

CUED SPEECH: TOWARDS ENHANCING SLOW LEARNERS READING SKILLS

Mohd Izwan Mustafa Kamal (izwanupmm@yahoo.com)

SMK Taman Sri Rampai

Che'Rozaniza Azizan

Universiti Putra Malaysia

Wan Nomi Wan Omar

Special Education Division

Rohimah Alias

PDK Kiu

Noor Aslina Sulaiman

SMK Kompleks KLIA

Wan Faridah Fairus Wan Ramli

SMK Putrajaya Presint 11(1)

Mohd Rukhairie Abdul Rahim

University Technology MARA

Abstract

Reading skills is one of the vital components for academic success. However, reading will be quite challenging when dealing with slow learners. Studies documented that slow learners have below average cognitive abilities but higher than those considered as intellectual disabilities. Difficulties in acquiring reading skills are also well documented. Thus, this action research is conducted to understand the impact of cued speech in improving the slow learners' basic reading skills by mastering the sound of vowels, consonants and joining syllables. Cueing allows slow learners to access the basic and fundamental properties of Malay language through the use of vision. The framework of this study is fully adapted from the hearing-impaired population since other conventional methods have shown relatively lower reading effectiveness. Samples consisted of three

slow learners (N=3) from K3 class of SMK Taman Sri Rampai, Kuala Lumpur. Samples were then exposed to eight cued speech hand codes with the aid of interactive video CD, Apps and written exercises. Samples are required to master all the stages of cued speech from the very basic of identifying the hand codes to finally joining the syllables. Findings indicate that all the three samples managed to join the syllables in the period of three months. This study also provides insight into how cued speech technique can be adapted and accommodated to suit the needs of the slow learners. It is recommended that cued speech technique is implemented in all Special Education Integrated Program to provide basic reading skills as well as enhancing the slow learners reading abilities; thus enabling them to successfully overcome the challenges related to their intellectual functioning.

Keywords: Reading Skills– Cued Speech – Slow Learners

Introduction

Cued Speech (CS) is the most popular sound-based system that could make speech visible to the hearing-impaired population (Cornett, 1994). In other words, CS comprises of visual mode of communication and the lip patterns of normal speech combined with cueing to make the sounds (phonemes) of spoken languages look different. CS was invented nearly 50 years ago by Cornett (1967). In short, we can say that cueing allows hearing-impaired to access the basic and fundamental properties of spoken languages through the use of vision.

CS is also designed as an early intervention strategy to aid in hearing-impaired linguistic development (Torres, Moreno-Torres & Santana, 2006). It is believed that at early age of intensive intervention, CS helps to create phonological representation of speech similar to those of the hearing population (Alegria, 2004; Aparicio et al., 2012; Leybaert & Alegria, 2003; Leybaert & Charlier, 1996). In fact, CS promotes better speechreading performance among the cuers due to better capacity in phonological decoding of visual articulators (Aparicio et al., 2012). Although hearing-impaired have normal cognitive abilities as their hearing peers (Moores, 2001), but their reading skills is normally weak (Alegria, 2004). Thus, CS helps to overcome this reading skills deficit with the use of hand codes which represents combination of consonants and vowels.

Literature reviews have shown that CS has been extensively used in developing language and reading skills among the hearing-impaired population. For example, Aparicio et al., (2012) have found that CS showed a significant correlation in speechreading performance of the hearing-impaired students. However to date, little is known about the effect of CS on hearing populations with limited reading skills; e.g: slow learners and dyslexic populations. But, there is one study by Mohammed et al. (2006) that found a positive correlation between visual speechreading and reading skills on hearing dyslexic population. Nonetheless, very limited study has been found so far which primarily focused on the effect of CS on hearing population, such as the slow learners.

The main question addressed by this present study is the impact of CS on reading skills. Slow learners may also have reading difficulties as do their hearing-impaired peers. Although having below average cognitive abilities, slow learners are functioning up to their best abilities (Borah, 2013). In Malaysia, slow learners were diagnosed by medical professionals as students with intellectual disabilities and/or specific learning disabled which qualify them for Special Education services. Their educational placements also depend on the medical professionals' suggestions; either the special education integrated program or the mainstream inclusive program.

