

# **DEVELOPING A NEW INSTRUMENT TO MEASURE YOUNG ADULTS DYSLEXICS' READING COMPETENCIES IN MALAYSIAN LANGUAGE**

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## **Abstract**

Young adult Dyslexics still continue to struggle to read texts as the way they see the words are different from normal people. They would take a longer time to read a text passage on screen or printed mediums. This can significantly impede their performances when performing tasks and examinations at higher education institutions or working organisations. Having a tool that can measure their reading competencies is useful as appropriate assistance or support can be given for them to overcome their difficulties. At the moment, readability formulas that measure reading competency are in English, using average words per sentence and average syllables per word. There are differences in constructions of Malay and English words as Malaysian language tend to have up to five and six more syllables per word when compared to English. This paper will discuss how the existing formulas are analysed and improved to suggest a better instrument that can measure young adults Dyslexics competencies to read Malaysian Language. A range of printed and on screen materials were sampled and studies to match the accuracy of current measurement based on the level of reader competencies, their age groups and a range of reading materials. Preliminary results from this work-in-progress suggest that there are other language parameters that can influence young adults Dyslexics' reading competencies such as the used of advanced word and the inclusion of known difficult word for dyslexics in passage. It is expected that the revised formula will increase the accuracy of measuring reading competencies for young adults Dyslexics in Malaysia.

**Keywords:** Young adults dyslexics, Reading competency, Malaysian Language

## **Introduction**

Recently, there is increasingly in the number of works that choose young adults as participants particularly in health and education. Young adults can be defined as young adulthood as 18 to 25 years old or 18 to 26 years old (MIT; "News From The National Academies", 2010). However, Ashley explained term "young adult" was composed by the Young Adult Library Services Association during the 1960s to represent the 12 to 18 age range (Strickland, 2013). In UK Youth website illustrate the statistics about young adults in UK, which gives range of age of young adults are lies on 16 to 24. The definition of young adults nowadays in UK could be very different from 40 years ago and even 20 years ago. This could be because the path to adulthood has changed, and contrasted and past eras we now have a circumstance where youthful grown-ups are living for more in the family home, being urged to stay for more periods in education, are less financially independent, and are postponing marriage in favour of the more modern arrangement of living together ("Statistics About Young People in UK", 2011). While in article from The Slate Book Review (Graham, 2014), the definition of young adults is generally refers to books written for 12- to 17-year-olds. In the meantime, the cultural definition of "young adult" now extends essentially to age 30.

According to an article written by Lapkin, Dyslexia is primarily associated with trouble reading. Some doctors, specialists and educators may refer to it as a "reading disorder" or a "reading disability." But it can also affect writing, spelling and even speaking (Lapkin, 2014). Most students encountered difficulties in spelling, expressing their ideas clearly through writing, unable to finish examination on time, forgetful, unable to relate the ideas read in passage and left-right confusion (Rose, 2009). Dyslexia is generally about information processing as dyslexic people have a tendency to have difficulty processing and remembering information what they see and hear. This problem can affect their learning and the acquirement of literacy skills (British Dyslexia Association).

Most of young adults in Malaysia have not been tested during childhood because of several factors like assessment for diagnosing only available at dyslexia centre in Kuala Lumpur area and consume time and costly (Hazawawi & Hisham, 2014). Famous peoples like Walt Disney has proved that dyslexics like them can success in their life as long as they tend to find chances to overcome their problems.

The main focus of this paper is to discuss on measuring suitability of reading materials in Bahasa Melayu among young adults with dyslexia. Currently, there is a readability formula to measure the readability of the materials in Bahasa Melayu compared to in English where there is more than 40 formulas that have been developed. The current studies usually like to discuss and more narrowed to the general term of reading like difference between readability formulae, theories of reading, extensive reading and so on.

