



UNIVERSITI PUTRA MALAYSIA

***USE OF NONWORD AND SENTENCE REPETITION TASKS WITH
MANDARIN-ENGLISH BILINGUAL CHILDREN IN MALAYSIA***

WOON CHAI PING

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**USE OF NONWORD AND SENTENCE REPETITION TASKS WITH
MANDARIN-ENGLISH BILINGUAL CHILDREN IN MALAYSIA**

By

WOON CHAI PING

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia,
in Fulfilment of the Requirement for the Degree of Master of Arts**

January 2015



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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment
of the requirement for the degree of Master of Arts

**USE OF NONWORD AND SENTENCE REPETITION TASKS WITH
MANDARIN-ENGLISH BILINGUAL CHILDREN IN MALAYSIA**

By

WOON CHAI PING

28 January 2015

Chair: Associate Professor Yap Ngee Thai, PhD
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Nonword repetition (NWR) and sentence repetition (SR) tasks have been used in measuring children's expressive language skills in normal and abnormal language development and language learning, as well for surveying the proficiency of bilingual language development. Researchers often use NWR to study the mechanisms of phonological short-term memory underlying children's language learning, whereas SR might assess not only short-term memory but also long-term memory. Recently, NWR and SR tasks have been recognized as a potential psycholinguistic tool to identify bilingual children with specific language impairment (SLI). NWR and SR tasks are easy and quick to conduct, and useful tools for obtaining quantitative and qualitative information about children's lexical and morphosyntactic knowledge, as well as language development in a complex linguistic background. This study reports the results of the performance of NWR and SR tasks among bilingual Mandarin-English preschoolers, between the age four to six. The tasks were conducted in two languages: Mandarin and English, to investigate how bilingual children would perform in NWR and SR tasks in different age groups, and also to examine the type of frequent error patterns found among different age groups in the repetition tasks. Overall task accuracy in each language was compared; phoneme and grammatical errors in NWR and SR tasks were described qualitatively. The overall results showed that the older children performed better than the younger children; and children performed better in the Mandarin tasks, compared to the English task. There was an indication that language knowledge and language experience influenced the performance on the tasks. The study also showed that the grammatical errors found in the SR tasks may have potential of being used to distinguish children with typical and atypical language development.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sastera

**PENGGUNAAN TUGASAN NONWORD DAN PENGULANGAN AYAT
DALAM KALANGAN KANAK-KANAK DWIBAHASA MANDARIN-
INGGERIS DI MALAYSIA**

Oleh

WOON CHAI PING

Januari 2015

Pengerusi: Profesor Madya Dr.Yap Ngee Thai, PhD

Fakulti: Bahasa Modern dan komunikasi

Tugasan pengulangan bukan kata (*nonword*) (NWR) dan pengulangan ayat (SR) telah digunakan bagi mengukur kemahiran bahasa ekspresif kanak-kanak dalam perkembangan bahasa normal dan tidak normal, serta meninjau kecekapan perkembangan dwibahasa. Penyelidik kerap menggunakan NWR untuk mengkaji mekanisme ingatan jangka pendek fonologikal yang mendasari pembelajaran bahasa bagi kanak-kanak, manakala SR bukan sahaja boleh menilai ingatan jangka pendek tetapi juga ingatan jangka panjang. Baru-baru ini, tugas NWR dan SR telah diperakui sebagai sebuah alat psikolinguistik yang berpotensi untuk mengenal pasti kanak-kanak dwibahasa dengan gangguan bahasa tertentu (SLI). Tugas NWR dan SR mudah dan cepat untuk dikendalikan, dan merupakan alat untuk memperoleh maklumat kuantitatif dan kualitatif mengenai pengetahuan leksikal dan morfosintaktik, serta perkembangan bahasa dalam latar belakang linguistik yang kompleks. Kajian ini melaporkan keputusan pencapaian tugas NWR dan SR dalam kalangan kanak-kanak prasekolah dwibahasa Mandarin-Inggeris. Tugas dikendalikan menggunakan dua bahasa: bahasa Mandarin dan Inggeris, untuk menyelidik pencapaian kanak-kanak dwibahasa bagi tugas NWR dan SR dalam kumpulan umur yang berbeza, dan juga untuk mengkaji jenis pola kesilapan tipikal dan atipikal yang dikesan dalam kalangan kumpulan umur yang berbeza dalam tugas berulang. Secara keseluruhan, ketepatan tugas bagi setiap bahasa dibandingkan; fonem dan kesalahan tatabahasa dalam tugas NWR dan SR diterangkan secara kuantitatif. Keputusan keseluruhan menunjukkan kanak-kanak yang lebih tua lebih baik daripada pencapaian kanak-kanak yang lebih muda. Pencapaian kanak-kanak lebih baik dalam tugas bahasa Mandarin, berbanding tugas bahasa Inggeris. Tiada tanda yang menunjukkan pengetahuan bahasa dan pengalaman bahasa mempengaruhi pencapaian dalam tugas ini. Kajian juga menunjukkan kesilapan tatabahasa yang ditemui dalam tugas SR mungkin mempunyai potensi untuk digunakan bagi membezakan kanak-kanak dengan perkembangan bahasa tipikal dan atipikal.