This article shall begin with defining Cued Speech Theory (Cornett, 1967) followed by adapted CS on slow learners. We believed that by implementing CS, slow learners reading skills may improve significantly. This is due to the use of hand codes which may enhance slow learners memory retention which in turn improves their reading skills. Thus, by using an adapted approach, we predicted that the slow learners would show significant improvements in their Malay language reading skills as compared to the other conventional methods (such as rebus, phonological approach, spelling approach etc.).

Cued Speech Theory

CS or originally *Langage Parlé Completé* (LPC) in French was developed by Dr. R. Orin Cornett in around 1965-1966 (NCSA, 2006). The system primary goal is to improve reading literacy and to overcome problems of accessing spoken languages among the hearing-impaired population. This system provides access to the sound of consonants and vowels (phonemes) of language through vision using the information from the mouth and one hand (NCSA, 2006). In other words, CS is a visual mode of communication which requires synchronization between the mouth and hand to convey meaningful messages among the cuers.

CS comprises of eight hand configurations which are executed in five different locations, near the mouth (Alegria et al., 1990). Consonants are identified by hands configurations while vowels are identified at the locations in which they are executed simultaneously. For phonemes discrimination purposes, these cues allow the information to be visible, either on the mouth or on the hand. To simplified, similar visible sounds on the mouth will be further differentiated on the hand, and vice versa. This would allow clear differentiation of phonemes, syllables, stress, and duration of the spoken language through the use of vision (Cornett, 1994; Alegria et al., 1990). Approximate intonation could be identified by determining the angle of inclination of the hand from the horizontal; i.e 45 degrees for middle pitch, 90 degrees and near the horizontal for middle and low intonation respectively (Cornett, 1994).

CS relies on the central idea that consonants and vowels which are not discriminable in speechreading are accompanied by configuration cues and spatial cues (Cornett, 1994). Configuration cues refer to the hand configuration while the spatial cues refer to the sites of

execution in consonants and vowels discriminations respectively. On the contrary, the same cue represents a group of consonants or a group of vowels easily discriminable in the scheme of lipreading (Cornett, 1994).

According to Cornett (1994), there are four steps in CS developments. The first one refers to massive hands movements which he believed to be equivalent to those of the vocal organs at the speed of normal speech. This means that no manual system (such as phonemic fingerspelling) can convey the equivalent of the speech message at a normal rate (Cornett, 1994). The second step involved determination of slightly more than half of speech message information that visible on the mouth. However, Cornett (1994) emphasized that it does not mean that half the message can be perceived by seeing the mouth. Analogically, it may be perceived as getting the longitude of a location on earth as half of the information to locate it (Cornett, 1994). Third, is the design of a system in which the hand provides half of the information unavailable from the mouth. Through calculations, Cornett (1967) found that hands could carry that amount of information.

The last step involved the decision that the information conveyed by the hand must be in a mathematical relationship to the information on the mouth making the combination equivalent to a double, two-dimensional matrix (Cornett, 1994). This means that the simultaneous identification of a group of look-alike consonants by the mouth the hand shape will result in the identification of a single consonant, at the intersection of the two elements of the two-dimensional consonant matrix (Cornett, 1994). The same principle also applies to the simultaneous identification of a group of look-alike vowels from the mouth and the hand location identifies a single vowel, as the intersection of the two elements of the two-dimensional vowel matrix. Thus, a single consonant-vowel syllable (normal unit of speech) can be easily identified with by the visible information on the mouth plus the combination of hand shape and hand location (Cornett, 1994).

Adapting Cued Speech to Malay Language and Slow Learners

CS had been adapted to more than 50 languages and major dialects (Cornett, 1994). In most of these adaptations, the Cornett (1994) was assisted by one or more native speakers of the target language. In few cases, experts' advice on the phonetic and phonological aspects of the language was also gained. CS was initially developed for General American English. Additional phonemes were later been added to accommodate Standard Southern British, Australian, Cockney, Scottish, Irish, Australian and New Zealand dialects of English, in the one system (Cornett, 1994).

CS has been adapted to other 53 languages (as of September 1992) which also included Malay Language (*Bahasa Malaysia*) in 1982 by Mr. Tan Chin Guan. He is the former Vice President of National Association of the Deaf and personally met Dr. Cornett in international conference at Gallaudet University, United States. Mr. Tan and his wife, Dr. Dora introduced the Malay Language version of CS known as *Pertuturan Kiu Bahasa*

Malaysia (PKBM) as an early intervention technique to overcome literacy associated problems among the hearing-impaired children. Their Cued Speech Centre is registered under Ministry of Education (MOE) Malaysia.

