

IDENTIFYING USEFUL LEARNING TASKS AND WEB-BASED INSTRUCTION IN FACILITATING LEARNING OF CHINESE CHARACTERS AMONG NON NATIVE MANDARIN STUDENTS

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ABSTRACT

In the learning of elementary Mandarin, students are usually required to attend face to face lecture in class, allocate self learning time to do revision as well as assignments, and learn beyond the classroom lessons by referring to resources from the library and Internet. To make the learning in these three situations more interesting and successful, students can utilize web-based instruction (WBI). In order to provide WBI that is tailored to students' needs, the lecturers should arm themselves with the knowledge of constructing a WBI. The first step to the design and construction of a WBI for learning Chinese characters is to develop and identify a set of clear and easy to understand instructions. Hence a survey was carried out to identify the instructions that students find easy to understand, use and follow in their use of WBI to facilitate the learning of Chinese Characters. A set of 4-point Likert scale questionnaire was developed based on 4 popular web sites that teach Chinese characters. These web sites were selected based on several criteria. The respondents were brought to computer lab and asked to browse the selected web sites to learn Chinese Characters. After the learning, respondents were required to answer the questionnaire to choose the instructions they like. The data collected were analyzed using SPSS 17.0. The mean scores of the questionnaires items were analyzed. The results show that the tasks for Learning the Chinese characters in accordance to the sequence of task A to task D (task A to D were stated in the section of result and analysis) were considered useful by the students. Besides, to answer the second research question, 10 web-based instructions that have the highest mean score were identified as the respondents' preferred instructions. The instructions that were compiled, however, may only be suitable for Malay students and not for others.

Keywords: Instructions; Web Site; Chinese Characters; Web-based Instruction (WBI).

1. INTRODUCTION

The utilization of smart phone, iPad and notebook computer has gaining more and more momentum in the Malaysia tertiary education industry. Today, accessing to a Web-based

Instruction (WBI) is no longer a difficult tasking for lectures and students. Most of them have electronic mobile devices and therefore at anytime and anywhere they can access the Internet easily. For this reason, integrating Chinese characters WBI into learning is not a bad idea to the Mandarin lecturers and non native Mandarin students in teaching and learning of Chinese characters. In addition, WBI can make learning more interesting and efficient. However, to ensure the learning success, the lecture need to take the initiative to identify the useful instructions of a Chinese character WBI before design their own WBI or recommend the WBI to their students. Besides, the instructional designers need to know the suitable instructions to be enclosed in their WBI for the non native students as well.

In University of Technology MARA (UiTM), Mandarin lecturers are given limited class contact hours to teach Chinese characters. This limitation does not help students many of whom are exposed to Chinese characters for the first time to satisfactory read and write the characters. Therefore it is crucial to integrate some useful WBIs into the curriculum for students to enforce their learning process in the class and in the absence of their lecturer. However, to integrate WBI into the curriculum, the initial step is to identifying useful instructions of a Chinese character WBI, so that based on the identified instructions, the lecturer will be able to design and provides a tailored WBI to the non native Mandarin students especially the Malay students.

For lectures who are not interested in design their own Chinese character WBI but wish to facilitate their teaching with the ready constructed WBI need guidelines to search for WBI that catered to their students' needs as well. Lectures may not know which WBI to choose for their teaching as now a day the Internet are occupied with large number of Chinese character WBI. With the identification of useful instructions, these lectures can have good guidelines in choosing and recommending tailored WBI to the non native Mandarin students.

Thirdly, identifying useful instructions for WBI helps in providing useful guidelines to instructional designers to design tailored WBI for non native Mandarin students as well.

Fourthly, without a recommendation from lecturer, students who wish to use WBI to facilitate their learning need guidelines as well to search for useful Chinese Characters WBI. Hence, in order for students to search for WBI that is tailored to their needs, the initial step is to identify a set of clear and easy to understand instructions.

1.1 Objectives

The objectives of this study are as follows:

- a) to provide lecturers and instructional designers a set of clear and easy to understand instructions to design tailored WBI for non native Mandarin students.
- b) to provide non native students a set of guidelines to search for useful WBI to facilitate the learning of Chinese characters.