## **Situation Of Young Adults With Dyslexia In Malaysia**

Bahasa Melayu is our mother tongue that frequently used by majority of people in Malaysia. Some of young adults maybe have overcome the reading problem but they are not precisely become a skilled readers. If the reading problem can be discovered during childhood and they had been assuming to have weaknesses in phonological processing, they can go through for a systematic intervention program that will improve their phonological skills and so can help their impending reading problem. In this procedure of information securing, language plays a very important role. It is a medium where

contents are conveyed. Language become vital instrument in scattering knowledge and obtaining access through the printed materials, mass media and internet (Ariffin, 2013). An article in Astro Awani website, Former Information, Communications, Arts and Culture Minister, Tan Sri Dr Rais Yatim said that Malays should dependably be fluent in their primary language first before attempting to ace the English language or different languages (“Master your mother tongue first before English”, 2014).

A study was conducted to observe trends of reading and how to improve reading skills among Malaysian students. As a primary trend, reading is become important for examination rather than for getting knowledge or information. Malaysian people read an average of two books per year, which is very low (Inderjit, 2014). An article from The Malaysian Insider on reading habit on the rise in Malaysia, said that a study led by the National Library (PNM) found that Malaysians now read an average of 14 books a year, from just over two pages around 14 years ago. This is because emergence of information technology, like Internet and the social media and it changed the reading environment, from the reading room to anyplace regard suitable by users of the gadgets (“Reading habit on the rise in Malaysia”, 2014). While an article in GFK website, stated that reading newspaper seem by all accounts to be a standout amongst the most well-known activities in Malaysia, with around four in five in the nation asserting to do it week after week or all the more regularly; subsequent to listening to music and shopping for groceries (“Malaysians Are Second Most Avid Weekly Readers of Newspapers”, 2013).

Assistive technology should be used by people with learning disabilities to help them in reading especially (Kelly & Stodden). Hazawawi and Hisham (2014) have suggested that the best way to diagnose people with dyslexia are using assessment, where usually reading comprehension tests are usually timed. A report from Auxiliary aids and access to learning for children and young people with dyslexia/severe reading difficulties, said that the percentage of dyslexic user according to age are increase because of firstly, the way that they don't see themselves as dyslexic does not so much imply that they don't experience having reading difficulties. Besides, it additionally does not so much imply that they are not dyslexic, as they have not been tested or diagnosed (Moe & Willemann, 2011). Generally it has been the role of the psychologist to give confirmation that people has dyslexic learning differences. It can take quite a while and be excessive to take after this course, however there are presently on-line and software tool that can be utilized by instructors to acquire some thought of the level of seriousness and for milder cases to give intercessions that can prepare tools to the dyslexic individual to help them with their learning difficulties. However, it is very important to keep in mind that screening tools just highlights figures that are likely markers of dyslexia and ought to be considered as signposts to further examination and not as an accurate diagnose (British Dyslexia Association).

### **Reading Comprehension And Construction Of Words**

Reading is a fundamental part in language competency. Unfortunately, not every person comes to reading naturally, maybe there could be a group of learning disability like dyslexia and this will affect their reading ability. People with dyslexia will struggle to read the texts as the way they see the words are different from normal people. They tend to take a longer time to read a passage in text (The Yale Center For Dyslexia and Creativity/Dyslexia Help at the University of Michigan). When people have difficulties with reading, they start to feel frustrated and feeling incapable. These feelings should not be accomplice in the process of learning.

*Overcoming Dyslexia* written by Shaywitz, in Chapter 13-Diagnosing Bright Young Adult, average scores on reading tests for dyslexic students cannot measure the greater effort that went into reading each word, to laboriously pronouncing it bit by bit, to rereading it over and over again (repeating) until it began to sound right and make sense (Shaywitz, 2003). After all, dyslexics still can learn to read more words precisely and can learn to read with good comprehension, but the relentless phonologic deficit forbids fluency. Reading comprehension is very important for building a strong base for success in study. People with dyslexia always have reading comprehension problems as they need to develop several causal skills to understand the comprehension (Lapkin, 2014).

There are differences in constructions of Malay and English words. For example in the number of syllables of words. Usually Malay words can have till five to six syllables compared to English words that have mostly two to three syllables. Construction of Malay words are divided into three which are Kata Tunggal, Kata Majmuk, Kata Ganda and Kata Terbitan. Other factors that affect the reading are the structure of the words, the idea of the text, physical of the text, background and interest of the readers, cultures and readers' trustiness (Guat, 2005).

