix *ly*, which is a sign of adverb. Answer C is confusing because these two words have the same part *asse-*, which gives the image that they are in the same word family.

Item two, three, six and seven are the questions to test the words and their meanings. Item two is to choose the right definition for target word *wrathful*. Answer B is the meaning of the word *wreck*; answer C is the opposite meaning of *wrathful*. Item three is also to choose the right word for the definition. *Amity* is easy to be confused with the word *enmity*, which means “a feeling of strong dislike or opposition between people”. *Antipathy* looks similar to *sympathy*, which means “a feeling of kindness”. Item six is to choose the meaning for *Proclamation*. Answer A is the meaning of the word *possession*. Answer B is the meaning of the word *quantification*. If learners confuse some words, they will choose the wrong answer. Item seven is to choose the word from a given meaning. *Impartial* means ‘not connected to or influenced by one particular person or group’. *Penalty* means ‘punishment’. *Impartial* and *impunity* looks similar, and *penalty* is the opposite meaning of *impunity*.

Items four and five are the questions to test words and their contexts. Item four is to choose the right meaning for the certain context. The three answers are three different meanings for the word *just*. In answer A, the meaning is proper for the context: our king is the only ruler. However, when *just* means “the only one”, *just* is an adverb. Answer C “happened recently” is one meanings of *just*. Item five is also to choose the right word context. Answer B *typical* is an adjective but it does not fit in the sentence. Answer C *tyrannize* is the verb of *tyranny* which needs learners to distinguish the difference in the same word family.

This part also recalls word knowledge, which involves activities of repetition, retrieval and cognitive depth. Doing test makes learners repeatedly see the target words and retrieve words from memory to choose a proper one. Through this process, learners make many decisions about
the target word, such as its word class, word family, word meaning and word context. Through plenty of working process of target words, learners tend to store new words in the long-term memory. Seven multiple choices are the recognition of the target words. They aim to test the receptive vocabulary. The researcher chose words from similar morphological, phonological, grammatical and polysemous aspects to confuse test takers. The score of this part can show the learners mastery of words meaning.

Items eight to ten is to test learners’ productive ability of the target words. *Neither, nor, draw, up* and *long* are the familiar words for learners in the university. However, for the phrase, the meanings and usages are different from single words. The receptive knowledge of these three words is easy for most of them. In this test, they need to make up a sentence for each. The focus of making up sentence is to test the comprehension of the target phrases. Grammar and spelling mistakes of other words in the sentences are not criticized.

*Neither...nor* is to test that how to parallel two negative items, such as two nouns, two verbs or two adjectives; and when *neither...nor* is the subject of the sentence, what form is the following predicate, is it in the singular or plural form? This is the knowledge to test. *Draw up* here means ‘to prepare and write something such as a document or plan’; it is easy to be confused with the word *draw*. *Long to* is to test whether learners confuse it with the adjective *long*, so that they change the verbal phrase *long to* to the adjective phrase *be long to*.

In this part, there is no clue to retrieve definition from memory. What they have is all the knowledge in the mind. Making up sentences is the activities to use certain words to express oneself in a proper context. These tasks require retrieval, use, cognitive depth, and personal organizing. To finish this task, the first step is to retrieve the meaning of the phrase. If learners have problems in the first step, it is impossible for them to use word phrases properly in context. If learners retrieve word meaning without difficulty, then they need to retrieve the contexts and put the words to use. It also needs personal organizing. Learners need to write a sentence to express themselves. This part is to test learners’ mastery of word usage.
Two weeks later, the learners were tested again with the same test. In the delayed test learners need to retrieve the word knowledge. It involves five memory activities: repetition, retrieval, use and cognitive depth. Learners repeatedly see the items and retrieve word form and word context in their memory. They make several decisions for using them properly and have a deep impression of the words. If they cannot retrieve the word knowledge, it indicates that they have not stored the words in the long-term memory. If they retrieve the word knowledge in a wrong way, they need to correct their knowledge. The delayed test is to test whether learners’ receptive and productive knowledge is long-term memory or not.