Another unique property of CS is that it can also be implemented to the hearing community who use oral communication to convey messages (NCSA, 2006). Based on this statement, this current study is designed to improve slow learners' reading skills by combining CS method along with oral and auditory mode of communications. We believe that visual presentation of hand codes may enhance slow learners' memory retention on recognizing the sound of vowels and consonants, while the oral and auditory modality serve as supplementary method to further enhance their working memory capacity. This statement is in line with Reddy (1997) who stated that teachers may encourage slow learners to see the association between word and its visual pattern; the word and its auditory pattern as it is spoken; the word and its kinesthetic memory of writing it. Thus, in order to enhance memory retention all these must be mutually linked with the meaning of the word (Reddy, 1997).

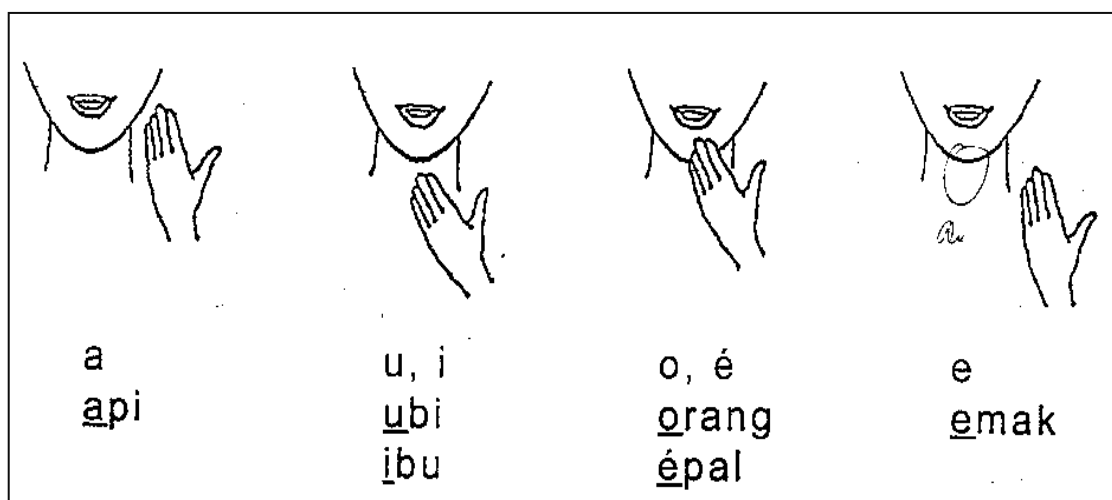


Figure 1 – Hand Codes and Locations for Vowels in “Pertuturan Kiu Bahasa Melayu”