### **Readability Formula In English**

There are many types of readability formulae in English especially since 1940s, either use simple calculations or use more sophisticated. They should be considered as parameter and reference point rather than a rule (Kurniawan & Conroy, 2007). Readability formula usually developed from these two basic concept, which are average words per sentence and average syllables per word.

Some of the formula are derived from the existing formula, for example The Powers-Sumner Kearl Readability formula are recalculated from Gunning Fox Index using McCall-Crabbs Reading Lessons. Flesch-Kincaid reading ease, Flesch-Kincaid grade level and Guuning fox Index are the most used to measure the readability reading material in English. Other example of readability formula that had been used for other language are; Fernandez-Huerta (Spain), Hayashi (Japanese), Douma (Dutch) and Kandel & Moles (French).

Those readability formula had been used since long ago not only in education field, but also publishing and health care. Each formula have both advantages and disadvantages accordingly. Bialik (2008) said that some researchers are trying to improve the formulas by integrating information about the frequency of words used in the texts in English Language formula. She added other readability researchers propose that nothing beats the thorough testing of a text with a target audience of readers.

S.Kurniawan & G.V.Conroy, (2007) in their book, Chapter XI-Comparing Comprehension Speeds and Accuracy of Online Information in Students with and without dyslexia, explained on Flesch-Kincaid technique.

On the other hand, Stephen (2000) in his article said that, readability formulas cannot measure how comprehensible a text is and they cannot measure whether a text is suited for targeted readers' need. She added, readability formulas are considered to be predictions of reading ease but not the only method for determining readability, and the formulas do not help people figure out how well the reader will understand the concept of the text.

### Readability Formula In Bahasa Melayu

According to Pikulski, same text materials could be easy task for one reader yet extremely difficult to another. When considering about readability, it is paramount to deal with the complexity of the content of materials.

The readability formula for Bahasa Melayu developed by Khadijah Rohani in 1984, are based on construction of words, which is number of words in sentences and vocabulary, which is number of syllables (Yunus, 1982). Although this formula can calculate the readability level for Malay reading material, unfortunately the formula just focus to students till Form 5, which is 17 years old where do not include in the project's scope. Below is the readability formula in Bahasa Melayu:

$$Y = -13.988 + 0.3793 X (\text{words per sentence})^* + 0.0207 X (\text{number of syllables})^*$$

(\*based on 300 words from the reading sample)

*Table 1 - Readability level according to Year in Primary School and Form in Secondary School*

Readability Level	Year/Form
1	Year 1
2	Year 2
3	Year 3
4	Year 4
5	Year 5
6	Year 6
7	Form1
8	Form 2
9	Form 3
10	Form 4
11	Form 5

Table 1 above shows the readability levels ranging from Level 1 to Level 6 that suits Year 1 until Year 6 at Primary school level, followed by Level 7 to Level 11 that matches the academic level of Form 1 until Form 5 at secondary school level. Should the score falls in decimal place (e.g. 1.9), then the readability level indicates that the material is stronger towards Year 2 level.

### Experiment Procedure

Readability formula for Bahasa Melayu developed Khadijah Rohani is used as measurement tool to analyses the readability level of reading materials samples. Nine articles are chosen randomly and revised from newspaper, magazines and children story books. The titles of the reading materials samples are as follows:

Newspaper (Utusan)

Ambil pengajaran musibah banjir- PM

Gubal SOP baharu pengurusan bencana dalam 6 bulan

Tabungan dalam SSPN

Magazines (The articles are used for Sijil Peperiksaan Malaysia in 'Rumusan' questionpart)

Malaysian Certificate of Education (SPM-2006) “Fokus Pengarang” -Dewan Siswa, April 2005

Malaysian Certificate of Education (SPM-2010) “Pemanasan Global” -Dewan Masyarakat, Julai 2007

Koleksi Cerita Islam Terpilih (Children story book)