1.2 Research Questions

This research was carried out to answer the following questions:

- a) What were the tasks that should be carried out by students when leaning Chinese characters with WBIs?
- b) What instructions are required to build a useful Chinese character WBI for non native Mandarin students?

2. LITERATURE REVIEW

This section attempts to give a brief review on the definition of the terminology stated in the title of this paper and how some Chinese characters WBI present their contents to the learners.

According to Smith and Ragan (1993), "Instruction is the delivery of information and activities that facilitates learners' attainment of intended, specific goals". The online dictionary, Dictionary.com defines instruction as "the act or practice of instructing or teaching". Therefore, instruction can be summarized as the act of delivering information and activities to facilities learners to achieve intended goals

2.1 *Web-based Instructions*

According to Badrul (1997) WBI is a "hypermedia-based instructional program which utilizes the attributes and resources of the World Wide Web to create a meaningful learning environment where learning is fostered and supported". On the other hand, Relan and Gillami (1997) define WBI as "the application of a repertoire of cognitively oriented instructional strategies within a constructivist and collaborative learning environment, utilizing the attributes and resources of World Wide Web". Mathew and Dohery-Poirier (2000) said that instruction that makes use of computer is called Computer Based Training (CBT), and those strategies that employ the Web as the repository for instructional information are known as WBI. Obviously, the definition of WBI can be summarized as the act of delivering information and activities to facilitate learners to achieve intended goals over the Internet.

2.2 *Review of some Chinese Character WBI on the Internet*

Four Chinese character WBI was reviewed. The WBI were:

- a) The Chinese Character Stroke from Harvard University

The Chinese Stroke of Harvard University is a lesson based WBI. There are two components in the home page, the index and an explanation on how to use the instruction. The index is further divided into two components which is the traditional Chinese character and the simplified Chinese character. The explanation section provided in the home page gives a clear overview to students on how to use the instruction and its contents. In the index page, the instruction presents a list of characters to be learned by the students. To learn how to write a particular character, student can click on it to display the animation of the character. Meanwhile, icons are used to attract the attention of students to the pronunciation and meanings of the characters learned. The words formed by the character are given as well, however only the pinyin (Chinese phonetic system) of the character is provided whereas the words are not attached with pinyin. The frame and grid line are displayed as a background to the animated character to show the students the exact position of the strokes. The radical is shown in red.

b) How to write Chinese Characters from Oxford University

The WBI of Oxford University starts with an introduction page on how to write basic strokes which are used to form a Chinese character. If students wished to learn more, they can click on the link at the bottom of the introduction page to excess the index page for more exercises on Chinese characters. In the index page, the characters are presented according to their structure. As it is not lesson based, therefore it is suitable to be used by a wider public to learn the Chinese characters. To learn how to write a particular character, student can click on it to see a demonstration of animation of the character. Students are also given control to stop and start the animation. They can also click on the stroke order to try to write the character virtually. The direction of each writing stroke and the pronunciation of the character are provided. A grid is given as well in the simple form of a cross, however, the frame is not shown here. Pinyin is provided. An example of words that can be constructed from the character is not provided. The radical of the character is in red. Citing the radical of a character is essential to help students looking for Chinese character in a radical based dictionary. A button is provided for the students to go back to the index page.

c) Chinese Characters Learning Application from the University of Hong Kong

University of Hong Kong extends the learning of the Chinese language beyond the classroom walls with both web and mobile applications. The web site contains an introduction to the structure of Chinese character where grid lines are given in more detail for single part character and compound character. Animation of basic strokes is provided. Students can click on the animation to see the method of writing a basic stroke. In addition, the correct orders of these strokes are displayed in another page to tell the students on how to write a compound character. The application is constructed with Flash Movie, students who like to learn more about Chinese characters can easily download the PC version or Mobile version of the application. By providing a mobile version of the instruction, student can learn Chinese character writing at any place and any time they want.