3.3 Discussion of the test results

This section has three parts. The first one is the discussion about the overall test results. The conclusion of the first part is that the text-based approach is more effective than the dictionary-based approach. The immediate test results show the two approaches are both effective for learners to mastering and memorizing the word knowledge. The delayed test results show the text-based approach is more effective in the long-term memory than the dictionary-based approach. The following part is the discussion about the multiple-choice items. The last part is the discussion about sentence-making items. These two parts also have discussions of the specific mistakes committed by the participants. The discussions of the items shows that both in acquiring receptive knowledge and productive knowledge, the text-based is more effective than the dictionary-based approach.

3.3.1 Discussion of overall test results

The total score of the test is 10. Group A adopted text-based approach. Group B adopted dictionary-based approach. The first test is the immediate test, and the second test is the delayed test two weeks later. Participants A, B, C, D, E and F are in Group A. Participants A’, B’, C’, D’, E’ and F’ are in Group B. Participant A in Group A and participant A’ in Group B have similar language abilities. Other capital letters have the same meaning (e.g. Participant C in Group A and participant C’ in Group B have similar language abilities). The score slide is the amount of the reduction of test scores. It is calculated by the formula: \((\text{first test score-second test score})/\text{first test score}=\text{score slide}\) (Champagne & Roberts 1977:143-146).
Table 1: Results for Group A

<table>
<thead>
<tr>
<th>Participant</th>
<th>First test score</th>
<th>Second test score</th>
<th>Score slide %</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>7.5</td>
<td>6.5</td>
<td>13.3%</td>
</tr>
<tr>
<td>B</td>
<td>9.5</td>
<td>9.5</td>
<td>0</td>
</tr>
<tr>
<td>C</td>
<td>9.5</td>
<td>9.5</td>
<td>0</td>
</tr>
<tr>
<td>D</td>
<td>10</td>
<td>9.5</td>
<td>5%</td>
</tr>
<tr>
<td>E</td>
<td>9</td>
<td>9.5</td>
<td>0</td>
</tr>
<tr>
<td>F</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>9.25</strong></td>
<td><strong>9.08</strong></td>
<td><strong>1.84%</strong></td>
</tr>
</tbody>
</table>

Table 1 shows that most of the learners in Group A have high scores in both tests, which indicates that learners gained almost all the information in the materials. They mastered the word knowledge through reading the story and memorizing the pointed target words. With the exception of participant A, other participants’ accuracy of the tests is more than 90%. The score slide between the two tests is also small. Four of them had no score slide, one got 5% slide and another got 13.3%. It indicates that text-based approach facilitates learners to master most of word knowledge and memorise word knowledge in the long-term memory.

Table 2: Results for Group B

<table>
<thead>
<tr>
<th>Participant</th>
<th>First test score</th>
<th>Second test score</th>
<th>Score slide %</th>
</tr>
</thead>
<tbody>
<tr>
<td>A’</td>
<td>10</td>
<td>5.5</td>
<td>45%</td>
</tr>
<tr>
<td>B’</td>
<td>7</td>
<td>6</td>
<td>16.7%</td>
</tr>
<tr>
<td>C’</td>
<td>9</td>
<td>5</td>
<td>44.4%</td>
</tr>
<tr>
<td>D’</td>
<td>8.5</td>
<td>6.5</td>
<td>23.5%</td>
</tr>
<tr>
<td>E’</td>
<td>9</td>
<td>8</td>
<td>11.1%</td>
</tr>
<tr>
<td>F’</td>
<td>8.5</td>
<td>8.5</td>
<td>0</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>8.67</strong></td>
<td><strong>6.58</strong></td>
<td><strong>24.1%</strong></td>
</tr>
</tbody>
</table>
In table 2, the data suggests that learners in this group have done a good job in the first test, which means that the dictionary-based approach had a good effect on the learners of memorizing the word knowledge in the immediate test. However, in the second test, most achieved lower scores. The average accuracy rates of the group fell from 86.7% to 65.8%, which means the dictionary-based approach is not helpful in the long-term memory.

Lessard suggests that different language level learners receive information in different ways and produce them in different degrees. Besides, different approaches have different influence to different language level learners (Lessard 2006: 176).

In this research, A and B in Group A were the lower-level learners. A’s score slide is 13%, which was the highest one in Group A, B’s score slide was zero. C and D was the intermediate level learners, D’s score slide was 5%, which was the second highest one in the group. E and F were the higher-level learners; both of them had no score slide. From these data, it can be seen that higher-level learners master word knowledge in long-term more obvious than the lower level and intermediate learners in text-based approach.