Kisah Dua Orang Petani

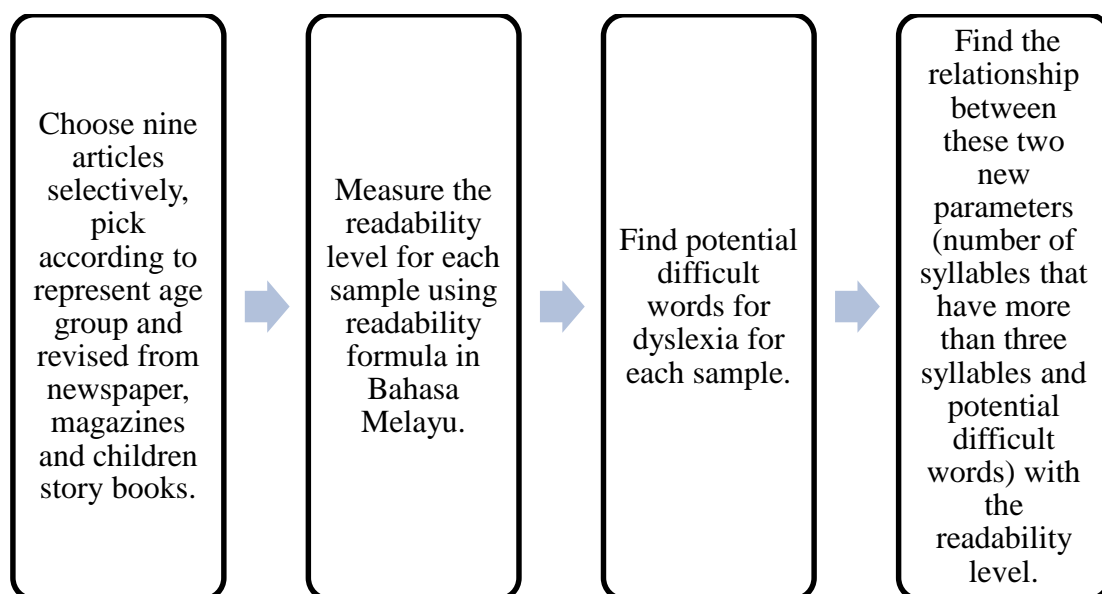
Kisah Doa Orang yang Dizalimi

Sastera Awal Kanak-Kanak (Children story book)

Cinderella

Kisah Anak Pengembala Biri-Biri yang Suka Menipu & Orang Miskin Dengan Kapak

Siri Cepat Membaca Bacalah Anakku (Buku 8)



*Figure 1 - Block diagram of process in selecting and measuring the readability level of reading sample*

Block diagram in Figure 1 illustrates the process in selecting and measuring the readability level of reading sample. Firstly, nine articles were chosen selectively from newspaper, magazines and children story books. Next, we will measure the readability level for each articles using readability formula in Bahasa Melayu by Khadijah Rohani. After that, we will count the number of syllables that have more than three syllables and also find potential difficult words for dyslexia for each sample. Lastly, after we get all the data, we will compare them with readability level for each sample to see the relationship between both of variables.

An experimental study to measure the readability level of reading materials samples are conducted. Research questions investigated on the study are focused on:

1. What is the purpose of using readability formula in Bahasa Melayu developed by Khadijah Rohani?
2. Is it each sample of reading materials have potential difficult words for dyslexia and what are the examples of the words?
3. Why we need to calculate the number of syllables for each words for each samples of reading materials?

## Results

The readability level for each sample of reading materials are recorded. The results are shown in the graph below.

The reading material samples vs The readability level

*Table 2 - The reading material samples and the readability level*

Reading Materials	Readability Level	Age Range
<i>Ambil pengajaran musibah banjir- PM Gubal SOP baharu pengurusan bencana dalam 6 bulan Tabungan dalam SSPN</i>	11.6770	-Public reading - People more than 17 years old
<i>SPM(2006) "Fokus Pengarang" -Dewan Siswa, April 2005</i>	8.2204	-Public reading - People more than 17 years old
<i>SPM(2010) "Pemanasan Global" -Dewan Masyarakat, Julai 2007</i>	8.5081	-Public reading - People more than 17 years old
<i>Kisah Dua Orang Petani</i>	5.9717	-People more than 11 years old
<i>Kisah Doa Orang yang Dizalimi</i>	5.3788	-People more than 11 years old
<i>Cinderella</i>	5.1571	-People more than 11 years old
<i>Kisah Anak Pengembala Biri-Biri yang Suka Menipu &amp; Orang Miskin Dengan Kapak</i>	4.0243	-People more than 10 years old
<i>Siri Cepat Membaca Bacalah Anakku (Buku 8)</i>	2.0476	-Children who are aged 8 years old (Take Linus Test)