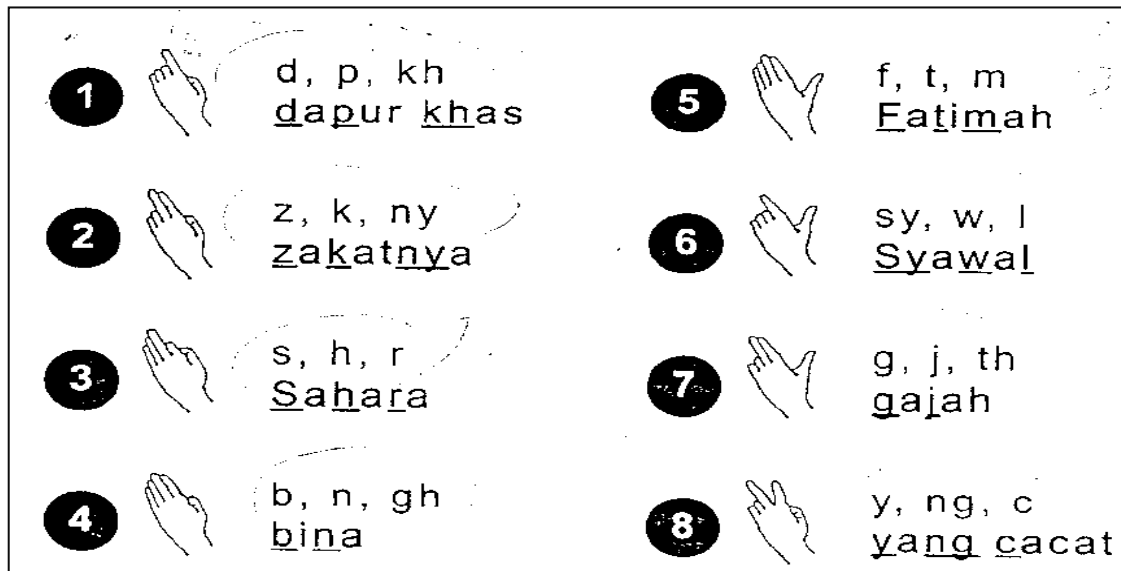


Figure 2 – Hand Codes and Locations for Consonants in “Pertuturan Kiu Bahasa Melayu”

Methodology

In this present study, we decided to implement PKBM (adapted Malay Language CS) to overcome literacy problems in slow learners. Teaching aids such as interactive CDs, charts, flash cards, Apps and worksheets related to the themes under study were used throughout the process. Instead of PKBM, oral and auditory methods of communication were also used whenever possible to maximize the effect of PKBM on the slow learners. The method was carried out four times a week for the period of three consecutive months until the desired outcomes were achieved. Teaching involved one-to-one interaction between student and teacher. The explanation of the whole PKBM procedures is divided into sub-categories with specific objectives set in each sub-category.

Stage 1: Recognizing Sample

The main objective of this stage is to determine students' ability in recognizing Malay language consonants and vowels before implementing PKBM method. Three students from special education integrated program aged between 15 to 16 years old were purposively selected for the study (N=3). They were diagnosed as slow learners by medical professionals with/without intellectual disability and/or specific learning disability. Malay language is their first spoken language. All respondents had normal or corrected-to-normal vision with no other vision-related disabilities. Respondents reading skills were assessed by using diagnostic test. Once their literacy level identified, respondents were then introduced to CS procedures. They were required to recognize the body part as stated in Special Education Malay language syllabus before proceeding with PKBM.

Stage 2: Mastering the Sound of Vowels

The main objective of this stage is to allow students to understand and recognize the sound of vowels and vowels look alike. This stage is further divided into two levels; i.e level one involve drawing and coloring activities on parts of the body and level two involved introduction of sound of vowels (a/e/i/o/u) using PKBM. The process was repeated until students recognized the sound of all the vowels. Next, students were required to master the sound of vowels using hand codes and mouth position.

Level 3: Mastering the Consonants

The main objective of this stage is to allow students to recognize and differentiate each consonant using hand codes. Students were introduced to eight PKBM hand codes; i.e f/t/m; b/n; s,h,r. The process was repeated until students able to master all the eight hand codes of the consonants.

Level 4: Joining the Syllables

The main objective of this stage is to allow students to master the combination of consonants and vowels and finally joining the syllables. Students were introduced the combination of vowels and consonants using PKBM; e.g: fa/ta/ma; sa/ha/ra etc. The process was repeated until students able to master all the combinations of consonants and vowels. Next, they were required to join the syllables in order to form words.

Level 5: Reading Process

The main objective of this stage is to allow students to read with/without teacher's guidance. Since the slow learners have no hearing impairment, this final stage requires oral reading rather than visual reading as in original CS. Students were first exposed to a few words related to the "parts of the body" theme (e.g: *mata, kaki, kuku*) using interactive CDs and flash cards. They were then required to read along with teachers. The process will be repeated over and over again until the students able to read alone.

Data Analysis

Students' reading skills progress was then recorded on a checklist (Table 1). Each item will be given a score of minimum 0 to maximum of 3 based on their performance. Total score is between 0 to 90 marks. Data will then be descriptively analyzed.