d) The BBC learn Mandarin online

The BBC learn Mandarin online WBI is an online Mandarin course which can be used by a wider public. This WBI teach students the pronunciation of Mandarin, providing conversation with the topics related to daily activity and teach students how to write chinese characters with animation. In this WBI's home page, there is a link direct the students to access the chinese character learning WBI. Students can start their learning by clicking the start button on the main menu and eventually they will be guided to the main menu. At the main menu, students are adviced to try the 'learn to write' section by choosing a character to see how it is written and try it out temselves later. Meanwhile the meaning of the character is provided in English. The pronunciation of the character is demonstrated by both female and male voice. In addition, grid lines are used to guide students to write the character as well. If students feel confident enough to write the character, they can turn the grid off. Students can click the back button to go back to the previous character and without doubt students can proceed to the next character by cliking the next button too. If students wish to select a particular character without using back and next button, they can navigate to the main menu and select the character they desired of. Therefore, navigating form one section to another in this WBI is easy, simple and not time consuming. After learning all the characters in the 'learn to write'

section, students can proceed to the 'write game' section. This section means to enforce the students' learning. This section divided the characters by level of difficulty. Students are advised to write from basic elementary level to advanced elementary level. This WBI only teach students to write 60 frequently used characters. Therefore it is only useful for beginners and not the advanced students.

3. METHODOLOGY

A quantitative research approach was adopted to carry out this research. A sample of 40 students who learn Mandarin as foreign language from UiTM was invited to fill in the questionnaire. All the students were Malay speakers. They were freshman students who had newly arrived in the Mandarin class. All of the participants have no Chinese character reading and writing training in their past education record. Their age ranged from 17 – 22. The instruments used to carry out this research were the Chinese character WBIs and research questionnaires.

According to Duchastel, selecting suitable web-based media largely based on the educational aims, students' characteristic, pedagogy strategies, and budgets (Duchastel, 1997). Hence, the Chinese character WBI were selected based on several criteria as listed below:

- a) The instructions have to be available in the Internet. Using WBIs to conduct the research helps in terms of accessibility. The WBIs could be accessed from anywhere and at any time provided the students have a data receiving device such as laptop or mobile phone and Internet connection. There is also no requirement to install the WBIs to the students' computer as compare to CD-ROM based learning application.
- b) The instructions had to be free of charge or a big portion of the module has to be free of charge. This criterion is vital as most of the paid WBIs charge their students with US currency. Sometimes the charge could be higher than US50 per year. It is possible that some students might not be affordable to pay for such price. Besides financial constraints, the willingness of students to pay had to be considered as well.
- c) The instruction language had to be either in Malay or in English. Some Chinese character WBIs are good in term of its contents and instructions. However the applications used Chinese as the instruction language and therefore they were not suitable for the Malay students who's were not proficient in Chinese.
- d) The instructions must enclose at least three types and less than five types of media. The media should be appeared in the form of text, image, audio, video and animation. This is to ensure the learning applications selected are well designed in term of media inclusion. Learning applications that enclose too little media may be less interesting in transferring the knowledge. However, too many media enclosed may cause annoyance during the learning process.
- e) The learning application must be suitable for students who learn Chinese as foreign language. Normally the initial engagement of foreign language students in learning Chinese character is to learn from lower to higher level. WBIs for learning Chinese characters as foreign language normally provide such features in their instruction.

Four Chinese character WBIs were selected based on the above criteria to conduct this research. The instructions chosen were the Chinese character stroke from Harvard University, how to write Chinese character from the Oxford University, Chinese Characters Learning Application from the University of Hong Kong and the BBC learn Chinese with free online lessons WBI.

To answer the research questions, a 15 item questionnaire was used. The questionnaire was made up of 2 sections. To collect the data, the students were brought to the computer lab to access the chosen instructions. The students were asked to use the selected WBI to learn the characters given by the lecturer. A numbers of 35 Chinese characters were given to the students to be learned. The characters were taken from the International Curriculum for Chinese Education (Lin, 2009). This curriculum was published by Chinese National Office for Teaching Chinese as a Foreign Language (Hanban) in year 2009. This association has suggested 800 regularly used Chinese characters and 1500 regularly used words for educator to teach their students. Thus Chinese characters taken from this curriculum are suitable to be learned by non-native Mandarin students.

Before learning the characters, a set of tasks were given to the students. The tasks were depicted in figure 1. To carry out the tasks, students were asked to learning the given Chinese characters by firstly understanding the meaning of the character; secondly, learn the pronunciation of the character; thirdly, learn to write the characters and lastly learn how to use the characters. After carried out their tasks, questionnaire was distributed to the participants to survey the instructions that they believe were useful. Participants were given the following scales to indicate the level of their agreement to obtain the feedback. The scales are 4- very effective, 3-effective, 2- not effective, 1- not effective at all. The lecturer also explained the meaning of the scales to the respondents. Very effective means all the instruction given were very useful. Effective means most instructions were useful except a few were confusing. Not effective means most of the instruction were confusing except a few were useful. Not effective at all means all the instructions were not useful.

