

## Strengthening Jawi Writing for Dyslexia Students through Online Games - Analysis of E-Jawi Games Online in Malaysia

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### Abstract

Jawi alphabets has been used in teaching students at religious schools in Malaysia. This article focused on the Malay language using letters hijaiyah by adding a few characters such as cha, nya, gha, pha and nga. However, there are problems faced by the students, where some of them are not able to write and read properly and attributed as dyslexia students. Therefore, the involvement of information technology is seen very important role in helping students to learn Jawi by exposing them to websites that have a creative Jawi writing system. The study involved the analysis of e-Jawi played online as a case study is analyzed to identify its potential as a teaching tool with multimedia elements such as text, audio, video, images and animation. The analysis was done by observing some of the characteristics of online games such as design features, content features and part of Jawi features. The results of the observations made significant differences in Jawi content in on-line games. Once the analysis is done, the result showed that the potential for users aged 5 to 12 years is very high where the students are very interested to access it. but not lot of on-line games developed focusing on Jawi writing learning system for students with disabilities. Hopefully, in the future that this research can produced a variety of games that can help increase the level of learning skills in Jawi.

**Keywords:** Dyslexia, Jawi, online Games, learning skills

### Introduction

Manifestation of dyslexia depends on the ability of an individual in mind that information is seen and also depends on the language used (Arrej A.W. et al, 2006). Involvement of primary school students in particular, they are faced with learning Jawi system both in primary and religious schools. The information processing in excessive quantities will cause students to lose focus in learning and teaching sessions. For example, in Johor, Malaysia, there is a primary school in the morning session and then a religious school in the afternoon session where the students spend their daylight time in school. This involves students aged 7 to 12 years which are still considered very small and fragile. However, there are students who are not able to master the writing system and considered either slow or incompetent. This has resulted in students known as Jawi dyslexia or DYS "jawia" the inability to determine the Jawi characters in reading or writing. Among the letters in Jawi writing system is (چ) cha, (ن) nya, (غ) gha, (ف) pha dan (غ) nga. These letters are in addition arabic hijaiyah letter's. Jawi writing system can also be viewed as in Figure 1.

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No.	Jawi	Malay
1.	فمبلاجرن	Learning
2.	چاون	Cup
3.	كأئه	Strong
4.	فئكئلين	Calling
5.	پاوا	Life

**Figure 1: Shows the System of Jawi Writing**

### Problem Statement

The challenge can be seen in Jawi writing learning system is a barrier to access electronic content Jawi website, especially in Malaysia. The diversity of styles and forms of writing Jawi causing obstruction to Jawi writing system in the website for the dyslexia. Even exposure to Jawi writing system in the field of website such as an online game seen worrying where it can ruin minds of students. Things such as dangerous if it spreads among primary school students. These groups dyslexia religious school students should be exposed to a learning system from the website or the game interesting, creative, messy, up to date, with a wide range of information, games and quizzes that can invite the students to access it from time to time so that it can be applied as flexible teaching tool anywhere. Therefore, such efforts need to be strengthened in helping educational institutions to address the problems faced by students dyslexia in the era of information technology.

### Literature Review

Dyslexia can be considered as a basic language learning disabilities stemming from a failure to read, write, spell and remember the different forms of writing and words that take many different forms, for example, Italian, Spanish, Turkish, German and Arabic. It is the face of adversity to readers identify letters and words written with different styles for dyslexia sufferers.

Based on the definition issued by the Department's website Kedah categorize people with disabilities in learning are:

"The problem of intelligence that is not consistent with age. Those who fall into this category are delayed global development, Down Syndrome, moist and intellectual disabilities. This category also includes conditions that affect the ability of individual learning as Austisme (Autistic Spectrum Disorder), Attention Deficit Hyperactivity Disorder (ADHD) and specific learning difficulties such as Dyslexia, dyscalculia and Dysgraphia. " Dyslexia is a term for students who can not read well. These terms are taken from the field of "psychology", medicine, language, culture, education and technology. The main problem is with disabilities to read, write, spell, and remember. In Malaysia, there is a system of writing Malay language which refers to the Jawi script to replace the Latin alphabet in religious schools. Subjects each subject in schools is taught in the Jawi script. However, most students are not able to control the system with a good Jawi writing and perfect. Some students may be classified as Jawi dyslexia.

Factors faced by students Jawi dyslexia can be identified as follows, namely:

1. The effect on students' ability to read, write, navigate, understand and remember relevant information from electronic materials such as web sites.
2. Difficulties in visual processing, leading to a delay of visual object recognition and vision problems with concentration and / or extreme light. (Problem GUI- "graphic user interface" and the problem of visual readability).
3. Problems with phonological decoding, analysis and processing (the ability to recognize, produce and letter sound sequence) which often leads to difficulties in acquiring skills in reading, writing and spelling.
4. Problems with short-term and working memory, structure and sequence.

According Zabidi A.M.H. (2000), there are 10 to 15 percent of students in this country who suffer from dyslexia. This problem can be treated because this group is not made up of people who have disabilities, but the inability to understand things properly. For example, reading. He added that such treatment embraces reading and reading therapy can restore a child to normal dyslexia. Criteria and factors below can be applied to determine the online game websites Jawi dyslexia appropriate to the age and ability of students to dyslexia. Among the factors to be considered when analyzing and evaluating the website e-Jawi play online.

Access graphical presentation of this site:

1. color and contrast issues;
2. site design issues;
3. accessor visual text;
4. users control over the presentation.

The following items should also be noted mustered in helping restore dyslexia problems among students. Access to the contents of this website must be:

1. Consider how the actual content is accessible to users;
2. Create content that can be read for those with dyslexia;
3. Make sure the screen is not congested and provide an adequate white space;
4. Use highlighting to emphasize keywords and concepts;
5. Avoid multisensory load or bias.