In Group B, the lower level learners A’ and B’ scores fell quite significantly. (A’)’ score fell from the perfect score to almost half of the total score. Her score slide was 45 percent \([(10-5.5)/10=0.45]\) that was the highest slides between the two groups. B’ also had a score slide of 16.7%, even higher than participant A in Group A. C’ and D’ is the intermediate level learners, (C’)’ score slide was 44.4% and (D’)’s was 23.5%. Fortunately, higher-level learners fell in slight scopes. The results indicate that in the dictionary-based approach, lower level and intermediate learners forget the word knowledge more easily. The higher-level learners’ performances in tests are similar.

<table>
<thead>
<tr>
<th>Group</th>
<th>average score of first test</th>
<th>average score of second test</th>
<th>average score slide %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>9.25</td>
<td>9.08</td>
<td>1.84%</td>
</tr>
<tr>
<td>Group B</td>
<td>8.67</td>
<td>6.58</td>
<td>24.1%</td>
</tr>
</tbody>
</table>
The table 3 shows, the average score of Group A is 5.8% \[\frac{(9.25-8.67)}{9.25}=0.058\] higher than the average score of Group B in the first test. In the second test, the average score of Group A was 25% \[\frac{(9.08-6.58)}{9.08}=0.25\] higher than the average score for Group B. It can be suggested that both in the first and second tests, learners in Group A did better performances than Group B learners. It means that text-based approach can make students remember the word knowledge for a longer time and use words in a more correct way than dictionary-based approach in both immediate test and delayed test.

Furthermore, the average score of Group A slid from 9.25 in the first test to 9.08 in the second test, which is 1.8 percent \[\frac{(9.25-9.08)}{9.25}=0.018\] slide. However, Group B’s average score slid from 8.67 to 6.58, which was 24.1 percent \[\frac{(8.67-6.58)}{8.67}=0.241\]. Group B’s slide in the two tests was 22.3 percent higher than for Group A. From all the data, it can be suggested that the test-based approach make test performance steadier than the dictionary-based one. Bachman claims that a steady performance means learners have steady language abilities (Bachman, 1996). It can also be suggested that Group A learners could retrieve new words in the right way and had a long-term memory of the new words. It also indicates Group B students’ memory is more like working memory not long-term memory.

In conclusion, the test results indicate that the text-based approach is more effective in mastering and memorising new words in the long-term memory than the dictionary-based approach.

3.3.2 Discussion of multiple-choice items

This section focuses on the analysis of the data and information collected from the multiple-choice items in two tests. The accuracy of the multiple-choice items in two groups is analyzed. The mistakes made by learners are also analyzed.

Histograms 1,2,3,4 display the results of the multiple-choice items. In histograms 1 and 2, the white columns stand for the scores of the first test, and the black columns for the scores of the second test. Capital letters (e.g. A, A’) have the same meanings as in the table 1 and table 2 (page28-29). Numbers 1, 2, 3, 4, 5, 6, and 7 stand for the testees’ scores in the multiple-choice
questions. The total score of multiple-choice items is seven. If a testee chose six right answers and one wrong answer, his/her overall score was six in this part.

Histogram 1 shows the test results of Group A’s participants in the immediate test and the delayed test. Histogram 2 shows the test results of Group B’s. Histograms 1 and 2 can provide comparisons of the two results in the same group.

Histogram 1 presents the results of two tests of group A. The performance of this group is generally good in both tests. With the exception of A, the students answered all questions correctly in both tests.

Participant A chose the wrong answer for item 4 in the first test. He selected answer A ‘the only one’ instead of the correct answer B. In the second test, he made mistakes in items 1 and 4. He confused assessment with assembly. He was also confused about the word just, in the second test. He chose “happen recently” for the meaning of just instead of “kind-hearted, reasonable”. As the histogram demonstrates, the other learners achieved full scores in the two tests, which meant that they had mastered word knowledge in long-term memory. They could recognize the target words and recall the meaning of the new words in their context, and fit the right words into the relevant context. Their receptive knowledge of vocabulary is deemed good.
Histogram 2 is the results from Group B. In the first test, A’, C’ and D’ scored 100%, while B’, E’ and F’ chose six right answers and a wrong one. B’, E’ and F’ all confused assessment with assembly; they all chose answer C assessment instead of correct answer A meeting. It seemed that they thought assessment and assembly were in the same word family. The reason for this is that in the dictionary-based approach, assemble was provides as the verb of assembly. Learners might think assemble was the verb, assessment was the noun and assembly was the adverb.