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I certify that a Thesis Examination Committee has met on 28 January 2015 to conduct the final examination of Woon Chai Ping on her thesis entitled “Use of Nonword and Sentence Repetition Tasks with Mandarin-English Bilingual Children in Malaysia” in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Arts.

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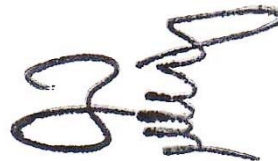
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LIST OF ABBREVIATIONS

ADHD	Attention Deficit Hyperactivity Disorder
ALI	Autism plus Language Impairment
ASP	Aspect Marker
B	Boy
CL	Classifier
CNRep	Children's Test of Nonword Repetition
CVC	Consonant-Vowel-Consonant
ENWR	English Nonword Repetition
ESR	English Sentence Repetition
G	Girl
LI	Language Impairment
L1	First Language
L2	Second Language
LTM	Long-Term Memory
MNWR	Mandarin Nonword Repetition
MOD	Modifier
MSR	Mandarin Sentence Repetition
N	Number of participants
NRT	Nonword Repetition Test
NWR	Nonword Repetition
PASS	Passive
PPC	Percentage of Phonemes Correct
PRE	Preposition
QP	Question Particle
SD	Standard Deviation
SFP	Sentence-Final Particle
SLI	Specific Language Impairment
SOV	Subject-Object-Verb
SR	Sentence Repetition
STM	Short-Term Memory
SVO	Subject-Verb-Object
TD	Typically Developing
WM	Working Memory



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CHAPTER 1

INTRODUCTION

1.1 Background of the study

Nonword repetition (NWR) and sentence repetition (SR) tasks have been used in measuring children's expressive language skills in normal and abnormal language development and language learning, as well as for surveying the proficiency of bilingual language development. Researchers often use NWR to study the mechanisms of phonological short-term memory (STM) underlying children's language learning, whereas SR might assess not only short-term memory but also long-term memory (LTM). Recently, NWR and SR tasks have been recognized as a potential psycholinguistic tool to identify bilingual children with specific language impairment (SLI).

SLI is considered to be a neurodevelopmental disorder in childhood. Children with SLI show language ability below the language skills expected for their age, but they have no hearing impairment, no neurological damage, no motor problems in producing speech or autism, and they have normal intellectual abilities (Leonard, 2000). However, the protocol followed by speech language pathologist to identify such children involves the use of a battery of tests which include hearing screening test, articulation test, nonverbal IQ test, language assessment in order to meet the inclusion and exclusion criteria (see Stark & Tallal, 1981; Leonard, 2000). The language assessment tool is only one of the tests used. The process of identifying children at risk for SLI at an early age is challenging even among monolingual children. The problem is even more challenging and difficult in Malaysia as many Malaysian children are bilingual from a very young age, and most assessment tools that have been developed have been normed mainly on monolingual children and may not be suitable for identifying SLI among bilingual children.

In order to develop a suitable language assessment tool that caters directly to the bilingual children in Malaysia, we first need to have a firm understanding of the language development process of these bilingual children. This is the rationale for undertaking this study where I try to make a case for the potential use of NWR and SR tasks as a potential language assessment tool to identify atypical bilingual language development among typical bilingual children.

1.2 Statement of problem

Bilingual children may risk to be misdiagnosed as having SLI or bilingual children with language impairment may be mistakenly considered as having problems commonly encountered by bilingual children. One of the reasons for these mistakes is that many standard language assessments are biased and misrepresent children's language abilities (Dollaghan & Campbell, 1998).