Figure 2 shows the sixteen categories of guidelines for the training of children with dyslexia arab produced by Fadwa AR, et al (2010) These guidelines can be adapted to the problems of dyslexia Jawi in Malaysia. And the things that need to be prioritized in the development and evaluation system Jawi dyslexia dyslexia.

No.	Classes
1.	Increase understanding
2.	Marking diversity and self-support
3.	Interactive design
4.	Improve flexibility
5.	Reality corresponding
6.	Features pictures
7.	Audio features
8.	Interface features
9.	Types of words
10.	Improve eyesight
11.	Controlling times
12.	Restructing
13.	Uniformity
14.	Navigation
15.	Provide assistance and feedback
16.	Teach arabic language interpreting

**Figure 2: Guidelines for the Training Category Classification Dyslexia Child-Arab**

There are three types of writing technology used in computer systems. Type one, natural types and open types. Design of Jawi writing that can be applied and used to develop a website e-Jawi online games. However, the problem that occurs is that there is software that does not fully support the letter hamzah.

Among the forms and types of writing that supports the full text Jawi, including:

No.	Types of Fonts	Examples
1.	Arabic Typesetting	كومفولن فيليدين جاوي
2.	Times New Roman	كومفولن فيليدين جاوي
3.	Scheherazade	كومفولن فيليدين جاوي
4.	Jawi Uthman Taha	كومفولن فيليدين جاوي
5.	Lateef	كومفولن فيليدين جاوي
6.	Arial	كومفولن فيليدين جاوي
7.	Sakkal Majalla	كومفولن فيليدين جاوي
8.	Aldhabi	كومفولن فيليدين جاوي
9.	Andalus	كومفولن فيليدين جاوي
10.	Urdu Typesetting	كومفولن فيليدين جاوي
11.	Simplified Arabic Fixed	كومفولن فيليدين جاوي
12.	Microsoft Sans Serif	كومفولن فيليدين جاوي
13.	Microsoft Uighur	كومفولن فيليدين جاوي
14.	Traditional Arabic	كومفولن فيليدين جاوي

**Figure 3: Shows an Example of Fonts and Jawi Writing System. Modified by (M. Zamri, M., UKM, 2009)**

Selection of font type also plays an important role in helping to revive Jawi students dyslexia. Unique font Jawi play an important role during the recovery process, there are several forms of Jawi writing systems that do not meet the requirements of students considered Jawi dyslexia. As stated by Areej A.W. et al (2006), the difference "orthographies" arab website there are two differences, the first "deep orthographies" and the second: "Shallow orthographies". Texting technology at the time can help students with dyslexia problems if the methods used to correct and practical such as ejawi games. As proposed by Younes et al (2011), that the use of video games can help identify the symptoms of dyslexia using classic techniques and sophisticated. Use of this technique can help students to improve learning and recovery problems experienced by dyslexia students. Younes et al (2011) also suggests that the use of video games with the intelligence that is able to achieve the objective of the game-based assessment. However, Arrej A.W. et al (2006) suggest that the need for guidelines on the construction site "Arabic e-content". This was seen as a need for guidelines on the website "Jawi e-content" and also e-Jawi games online that can help students in particular dyslexia to access the site and interact with the site and restore the problem. Conclusion, the objectives of this research is to evaluates of the e-jawi games based on online assessment in Malaysia. So, that can find some advantages and disadvantages to improve of the quality on that game and suggestions for future researches.

### Methodology

The research methodology used in this study is observations on websites that provide e-Jawi games online to the children based on the criteria that will be analyzed as a potential site to be developed as a website "Jawi e-content" with interactive way. This will help to restore problems that Jawi dyslexia students have based on e-jawi assessment.

### Findings

The finding shows that there is a website that provides e-Jawi play online, and focuses on the used of Jawi fully as a medium of instruction. Even so, there is a game of "software" for the children who developed based on Jawi writings, such as the "Jawi Explorer".

### Discussion

The game "Jawi Explorer" is suitable for children aged 5 to 12 years. They can learn and recognize letters and words in the Jawi script with an interesting and interactive way. This game is developed very timely and sophisticated information technology currently requires some creative innovation. Exploration methods used in this game helped students to continue playing, assisted by people who are more skilled like parents. "Jawi Explorer" Game covers letters that can be learned for 4, 5 or 6 Jawi words. This helps students to read and recognize particularly Jawi writing system with an exciting, interactive way. The used of 3D system includes a world map and tools will add students' interest to continue to participate in the game up to the highest level.

Interesting presentation by placing the elements of creative graphics help more Jawi dyslexia students to distinguish Jawi letters as visual aids. In this game, players need to collect as much coins you can take while exploring the world map. Coins needed to unlock the 5 and 6 letter words level.



**Figure 4: Shows the Interface of the Online Games Jawi - "Jawi EXPLORER"**

### Suggestion

- Improvements in terms of content and presentation of the games.
- Developing the games in a more systematic and sophisticated way.
- Provide motivation for students to explore the game in the form of e-Jawi online.
- Do not expect the formal education in schools as the main source to improve the students' dyslexia.

### Summary

Based on the analysis, the researchers found there was a gap of extensive studies in the field of development game e-Jawi on-line, especially in this country that can be highlighted. It is appropriate to strengthen the program from the perspective of Jawi and information technology can also be used by all levels of society. Expected from the results of this study, there is a group or organization that strengthen the interactive Jawi writing and to attract users, especially students dyslexia to access it from time to time. Information and learning activities that can be developed into a website Jawi if it needs to be developed. In fact, the next generation will feel the uniqueness of Jawi writing from the standpoint of interest.

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