In the second test, the learners’ answers are less accurate. The average score for group B is five. Participants A’, B’, C’, E’ and F’ chose the wrong answer for item 1. A’, B’, E’ and F’ all chose answer C assessment instead of answer A meeting. C’ chose answer B similarly instead of answer A meeting. The word assembly belongs to the class of words that are deceptively transparent. They look as if they provide clues to their meaning. Assembly looks like an adverb changing from the verb assemble. Answer C assessment appears to be the noun form of the verb assembles.

In summary, the results in histograms 1 and 2 indicate that dictionary-based approach has an effective gain for learners in mastering and memorising new words in the immediate test. However, in the delayed test, this approach cannot make learners retrieve word knowledge in an effective and correct way. The memory of word knowledge learning by dictionary-based approach is not long-term memory. However, the text-based approach has an effective gain for learners in both tests which means this approach makes learners store word knowledge in the long-term memory.
In histograms 3 and 4, the white columns represent group A’s scores, and the black columns group B’s. The number stands for the score of multiple-choice items; the total score is seven. Capital letters (e.g. A, A’) have the same meanings as in the table 1 and table 2 (page28-29). Histogram 3 shows the comparison of the results from Group A and Group B in the immediate test. Histogram 4 shows the comparison of the results from Group A and Group B in the delayed test.

Histogram 3  Results for Group A and Group B in the first test

Histogram 3 shows the results of the first test completed by the two groups. The average score of group A is \( (6+7+7+7+7+7)/6=6.83 \). The average score of group B is \( (7+6+7+7+6+6)/6=6.5 \). Group A’s average score is higher than the average score in Group B in the multiple-choice items. Thus, learners in Group A mastered new words more effectively than learners in Group B did. However, the gap of the rate of accuracy is not large. Students in both groups remember new words and recall the word knowledge in more than 90%. In summary, in the immediate test, both approaches have effective influence for learners to recognise new word in the multiple-choice items.

The first test was completed immediately after the testees had finished reading the materials. The results indicate the two approaches have effective influence for learners to recognise new words in the multiple-choice items, and the text-based approach is more effective in recognising word meanings. The second test was performed two weeks after the first test. From histogram 4, it shows that every learner in Group A has more than one score higher than Group B, showing that the text-based approach is more effective in the long-term memory of the meanings of new words.
Histogram 4 displays the results of the second test. The average score of group A is \( \frac{5+7+7+7+7+7}{6}=6.67 \). The average score of group B is \( \frac{4+6+4+5+6+6}{6}=5.17 \). In the second test, Group A’s average score is 22.4 percent higher than Group B’s average score. The second test took place two weeks later after the first, and thus tested the learners’ long-term memory. The results indicate that the Group A learners retained words longer than Group B learners, demonstrating that text-based approach is more effective to retain the word knowledge than dictionary-based approach.

In conclusion, the results displayed in the four histograms above demonstrate that the members of group A achieved higher scores than Group B in the multiple-choice items in the two tests. It means that text-based approach is more effective to recognise the word knowledge (such as word meaning) and is longer for learners to memorise the new words than the dictionary-based approach.

### 3.3.3 Discussion of the sentence-making items

In the production part, the principle to score this part is that: if the testees get the right meaning in the context, they are rewarded 0.5 point. The other 0.5 point is rewarded when they use the target words in a proper grammatical way in the sentences.

The scores are displayed in Table 4. The results show that the average scores of Group A in the two tests are higher than Group B’s, which means text-based approach is more effective in the production of words than the dictionary-based approach. The data also indicates that Group A’s
average scores of two tests are the same; however, Group B has a score slide of 39.4% from the first test to second test, demonstrating that text-based approach is more effective for learners to remember the usages of new words than dictionary-based approach.