SLI children often have limitations in speech ability. They use short, simple and basic grammatical sentence structures. Bishop (1997) has pointed out that the problems of language development among children with SLI are in the aspects of lexicon, morpho-syntax, and phonology. The aspect of morpho-syntax difficulties as

clinical markers of SLI has widely been investigated in various languages (Hansson, K., & Nettelbladt, 1995; Bedore & Leonard, 2001; Stokes, Wong, Fletcher, & Leonard, 2006; Lukács, Leonard, & Kas, 2010). English is the most investigated language in SLI children.

With the increasing number of bilingual children, there are more and more studies focusing on bilingual SLI children. Research conducted on SLI in the development of dual language among children has focused on morpho-syntactic aspect; however, there is limited data on the bilingual SLI children and proper language assessment tools to identify whether children perform poorly in language due to language impairment or just simply because of interlanguage effect in two different languages (e.g. Paradis, 2007; 2010; Bedore & Peña, 2008). According to Paradis (2007, 2010), the difficulty in identifying bilingual SLI children is caused by the fact that bilingual children generally score lower in standard language assessment tests compared to monolingual children, and their error patterns show similarities to monolingual SLI children. Cultural and linguistic factors are the major influences on their poor performance in such standard language assessments which are normally used for monolingual children (Campbell, Dollaghan, Needleman, & Janosky, 1997; Bedore & Peña, 2008).

The problem in identifying children at risk with SLI is even more challenging in Malaysia as many Malaysian children are bilingual from a very young age. According to Ooi and Wong (2012), in the bilingual society where the speech-language pathologist do not speak the same first language but to share the same L2, the L2 can be used as the assessment language. As in Malaysia, English is using to assess children's language. However, the assessment tools are usually adapted from monolingual standard English-speaking version. Ooi and Wong (2012) pointed out that there are many cases of children in Malaysia with the potential risk of SLI who are not being identified because of the absence of a locally developed norm-referenced language assessment tool that can be used for bilingual children in Malaysia. In the early stage of second language acquisition, according to Paradis and Genesee (1996), bilingual children may need a longer period to achieve the same level of language knowledge compared to their monolingual peers. Therefore, bilingual children are more likely to be diagnosed as having language delay if they are assessed with the assessment tools which have been developed mainly for monolingual children (Ooi & Wong, 2012).

Nevertheless, assess children' L2 only has another shortcoming. Researchers in bilingual domain, often make a distinction between simultaneous and sequential bilingualism. Simultaneous bilinguals are children who hear and acquire two languages at the same time from birth, whereas sequential bilingual are those who learn second language (L2) after the acquisition of a first language. In Malaysia, most of the children acquire L2 when the acquisition of L1 is still developing. Yip and Matthews mentioned in their research, 'there is the possibility for the two simultaneously developing linguistic systems in contact to interact bidirectionally' (Yip, & Matthews, 2007; p.26). Therefore, the combination of language tests in L1 and L2 would provide a better description of the development of linguistic system among bilingual Mandarin-English speaking children.

Currently, measures of language processing such as NWR and SR have been considered as more accurate assessment tools compared to traditional language tests and are considered as a potential psycholinguistic tool to identify children with or without SLI in culturally and linguistically diverse populations (Campbell et al, 1997; Kohnert, Windsor, & Yim, 2006). Measures of language processing have been proposed as less biased measures compared to those standard language assessment tests. The language processing measures such as NWR does not require vocabulary or linguistic knowledge, but the performance on the task is connected to the ability to learn new words (e.g. Gathercole, 2006; Thordardottir & Brandeker, 2012). As for the SR task, it is a measure related to the expressive language abilities and receptive grammar skills. The language processing measures show a potential to establish a connection to the underlying deficit of SLI. Thordardottir and Brandeker (2012) concluded that the limitation of language processing is one of the factors that account for low language achievement among SLI children.

In this study, NWR and SR tasks in Mandarin and English were used as a tool to obtain quantitative and qualitative information about children's lexical and morphosyntactic knowledge, as well as language development in a complex linguistics background in order to compare the various levels of language development among typical bilingual children.

1.3 Purpose of the study

There are two main purposes for this study: (a) to examine how bilingual children would perform on NWR and SR tasks in different age groups and (b) to investigate the frequent error types found among different age groups in their task performance.

1.3.1 Research questions

- 1) Is there a difference between the different age groups of Mandarin-English bilingual children on NWR and SR scores?
- 2) Is there a syllable length effect in performing the NWR tasks?
- 3) How do the bilingual children perform Mandarin and English NWR and SR tasks?
- 4) What kinds of error do children make in their Mandarin and English tasks? In what ways do the bilinguals' performance differ from or are similar to monolinguals?