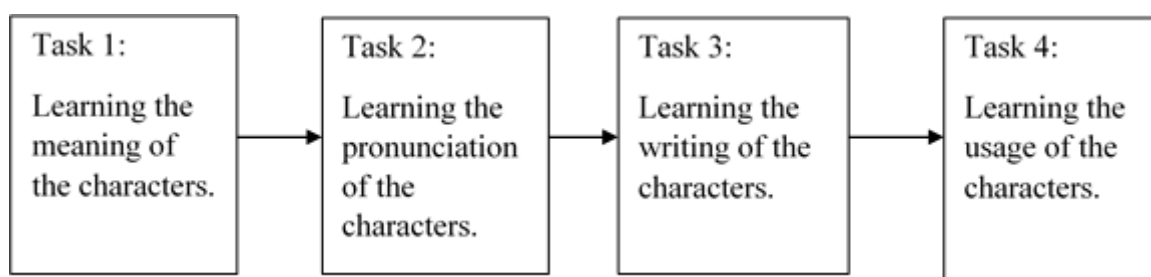


Figure 1: The tasks for learning Chinese character with WBIs

To ensure the validity of the questionnaires', face validity was conducted for the questionnaires by asking 3 lecturers and 2 students to review the initial draft of the questionnaires. The lecturers who did the review were senior lecturers. These lecturers have at least 10 years of experience in teaching Mandarin as foreign language in UiTM. The students who reviewed the questionnaire were new to Chinese character. After the review, some amendments were made to the initial draft of the questionnaires according to the opinions given by the reviewers.


In order to identify whether the items were reliably measure the same latent variable, a Cronbach's alpha was run on the participants' response of this research. The value obtained was 0.706 which indicates an acceptable of reliability for the scale with the selected sample.



4. RESULTS AND ANALYSIS

The feedbacks of the respondents were analyzed with SPSS 17.0. The means of the data were observed to compile the results of this research.

The table below shows the mean score of the questionnaires for this research.

Table 1: The mean scores of the research items

Number	Items	Mean scores
Section A		
Task 1. Meaning		
1.	The instruction that provides the meaning of the Chinese characters in Malay is useful in helping me to understand the meaning of the Chinese characters.	3.75
2.	The instruction that provides the meaning of the Chinese characters in English is useful in helping me to understand the meaning of the Chinese characters.	3.30
3.	The instruction that tells the origins, the history and the changing meaning of the character is useful in helping me to understand the meaning of the Chinese characters.	3.00
4.	The instruction that shows the graphic component that indicates the meaning of this the characters is useful in helping me to understand the meaning of the Chinese characters.	3.10
Task 2 Pronunciation		
5.	The instruction that demonstrates the pronunciation of the characters with a female voice is useful in helping me to pronounce the Chinese characters.	3.70
6.	The instruction that demonstrates the pronunciation of the characters with a male voice is useful in helping me to pronounce the Chinese characters.	3.05
Task 3 Writing		
7.	The instruction that demonstrates the step of writing basic stokes of Chinese characters before teaching me to write the characters is useful in helping me to write the Chinese characters.	3.60
8.	The instruction that shows me how to write the strokes of the characters with arrows is useful in helping me to write the Chinese characters.	3.50
9.	Grid line A is useful in helping me to write the Chinese characters. Grid line A 	3.00
10.	Grid line B is useful in helping me to write the Chinese characters.	2.30

	Grid line B 	
11.	Grid line C is useful in helping me to write the Chinese characters. Grid line C 	3.80
12.	The instruction that tells me the stroke order of this character with the help of numbers is useful in helping me to write the Chinese characters.	3.65
Task 4 Usage		
13.	The instruction that tells me how to form words with this character is useful in helping me to use the Chinese characters.	3.35
14.	The instruction that tells me how to construct sentences with this character is useful in helping me to use the Chinese characters.	3.25
Section B		
15.	Learning the Chinese characters in accordance to the sequence of task 1 to task 4 is useful in helping me to understand, read, write and use the Chinese characters.	3.45