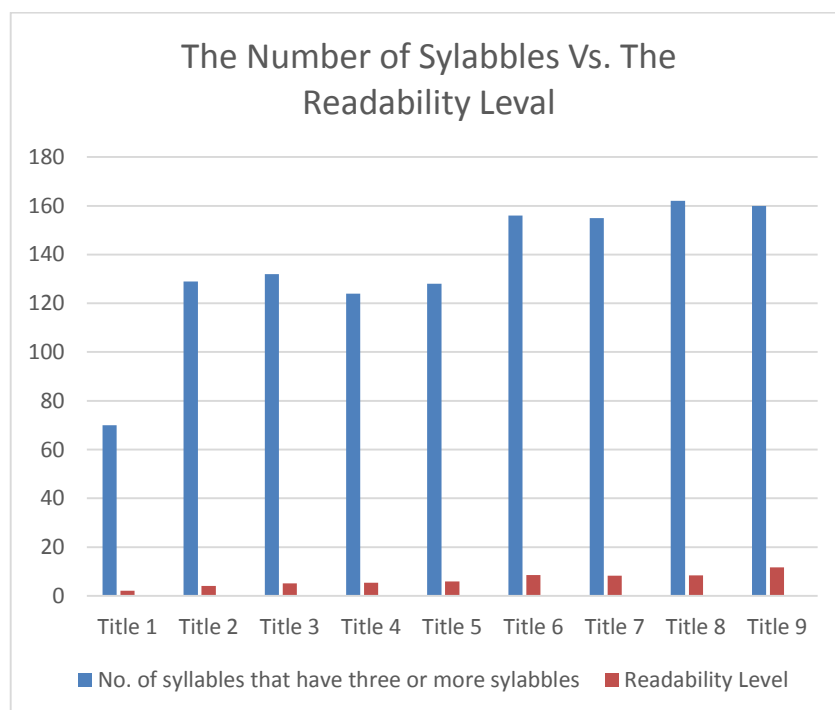
Table 2 above shows the readability level for each reading material sample. Based on the results, the readability level for newspaper are lies between level 8 to 11, which suitable for people more than 17 years old (public reading). The readability level for magazines are lies at level 8, which suitable for people more than 17 years old (public reading). Next, the readability level for children story books are lies between level 4 to 5, which suitable for students aged 10 to 11 years old (Year 4 to Year 5). Lastly, the

readability level for children story book (children who are started to read) is lies on 2, which is suitable for children that are try to read in early phase.

*Table 3 - Title for each samples according to title number*

<b>Title 1</b>	<b>Siri Cepat Membaca Bacalah Anakku (Buku 8)</b>
<b>Title 2</b>	Kisah Anak Pengembala Biri-Biri yang Suka Menipu & Orang Miskin Dengan Kapak
<b>Title 3</b>	Cinderella
<b>Title 4</b>	Kisah Doa Orang yang Dizalimi
<b>Title 5</b>	Kisah Dua Orang Petani
<b>Title 6</b>	SPM(2010) “Pemanasan Global” -Dewan Masyarakat, Julai 2007
<b>Title 7</b>	SPM(2006) “Fokus Pengarang” -Dewan Siswa, April 2005
<b>Title 8</b>	Tabungan dalam SSPN
<b>Title 9</b>	Ambil pengajaran musibah banjir- PM Gubal SOP baharu pengurusan bencana dalam 6 bulan

The number of syllables vs. the readability level



*Figure 1 - The results of number of syllables versus the readability level*

Based on Figure 1 above, it shows that as the readability level get higher, the number of syllables will also get higher.