1.3.2 Research hypothesis

It is hypothesized that:

- 1) There would be an age difference on the NWR and SR scores. The older children would perform better than the younger children.
- 2) Children's performance of NWR in both languages would be affected by the syllable length.
- 3) Children would perform better in Mandarin than English in the NWR and SR tasks.
- 4) The older children would make lesser omission errors than the younger children in both the NWR and SR tasks.

1.4 Theoretical framework

In this study, the NWR and SR tasks were used as an approach to collecting data in order to examine the development of children's language. In this section, I will first discuss the language acquisition order, then the relations between the memory and immediate recall tasks, and will propose a model that might accommodate the contribution of STM and influences of LTM in NWR and SR.

1.4.1 Language acquisition order

In language acquisition studies, Brown (1973)'s acquisition order of English grammatical morphemes in L1 was widely accepted. Later, Krashen's natural order hypothesis proposed that L2 learners acquired first –ing, plural –s, copula, then followed by auxiliary, article; irregular past will come later, and regular past, third-person singular and possessive –s would be the last to acquire. According to Krashen (1977), L2 learners of English acquired of grammatical structures follow the predictable order regardless the learners' language backgrounds. However, recent research done by Luk and Shirai (2009) posited different fact than the universal acquisition order. They demonstrated the influence of L1 in the order of L2 morpheme acquisition. Their study focused on four languages: Spanish, Korean, Chinese, and Japanese L2 learners and found that the acquisition order of grammatical morphemes is strongly affected by the L1. They argued that similarities grammatical features between L1 and L2 produce a facilitating effect, whereas differences would result a delayed acquisition. Thus, the acquisition of grammatical morpheme is heavily influenced by children native languages.

Yip and Matthews (2007) pointed out about the bidirectionally interaction between two simultaneously developing language, it is possible that simultaneous bilinguals or early sequential bilingual children would acquire the grammatical morpheme in L1 and L2 in different order compared to monolinguals. In this study, NWR and SR tasks were used to collect data.

1.4.2 Short-term memory and immediate nonword repetition

NWR task was designed as a measure of phonological STM. NWR is a task that requires participants to hear a sequence of nonword and is expected to repeat the sequence of nonword verbatim. Difficulty in nonword increases as a function of nonword length increases (e.g. Masoura & Gathercole, 2005; Archibald & Gathercole, 2006a). It was recognized that the English speaking children with SLI were normally found to have difficulty in repeating longer nonwords (e.g. Dollaghan & Campbell, 1998; Archibald & Gathercole, 2006a; Jones, Tamburelli, Watson, Gobet, & Pine, 2010). Similar finding were also found in other languages such as Spanish (Girbau & Schwartz, 2007), Italian (Bortolini, Arfé, Caselli, Degasper, Deevy, & Leonard, 2006), Dutch (Rispen & Parigger, 2010), and Mandarin (Chi, 2007).

A meta-analysis of studies investigating different NWR tasks performance reported across different studies between children with and without SLI carried out by Graf Estes, Evans, & Else-Quest (2007), showed that children with SLI performed significantly lower than children without SLI on longer nonwords (3- to 4- syllable

nonwords) than shorter nonwords (1- to 2- syllable nonwords). Their result indicated that nonword length was related to the magnitude of effect sizes when they compared different NWR tasks. Overall, it seems that the length of nonwords was able to distinguish between the children with or without SLI. Gathercole and Baddeley (1990, p.344) viewed the repetition difficulties reflect a capacity limitation of the phonological component of working memory. Therefore, a deficit in the capacity of phonological STM may lead to difficulty in repeating nonwords with longer syllables in the NWR tasks (Gathercole, 2006).

When we talk about the capacity, how much information actually can we store in the STM? A well-known study has been published by Miller (1956), who suggested that a typical adult's memory span is limited to a magic number of items or chunks of information which is approximately seven, with +/- two (between 5 to 9 items or chunks based on individual differences). He mentioned that the process of chunking can relate the long-term knowledge to increase STM. Each chunk contains information, and the memory span is a fix number of chunks. In order to build meaningful information, we can simply combine multiple items of chunks (Miller, 1956).

In contrast to the suggestion of the number of chunks, Baddeley, Thomson, Buchanan (1975)'s study suggested that a measure of STM should be based on time. They found that the memory span is related to word-length effect; longer syllable words were more poorly recalled compared to shorter syllable words; memory span is equivalent to the number of words that could be recalled in approximately 2s. In other words, one's memory can hold a phonological form for about 2s; an individual can recall and rehearse in mind as much as he/she can before it decays. Gathercole (2006) pointed out that based on STM theory, phonological representation are related to time-based decay. Longer nonwords need more time to present, repeat, the phonological representation may decay greater before they can be repeated and rehearsed in mind (Gathercole, 2006; Archibald, 2008). This decay effect would be expected to significantly affect those who with a limited capacity of phonological STM.