To find out which instructions help the respondents to understand the meaning of Chinese character effectively, items 1-4 were used to collect the data. The mean scores for items 1, 2, 3 and 4 were 3.75, 3.30, 3.0 and 3.1 respectively. The result proved that most of the students are more inclined to use Malay to learn the meaning of the Chinese characters. However, respondents did not refuse to use English, but the score shows that using Malay to explain the meaning of the Chinese characters is more helpful than English. To know the radical, the history, the origin and the changing meaning of the Chinese character were also helpful in learning the meaning of the characters, but they are less important compared to providing the meaning in Malay and English.

To examine which instructions help the respondents to pronounce the Chinese character, items 5 and 6 were used to collect the data. The mean scores for items 5 and 6 were 3.70 and 3.05. Respondents prefer to listen to female voice when learning pronunciation than male voice. This result is corresponding to the result found by Ong in her research in year 2012 (Ong et al, 2012). According to Ong, female voice is sharper and clearer than male voice, and hence female voice was the choice to learn the pronunciation.

To discover which instructions help the respondents to write Chinese character, items 7-12 were used to collect the data. The mean scores for items 7-12 were 3.60, 3.50, 3.00, 2.30, 3.80 and 3.65 respectively. According to the respondents, learning to write basic stroke before writing Chinese character helps in their writing. Using arrows for showing how the strokes of character were written helps respondents to write as well. In terms of using grid lines to guide the writing of Chinese character, respondents prefer grid line C. Telling the stroke order of Chinese character with numbers was found a helpful instruction to the respondents as well.

To study which instructions help the respondents to use Chinese character, items 13 and 14 were used to collect the data. The mean scores for items 13 and 14 were 3.35 and 3.25. The instruction teaches the respondents how to form words and sentences with the Chinese character

were useful instructions, however, these items' mean scores were lower than the mean scores of item 1, 5, 7, 8, 11 and 12, hence item 13 and 14 were less fundamental compared to item 1, 5, 7, 8, 11 and 12.

5. CONCLUSION

The results of this research showed that the proper flows of students learning Chinese characters are firstly, understand the meaning of the characters. Secondly, pronounced the characters accurately, thirdly, writing the characters correctly and lastly knowing how to use the characters properly. Students also believe that most items (the instructions) were very useful in helping them to learn Chinese characters except item 10. Therefore, a useful Chinese character WBI catered for Malay students shall facilitates the learning with the following instructions. a) The meanings of the Chinese characters are provided in Malay. b) Tell the students the meaning of the graphic component, the history, origins of the Chinese of the Chinese characters. c) Demonstrate the pronunciation of the Chinese characters with female voice. d) Demonstrates the step of writing basic strokes of Chinese character. e) Teach students to write stokes of Chinese character with arrows. f) Use this grid lines C to assist students to write Chinese character. g) Tell students the stroke order of the Chinese character with the help of number. h) Tell students how to form words with the Chinese character. i) Tell students how to construct sentences with the Chinese character.

The results can also be adopted as a standard for lecturer to refer to when selecting or designing WBIs for teaching Chinese character. The tasks and instructions that should be included were illustrated in figure 2.

Useful Task	Useful Instructions
Task 1	a) The meaning of the Chinese characters are provided in Malay. b) Tell the students the meaning of the graphic component, the history, origins of the Chinese of the Chinese characters.
Task 2	c) Demonstrate the pronunciation of the Chinese characters with female voice.
Task 3	d) Demonstrates the step of writing basic strokes of Chinese character. e) Teach students to write stokes of Chinese character with arrows. f) Use grid lines C to assist students to write Chinese character. g) Tell students the stroke order of the Chinese character with the help of numbers.
Task 4	h) Tell students how to form words with the Chinese character. i) Tell students how to construct sentences with the Chinese character.

Figure 2: The useful tasks and instructions of WBIs for learning Chinese characters catered for Malay students

Besides, Siew, Lew and Pang (2009) also stated that adopting a variety of delivery modes into a curriculum offer students a more rewarding and successful learning experience. Thus by no doubt, WBIs should be incorporated into the blended learning environment which currently highly encouraged by University of Technology MARA.

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