The number of potential difficult words for dyslexia vs. the readability level

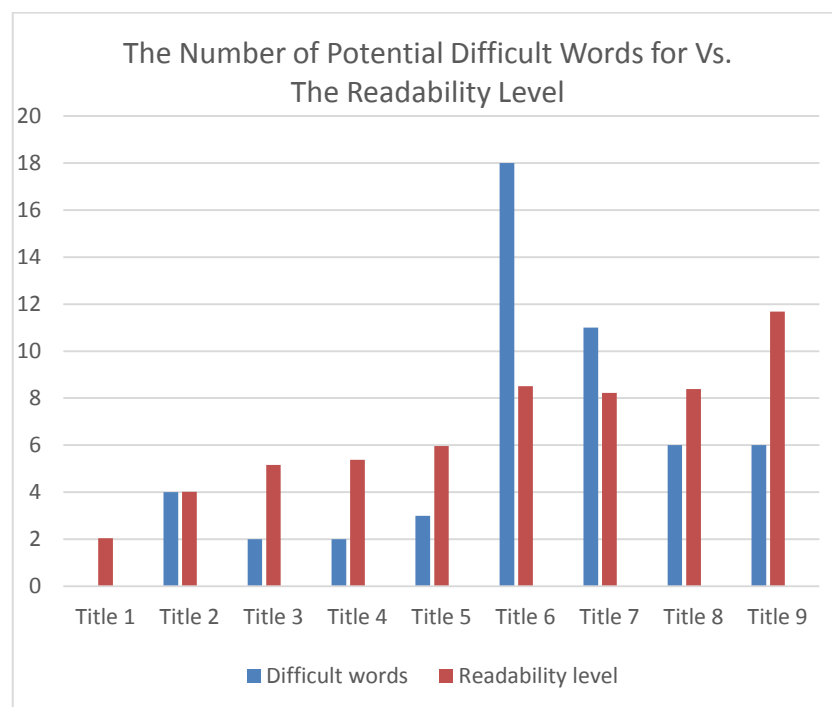


Figure 2 - The results of the number of potential difficult words for dyslexia versus the readability level

Based on Figure 2, as the readability level get higher, the number of potential difficult words for dyslexia also get higher.

### Discussions

In Figure 1, the differences are shown between readability levels and number of syllables that are more than three syllables. For example, a sample Title 9 that have readability level 11.677, have 160 (number of syllables that are more than three syllables). Each part of sample which are early part, middle part and last part consume a big number of syllable, which are 51, 54 and 55 accordingly. Compared to a sample Title 4 that have readability level 5.3788, have 124 (number of syllables that are more than three syllables). ). Each part of sample which are early part, middle part and last part consume a small number of syllable, which are 45, 44 and 35 accordingly.

In Figure 2, the graph shows the number of potential difficult words for dyslexia versus the readability level. Zubir, Daud and Ridzuan (2014) found that there are several mistakes in reading based on Levinson Theory 1994, which are *pembalikan huruf*, *penambahan huruf*, *penyisipan huruf*, *penggantian huruf*, *pemeluwapan huruf*, *pemindahan huruf*, *pengguguran huruf*, and *agakan* or *suka-suka*. For example, a sample Title 6 have readability level 8.5081, have 11 potential difficult words for dyslexia. In other hand, a sample Title 3 have readability level 5.1571, have two potential difficult words for dyslexia. Example of potential difficult words are *meteorologi* (meteorology), *ikhtiar* (initiative), *kejelitaan* (loveliness) and *mengurungnya* (locked).

### **Conclusion**

In a nutshell, the final aim of this ongoing study is to assist young adults who are dyslexics as well as relevant parties to measure and evaluate the readability level of online texts. The concept of improved readability for dyslexics has been developed over the past decades, in line with reading skills concept. Therefore, dyslexics especially at the age of young adults are able to overcome with their reading difficulties although they cannot be permanently cured as dyslexia is a life-long condition.

At the moment, there is a formula that measures the reading ease and grade level in Bahasa Melayu by Khadijah Rohani. Hence, this formula will be used to measure the readability level of some reading materials and indicates potential difficult words for dyslexia in the comprehension.

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