Earlier researches claimed that NWR evaluates language processing abilities and is a knowledge-free measurement. However, recent researches have shown that language knowledge did influence the accuracy of NWR. Several factors of linguistic knowledge that have influence on immediate NWR will be discussed in the following chapter.

1.4.3 Influences of long-term memory on immediate sentence repetition

Similar to NWR, SR is a task that requires participants to listen to a sentence and repeat it. To examine the participants' ability, the test items usually include sentences of various lengths and complexities in the language that is being examined. There are questions about whether the SR tasks allow rote imitation. The process of repeating a sentence heard actually involves various cognitive processes. According to Bley-Vroman and Chaudron (1994, p. 247), when the participant hears the target sentence, he/she forms an abstract representation of that sentence based on his/her linguistic knowledge. This representation includes different level of semantic information and the representation is stored in STM. Then the participant utters a sentence based on

the assessed representation. As the sentences contain words that are syntagmatic related, inflectional and derivational morphology, and semantic information, it would be reasonable to believe that SR might access not only the STM, which involves lexical or phonological components, but also the LTM, which includes conceptual or semantic component that are associated with them.

Based on the works of Clay (1971) and Slobin & Welsh (1973) (cited in Riches, Loucas, Baird, Charman, & Simonoff, 2010), an individual's ability to repeat an utterance does not only depend on the STM, but necessitates the use of syntactic knowledge that are stored in LTM to chunk the utterance so that the representation may be easy to retain and recall. Studies by Potter and Lombardi (1990, 1998) have shown that the LTM is involved in SR. They reported that the immediate recall of a sentence is not only a verbatim representation which activates lexical items, but it also primes syntactic structures. It is by regenerating the sentence with these syntactic structures together with the activated words that increase the accuracy of verbatim SR. Vinther (2002) further commends that if participants understand the sentence, they would be able to repeat the sentence without any difficulty. If they understand the sentence but fail to remember the formal details due to the constraints in the STM, they may still produce the sentence with the same meaning, in a form more or less similar to the original, as they are able to draw upon the resources from the LTM. Lust, Chien, & Flynn (1987) also claimed that participants can employ their STM as an acoustic image to recall and imitate a sentence accurately without understanding the sentence provided that if the sentence is short and syntactically simple enough, whereas, for longer sentences, if they do not comprehend the sentence, they cannot rely on their STM to recall the sentence. One of the reasons is that, if participant do not understand a string of words, they may have a problem in rearranging it in chunks and they are not able to retain it in their STM in a short time before they can decode it (Vinther, 2002). Lust, Flynn, and Foley (1996) argued that the sentence repeated is not a rote repetition but a reconstruction of the sentence heard, and therefore reflects cognitive competence. Alloway and Gathercole (2005)'s study found that SR is related to reading and language skills, one of the reasons being the LTM can facilitate the connection between the STM and language skills.

1.4.4 Models of short-term memory

According to Archibald and Gathercole (2006b), immediate memory includes STM and working memory (WM). STM refers to the ability to retain items or information for a short period of time, whereas WM involves a combination of storage, processing and operating information (Baddeley, 2012). For example, the tasks involve immediate recall, serial recognition are considered STM tasks, while the task like reading span which involves storage and processing is considered WM task. The two terms are still used interchangeably in some studies.

Perhaps Baddeley's multi-component model of WM (Baddeley & Hitch, 1974; Baddeley, 1986; 2000; 2003a) is one of the most influential models to account for verbal STM. This section aims to give an overview of Baddeley's model of WM and discuss the theoretical account which would explain how memory and linguistic knowledge influence the repetition tasks.

The multi-component model of WM developed by Baddeley and Hitch (1974) is comprised of three components (see Figure 1.1): the phonological loop, which concerns verbal and acoustic information; the visuospatial sketchpad, which provides it visual equivalent; and the central executive, an attentionally-limited control system where the other two components depend on.