Table 4: The scores of sentence making items for Group A and Group B

<table>
<thead>
<tr>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>participant</td>
<td>First test</td>
</tr>
<tr>
<td>A</td>
<td>1.5</td>
</tr>
<tr>
<td>B</td>
<td>2.5</td>
</tr>
<tr>
<td>C</td>
<td>2.5</td>
</tr>
<tr>
<td>D</td>
<td>3</td>
</tr>
<tr>
<td>E</td>
<td>2</td>
</tr>
<tr>
<td>F</td>
<td>3</td>
</tr>
<tr>
<td>Average score</td>
<td>2.41</td>
</tr>
</tbody>
</table>

According to the data in table 4 and appendix 4, participant A and B’ refused to do parts of the making up sentence task. It implies that the lower-level learners tend to be unwilling to produce new words in sentences. They had less motivation than the higher-level learners. The average performance of Group A was steady; however, the average performance of Group B changed by 39.5 percent \( \frac{(2.33-1.41)}{2.33} = 0.395 \). The results indicate that the text-based approach makes learners produce new words in contexts in a steadier and more proper way than the dictionary approach.

In Group A, most learners used such phrases as *neither...nor* and *draw up* in a perfect way and got full score. Participant F used the words in the sentences “The king is neither wrathful nor tyrannical” and “They draw up a brief proclamation”, which were from the sentences “He was *neither* wrathful, cruel, *nor* tyrannical”, “he made a royal *proclamation* …and *drew up* conditions for a universal league” in the short story in the material. It indicates that the story makes a deep impression in the participant’s memory. Learners had problems with the phrase *long to*. Participant A refused to make up the sentence for this phrase; participants B and E used the word *long* as an adjective not as a verb. The wrong sentence they made were “he was long to
have more chance to get close to the girl” and “I am long to play basketball”. The correct usage was that “he longs/longed to” or “he is longing to”. Long to is a verb and not an adjective. In Group A, from their performance, it shows that learners’ performances in the first and second tests are similar. The mistakes the participants made the first time would be made again the second time. The sentences the same person made were similar, just changing the subject and object. It can be suggested that the first sentence-making processes are important. Learners tend to retrieve and produce words in their individual ways with slight changes.

In group B, with the exception of D’ and F’, other participants dropped at least 1 point from the first test to the second test. The average score slide is 39.5 percent \[\left(\frac{2.33-1.41}{2.33}\right)=0.395.\] Participant A’ has the highest score slide in Group B which is 50 percent \[\left(\frac{3-1.5}{3}\right)=0.5).\] Participant B’ got the lowest score because he only did one item of sentence making items in two tests. Participant A’ and B’ were the lower-level learners in Group B. It indicates that the dictionary-based approach did not make lower-level learners be willing to produce new words. The mistakes the learners made in this part were the usage of the phrases draw up and long to. Participant A’, C’ and D’ confused the meaning of draw up to read or write. The wrong sentences were “teacher draw up some news for us today”, “he draw up a good way to solve the problem”, or “he draws up very clean”. In these three sentences, the learners did not comprehend the meaning of the phrase or confused the meaning with the word draw. The learners also had the same problem of the phrase long to in Group B. Participants C’ and D’ made the sentences, as “I am long to see a sea”, “I am long to receive the aception from university”. These learners knew the meaning of long to, but they regarded the verb long as an adjective.

In the productive part, learners got scores of the meanings of target words, but lost scores of words’ grammatical rules. In both approaches, learners made the same mistakes in the second test as in the first test. However, the text-based approach has obvious effectiveness in mastering and memorising the word meanings.
3.4 Limitations of the research

After finishing the research and analysis, the researcher found that this study has several limitations: this is a case study, the number of participants is twelve and they come from the same class. The number of participants is relatively small which makes a limited generalizability of the results. Second, due to the small number of participants, the researcher has not used inferential statistics, such as SPSS. Third, the multiple choice testing is always easy to randomly guess, and the productive part of test needs to be scored objectively by the researcher; therefore, different testing formats need to be used to test language ability, such as gap filling or word spelling. However, these limitations do not negate the purpose of the study, which is to compare the text-based approach and the dictionary-based approach. The result is that the text-based approach is more effective than the dictionary-based approach in the time duration of the meaning of words in students’ memory and students’ mastery of word knowledge.