Table 1 – Checklist of PKBM Implementation among the Slow Learners

No.	Assessment Items	Score
1.	Recognizing vowels and consonants (a to z)	
2.	Recognizing a few capital letters	
3.	Recognizing a few lowercase letters	

-
4. Recognizing all capital letters
 5. Recognizing all lowercase letters
 6. Produce sound of vowels (oral mode)
 7. Sound of vowels by using PKBM codes (a/e/i/o/u)
 8. Clear and accurate sound of vowels (oral mode)
 9. Recognizing sound of vowels by using PKBM codes (a/e/i/o/u)
 10. Imitating teacher's hand codes
 11. Recognizing 1 PKBM's hand codes (f/t/m)
 12. Recognizing 2 PKBM's hand codes (l/w)
 13. Recognizing 3 PKBM's hand codes (s/h/r)
 14. Recognizing 4 PKBM's hand codes (d/p/q)
 15. Recognizing 5 PKBM's hand codes (b/n)
 16. Recognizing 6 PKBM's hand codes (k,v,z)
 17. Recognizing 7 PKBM's hand codes (c,y)
 18. Recognizing 8 PKBM's hand codes (g,j)
 19. Combining vowel (a) and consonant and make sound of the syllable
(e.g: fa/ta/ma)
 20. Combining vowel (o) and consonant and make sound of the syllable
(e.g: fo/to/mo)
 21. Combining vowel (i) and consonant and make sound of the syllable
(e.g: fi/ti/mi)
 22. Combining vowel (u) and consonant and make sound of the syllable
(e.g: fu/tu/mu)
 23. Combining vowel (e) and consonant and make sound of the syllable
(e.g: fe/te/me)
 24. Combining vowel (é) and consonant and make sound of the syllable
(e.g: fé/té/mé)
-

-
25. Combining vowel (a) and consonant and make sound of the syllable
(e.g: la/wa)
 26. Produce one or more sound of syllables
 27. Joining two syllables to form word
 28. Read simple a word (e.g: *kaki, kuku, mata*)
 29. Read two or more simple words
 30. Read full sentence/sentences
-

Results

Respondents' demographic factors

This section discusses about students demographic factors which include gender, race, age and types of disability as stated in the medical diagnosis.

Table 2 - Respondents Demographic Analysis

Demographic Factors		Frequency	Percentage (%)
Gender	Males	2	66.7
	Females	1	33.3
Age	15 years old	2	66.7
	16 years old	1	33.3
Race	Malay	3	100.0
Diagnosis	Slow learner only	1	33.3
	Slow learner & intellectual disability	1	33.3
	Slow learner & specific learning disability	1	33.3

N=3

Table 2 shows that the male respondents (N=2; 66.7%) form the majority of the analysis than the female respondent (N=1; 33.3%). This study is fully dominated by Malay respondents (N=3; 100.0%). Two of the respondents aged 15 years old (N=2, 67.7%) and the remaining is 16 years old (N=1; 33.3%). For the diagnosis part, 1 respondent is diagnosed as slow learner (N=1; 33.3%), another 1 slow is slow learner and intellectual disability (N=1; 33.3%) and the other one is slow learner and specific learning disability (N=1; 33.3%).

Slow Learners Reading Skills

All the three respondents managed to score 75 and above for the items listed in Table 1. This indicates that their reading skills improved significantly as compared to the marks obtained from the diagnostic test. They were able to join the syllable that make up words after being given intensive drilling for the period of three consecutive months. Respondents were also able to read simple words related to the theme under study (e.g: *kuku, jari, kaki* etc.) with neither teacher's read along nor picture-based teaching aids.

Discussions and Recommendations

Reading acquisition poses major problems in hearing population and become more unfavorable in the hearing-impaired population (Cornett, 1994). However, with appropriate instructions, this reading-related problem can be partly solved. Results from this study have proven that although slow learners have reading difficulties, but with adapted instructions, this problem can be improved. Although they may not become functional readers as the average students, but at least their reading skills is much better as compared to the previous achievements.

Before proceeding with PKBM, the most important thing to discover is the students' prior literacy status through the use of standardized diagnostic test. The test provides valuable information to the teacher in recognizing students reading potential so that individualized lesson plan could be carry out to overcome their weaknesses. Although PKBM is applicable to the group under study, but one principle to remember is the weaker the students, the longer the time needed for them to master the consonants and vowels in PKBM.

In order to achieve desired outcomes, slow learners need to be given ample time so that intensive drilling and repetition can be provided to accommodate their individual needs. Slow learners have very poor long-term memory (Reddy, 1997). Thus, they may need classroom activities that may attract their attention and strengthen their memory. Repetition alone may not solve the problems. It is believed that their poor retention may be due to quality of initial learning rather than recycling the same material over and over again (Reddy, 1997). Thus, in order to cater their needs, teacher needs to ensure that various types of teaching aids and methods are used for classroom teaching.