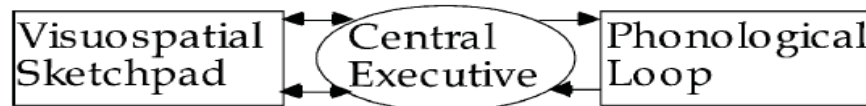


Figure 1.1 The model of working memory proposed by Baddeley and Hitch (1974), extracted from Baddeley (2003a, p.191)

The phonological loop is the component which is most related to language compared to the other two components. The loop comprises two additional subsystems: a phonological store, which can retain information for a few seconds before it decays; an articulatory rehearsal process, which can refresh and rehearse the information in the phonological loop. One of the evidences for the rehearsal system comes from the word-length effect. Baddeley, Thomson, and Buchanan, (1975) showed that in the performance of immediate serial recall, shorter syllable words were recalled more accurately than longer syllable words. This suggests that longer words take a longer time to rehearse; the process is slower and will decay more. Baddeley (2000) believed that “auditory memory traces decay over a period of a few seconds, unless revived by articulatory rehearsal” (p. 419).

Another component developed by Baddeley and Hitch (1974)’s multi-component model of WM is the visuospatial sketchpad. This component is responsible to maintain visual and spatial information for a short period of time. The distinction between visual and spatial memory was found based on neuropsychological studies. The visual memory is to remember the feature of an object, for example, the form and the color; whereas the spatial memory is to remember the location of an object. Like the phonological loop, the visuospatial working memory is limited in capacity and decays over time.

The central executive is the system responsible for the attentional control of the WM system. It was originally described as having limited capacity of storage and decided resources used between the other two components by attentional control. In Baddeley (2003b)’s review paper, he mentioned that “our three-part model for WM encountered problems when trying to address the interaction with LTM. These problems stemmed from our simplifying assumption that the executive was a purely attentional system.” (p. 835). The WM’s model failed to explain other than the limited capacity of the phonological loops and the visuospatial sketchpad, for example, the performance on immediate recall influenced by the linguistic knowledge is something clearly beyond the phonological loop’s time-based capacity. There must be a link between the STM and LTM (Baddeley, Hitch, & Allen, 2009). Therefore, a fourth component was proposed to the model – the episodic buffer (Baddeley, 2000).

The episodic buffer was proposed to account for the interface between the STM and LTM (see Figure 1.2). The episodic buffer behaves like a backup store, has a limited

capacity, capable of reinforcing the phonological loop or the visuospatial sketchpad, integrating information from many different sources and able to link STM and LTM.

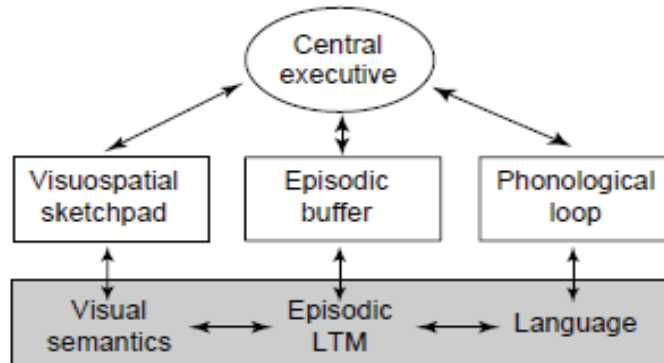


Figure 1.2 The current version of the multi-component working memory model, extracted from Baddeley (2000, p. 421).

Through conscious awareness, the buffer can be accessed by the central executive, in the sense of binding information from a variety of sources and related new information from STM with LTM, in order to merge our memories and experiences. In his recent review paper (Baddeley, 2012), Baddeley pointed that “it allows executive processes to carry out further manipulation” (p. 17), and that such processes may involve further binding process, for example, by combining the phrases into sentences.

1.4.5 Summary

It appears that the linguistic knowledge influences the performance of immediate recall. According to this model, immediate recall taps the episodic buffer that enhance the direct interaction between the temporary memory and language-knowledge where the information of semantic and syntactic that is stored in LTM (Baddeley, Hitch, & Allen, 2009).

1.5 Overview of the thesis

The present study attempted to make a case for the potential use of NWR and SR tasks as a potential language assessment tool to identify atypical bilingual language development among typical bilingual children.

To begin with, chapter 2 introduces the language background of Malaysia, characteristic of Mandarin Chinese and English, and also provides an overview of previous studies which demonstrate the relationship between the immediate repetition task and language abilities. Chapter 3 describes the design of the present study, the participants, the procedure, conceptual framework, method of analysis, and the pilot studies in detail. The results from the analysis are reported in chapter 4. In chapter 5, the main findings are discussed and compared to previous research. General conclusion is made, limitation of the study is discussed and recommendation for future research is outlined in chapter 6.

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