4. Summary and Conclusion

The introduction introduces a popular phenomenon in a Chinese university and presents two vocabulary learning approaches: text-based approach and dictionary-based approach. The aim is to compare the effectiveness of these two approaches in learners’ mastery of words and long-term memory of words.

The method used in this research is immediate and delayed tests between two groups’ learning in different approaches. The materials in this research are a text with ten target words for Group A and the same ten words with revised definitions from dictionary for Group B. The same test is also used for both groups.

The section of theoretical background not only makes a review of previous research related with second language acquisition but also provides background information for the following analysis. To begin with, the focus is on the two approaches. Text-based approach uses text as a linguistic object, vehicle of information and a stimulus of production, in which learners can guess the word class, word meaning and multi-word units and has its own lexical field from the text. The other
is dictionary-based approach. This is a revised version for learners which includes a word’s spelling, its pronunciation, meaning, grammar, collocations, derivatives, style and connotations.

Then the complex nature of words and the way words are learned are introduced. These two approaches have their own focus on the words. The text-based one is supposed to be good for learners to memorize meaning and recognize words in multiple-choice items; the dictionary-based one is good for learners to understand the overall aspects of words and produce words in an imitated way. The mental lexicon theory asks learners to connect words to others through coordination, collocation, superordination and synonymy. The text-based approach is good for learners to acquire coordination and collocation; the dictionary approach is good at providing information of superordination and synonymy.

Mastering word knowledge is the first task for learners, memorizing words in long-term memory is another task. In that way, memory principles are introduced. There are also several principles for learners to memorize words in the long-term memory. The text-based approach is good for learners to make cognitive decisions about new words, retrieve and use words. The clues of texts also call for learners’ imagination and attention; dictionary approach is good for learners to repeat words, organise new word into the personal lexicon.

The following section of the analysis is the analysis of test material for Group A and Group B. The test materials are in typical design of these two approaches. Then there is the analysis of the design of two parts in the test. The complex nature of words and the associations of words are tested. Recognizing words’ meanings and producing words in sentences are also tested. One contains multiple choice items which is to test learners’ recognition of new words, and the other is items of making up sentences which is to test the productive knowledge.

Then the researcher discusses the test results from Group A and Group B. The results of the immediate test are the degree of learners’ mastery of new words. The results of the delayed test are the long-term memory of new words in learners’ mental lexicon. Learners in Group A showed statistically more significant gains in their vocabulary knowledge in the two tests than Group B learners, and Group A learners memorize new words longer than Group B learners.
Tables and histograms are used for the sake of clarity. Thus, the effectiveness of the two approaches in time duration of word knowledge in students’ memory and students’ mastery of word usages is clear. The text-based one is a more effective approach in learners’ mastery of words and long-term memory of words.
References


Sauveur, L. (1874). *An Introduction to the Teaching of Living Languages without Grammar or Dictionary*. Boston: Schoenhof & Moeller


Appendices

Appendix 1

Material for Test (Group A)

Dear students,
I’m very thankful for your participation in this vocabulary test. This test investigates the strategies used by non-English major students when learning English vocabulary. First, read the text carefully and memorize the meaning and use of the words in bold. You have ten minutes for this. You will then be tested on these words. You have ten minutes for the test. You may not consult with anyone else. No dictionary is allowed. Please note that you have only ten minutes to complete the task.

The Kingdom of the Lion
The beasts of the field and forest had a Lion as their king. He was **neither wrathful**, cruel, **nor tyrannical**, but **just** and gentle as a king could be. During his reign he made a royal **proclamation** for a general **assembly** of all the birds and beasts, and **drew up** conditions for a universal league, in which the Wolf and the Lamb, the Panther and the Kid, the Tiger and the Stag, the Dog and the Hare should live together in perfect peace and **amity**. The Hare said, "Oh, how I have **longed to** see this day, in which the weak shall take their place with **impunity** by the side of the strong." And after the Hare said this, he ran for his life.