The above statements provide basic support for implementing PKBM among the slow learners. The use of visual aided hand codes and direction on the mouth in differentiating consonants and vowels has indirectly improved memory retention of the slow learners. As their memory retention improved, their reading skills may also improve significantly. PKBM serves as a root in helping slow learners to read independently. Once they acquire

the skills of how two or more syllables produce words, they may read fluently without the use of hand codes just as their average peers.

Being Special Education teacher requires creativity and innovation in adapting various teaching methods to accommodate students' needs. Teacher should be able to think outside the box by emphasizing on the activities that will promote memory retention rather than rote memorization. Slow learners may become meaningful learners with the help of creative and innovative teacher. Intellectual development of slow learners may be seen in course of time once their external related factors solved and memory retention improved (Reddy, 1997).

References

- Alegria, J. (2004), "Deafness and reading," in *Handbook of Children's Literacy*, Springer, Netherlands, pp. 459-489.
- Alegria, J., Lechat, J., & Leybaert, J. (1988), *Role of Cued Speech in the Identification of Words by the Deaf Child: Theory and Preliminary Data*, Glossa Society, Department of Modern Languages, Simon Fraser University.
- Alegria, J., Lechat, J., & Leybaert, J. (1990), *Role of Cued Speech in the Identification of Words by the Deaf Child: Theory and Preliminary Data*¹, *Cued Speech Journal*, Vol. 4, pp. 10-23.
- Aparicio, M., Peigneux, P., Charlier, B., Neyrat, C., & Leybaert, J. (2012), "Early experience of cued speech enhances speechreading performance in deaf," *Scandinavian Journal of Psychology*, Vol. 53, No. 1, pp. 41-46.
- Borah, R. R. (2013), "Slow learners: role of teachers and guardians in honing their hidden skills," *International Journal of Educational Planning and Administration*, Vol. 3, No. 2, pp 139-143.
- Cornett, R. O. (1967), "Cued Speech," *American Annals of the Deaf*, Vol. 112, pp. 3-13.
- Cornett, R. O. (1994), "Adapting cued speech to additional languages," *Cued Speech Journal*, Vol.5, pp. 19-29.
- Cornett, R. O., & Daisey, M. E. (2001). *The Cued Speech Resource Book for Parents of Deaf Children*, National Cued Speech Association, USA.
- LaSasso, C. J., Crain, K. L., & Leybaert, J. (2010), *Cued Speech and Cued Language Development for Deaf and Hard of Hearing Children*, Plural Publishing Inc., San Diego, pp. 245-345.
- Leybaert, J., & Alegria, J. (2003). "The role of cued speech in language development of deaf children," in Marschark, M. & Spencer, P.E. (Eds.), *Oxford Handbook of Deaf Studies, Language, and Education*, Oxford University Press, Oxford, pp. 261-274.
- Leybaert, J., & Charlier, B. L. (1996), "Visual speech in the head: the effect of cued speech on rhyming, remembering and spelling," *Journal of Deaf Studies and Deaf Education*, Vol. 1, pp. 234-248.
- Mohammed, T., Campbell, R., Macsweeney, M., Barry, F., & Coleman, M. (2006), "Speechreading and its association with reading among deaf, hearing and dyslexic individuals," *Clinical Linguistics & Phonetics*, Vol. 20, No.7-8, pp. 621-630.
- Moore, D. F. (2001), *Educating the Deaf: Psychology, Principles and Practices*, Houghton-Mifflin, Boston.
- NCSA. (2006), *A Quick Review of Cued Speech*, National Cued Speech Association (NCSA), Retrieved May 20, 2015 from <http://www.cuedspeech.org/pdfs/facts/Cued-Speech-Overview.pdf>
- Reddy, G.L (1997), *Slow Learners: Their Psychology and Instruction*, Discovery Publishing House, USA, pp 51-55.
- Torres, S. & Moreno-Torres, I., & Santana, R. (2006), "Quantitative and qualitative evaluation of linguistic input support to a prelingually deaf child with cued speech: a case study," *Journal of Deaf Studies and Deaf Education*, Vol.11, No. 4, pp. 438-448.