Definitions:
**Neither…nor:** something is not true of two or more people, things, actions, qualities, or ideas.
**Wrathful:** extremely angry
**Tyrannical:** using power in a cruel and unfair way
**Just:** making judgments in a way that is reasonable and morally correct
**Proclamation:** an official announcement about something important
**Assembly:** a meeting of a group of people for a particular reason
**Draw up:** to prepare and write something such as a document or plan
Amity: a friendly relationship, especially between nations or groups of people 友好关系

Long to: a strong desire 渴望

Impunity: without any punishment for doing something wrong. (惩罚)免除

Appendix 2

Material for Test (Group B)

Dear students,
I’m very thankful for your participation in this vocabulary test. This test investigates the strategies used by non-English major students when learning English vocabulary. First, read the text carefully and memorize the meaning and use of the words in bold. You have ten minutes for this. You will then be tested on these words. You have ten minutes for the test. You may not consult with anyone else. No dictionary is allowed. Please note that you have only ten minutes to complete the task. (您将有十分钟记忆加粗单词，另外十分钟完成答卷，请独立完成。)

(Noun, 名词/ Adj. 形容词/ Adv. 副词/verb 动词 phrasal verb 动词词组/ synonym 同义词/ e.g. 举例)

Definitions:
1. Neither…nor: something is not true of two or more people, things, actions, qualities, or ideas. 既不….也不… e.g.， “Neither his son nor his daughter was at the funeral.” “I’m sorry but I can neither confirm nor deny the allegation.”

2. Just: [dʒʌst] [Adj.] making judgments in a way that is reasonable and morally correct. 正直的。 Synonym: reasonable, kindhearted, fair. Justice: [Noun]公正。 e.g.， Lincoln is a kind and just man.

3. Tyrannical: [tɪˈrænɪkl] [Adj.] using power in a cruel and unfair way 残暴的，专横的。 Synonym: dominating, imperious, bossy. Tyrannize: [verb], 施暴政。 Tyranny: [Noun]专制政府。 e.g.， “She works for a tyrannical new boss.” “She married to get away from her tyrannical mother.”

4. Wrathful: [ˈrɑːθfʊl] [Adj.] extremely angry 愤怒的。 Synonym: angry, indignant, raging. Wrath: [Noun].怒火 e.g. “My mother was wrathful with my lying.”
5. **Amity**: ['æmiti] [Noun]. A friendly relationship, especially between nations or groups of people. Synonym: friendliness, harmony, peace. e.g., “For a country, amity between nations is very important.”

6. **Assembly**: [ə'sembli] [Noun]. A meeting of a group of people for a particular reason. Synonym: meeting, gathering, congregation. Assemble: [verb]. e.g., “People have the rights of assembly and expression.”


9. **Draw up**: to prepare and write something such as a document or plan. Synonym: draft, make out. e.g., “A committee was appointed to draw up a new constitution.” “He is drawing up a plan.”

10. **Long to**: a strong desire. Synonym: want to, desire. e.g., “She longed to return home.” “He longs for his father to return home.”

Appendix 3

**A Test for Vocabulary**

Name: Sex: Class: Age:
1. Choose the alternative (A, B, C) which is closest in meaning to the word assembly:
   A. meeting B. similarly C. assessment

2. **wrathful** means  
   A. extremely angry  B. badly damaged  C. very glad

3. One word that means a friendly relationship is
   A. antipathy B. enmity C. amity

4. Our king is a just ruler. Just here means:
   A. the only one  B. kindhearted, reasonable  C. happened recently

5. He is a harsh _____ husband.
A. tyrannical               B. typical                 C. tyrannize

6. *Proclamation* means:
A. something that you own      B. a quantity of something       C. an official announcement

7. Choose one word that means to *freedom from any risk of being punished* is
A. impunity                 B. impartial                    C. penalty

8. neither…nor
making up a sentence:__________________________________

9. draw up
making up a sentence:__________________________________

10.long to
making up a sentence:__________________________________

Appendix 4

Test results from group A and group B  

<table>
<thead>
<tr>
<th>Group</th>
<th>1st</th>
<th>2nd</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Participant A: 1st: 1-7 AACAACA  
8. blank. (p.0).
9. I want to draw up a plan for the holiday. (p.1)
10. Tom long to an English-Chinese dictionary. (p.0.5)

2nd: 1-7CACCACA  
8. I don’t wanner neither to go to play the basketball nor to play football, because I am so tired. (p.1)
9. I haven’t draw up the plan of the coming holiday. (p.0.5).
10. blank (p.0).

Participant B: 1st: 1-7 AACBACA  
8.I neither like panda nor peg. (p.1)
9.I draw up a proclamation. (p.1)
10.I am long to play basketball. (p.0.5)

2nd: 1-7 AACBACA  
8. my friends neither like lion nor fox. (p.1)
9.The teacher draw up a proclamation. (p.1).
10.He is long to have a girl friend. (p.0.5)

Participant C: 1st: 1-7 AACBACA  
8.he is neither here nor there, he is at home now. (p.1).
9.she has draw up a new plan. (p.0.5)
10.We are longing to have a holiday. (p.1).

2nd: 1-7 AACBACA 8.neither you nor she, I’ll go to the meeting. (p.1).
9.She has draw up a new plan, I will show you at time. (p.0.5)
10.I am longing to have a holiday. (p.1).
Participant D: 1

8. I want to sleep, neither having class nor having breakfast. (p.1)
9. My classmate draws up a document today. (p.1)
10. My mother longs to make a good life for me. (p.1)

2

8. I want to eat lunch, neither writing anything nor go fishing. (p.0.5)
9. My father draws up a plan this morning. (p.1)
10. I long to eat lunch now very much. (p.1)

Participant E: 1

8. He was neither go to shopping nor go to movie. (p.0.5)
9. The captain has drew up a file about the salary. (p.1)
10. He was long to have more chance to get close to the girl. (p.0.5)

2

8. My mother neither like watching football nor basketball. (p.1)
9. The leader draws up a paper about rules. (p.1)
10. I am long to have more money to go to shopping. (p.0.5)

Participant F: 1

8. the king is neither wrathful nor tyrannical. (p.1)
9. They drew up a brief proclamation. (p.1)
10. He longed to the coat very much. (p.1)

2

8. the king is neither wrathful nor tyrannical. (p.1)
9. They drew up a brief proclamation. (p.1)
10. I longed to the sweater very much. (p.1)

Group B:

Participant A’: 1

8. He neither need others help nor help others. (p.1)
9. Please draw up a proclamation for the test. (p.1)
10. In the school, I long to have a new teacher. (p.1)

2

8. I think some people neither need help nor help others. (p.1)
9. Teacher draw up some news for us today. (p.0)
10. Sometime I long to some money for me. (p.0.5)

Participant B’: 1

8. blank (p.0)
9. He will draw up the laws. (p.1)
10. blank (p.0)

2

8. blank (p.0)
9. He will draw up the laws. (p.1)
10. blank (p.0)

Participant C’: 1

8. neither she does nor her. (p.0.5)
9. Our government draw up a article to claim the north sea belonging to china. (p.1)
10. I am long to making much money. (p.0.5)

2

8. neither she does nor her. (p.0.5)
9. He draw up a good way to solve the problem. (p.0)
10. I am long to receive the acception from university. (p.0.5)
Participant D’: 1\textsuperscript{st}: 1-7 AACBACA 8. neither he nor I am a teacher. (p.1) 
9. He draws up in a paper. (p.0).
10. I am long to the sea. (p.0.5)
2\textsuperscript{nd}: 1-7ABCBBCA 8. he is neither a teacher nor a student. (p.1) 
9. he draw up very clean. (p.0).
10. I am long to see a sea. (p.0.5)

Participant E’: 1\textsuperscript{st}: 1-7 CACBACA 8. I am neither a student nor a boy, in fact, I am a girl. (p.1) 
9. I draw up a story. (p.1)
10. He longs to own a car. (p.1)
2\textsuperscript{nd}: 1-7 CACBACA 8. he is neither a teacher nor a doctor. (p.1) 
9. I draw up a diary. (p.0).
10. I longs to own a car. (p.1)

Participant F’: 1\textsuperscript{st}: CACBACA 1-7 8. he neither plays basket nor watches TV. (p.1) 
9. The government draws up a new law. (p.1)
10. I long to a bottle of water when I am thirsty. (p.0.5)
2\textsuperscript{nd} 1-7 CACBACA 8. she neither plays basket nor watches TV. (p.1) 
9. The school draws up a new law. (p.1)
10. I long to a bow of rice when I am hungry. (p.0.5)

Correct answer of multiple choice items: 1-7 AACBACA