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Building Cham – Vietnamese Electronic Dictionary

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4 Abstract

The Cham people in Vietnam are closely related to other Austronesian people speak Cham, a Malayo-Polynesian language of the Austronesian language family's Chamic subgroup. Cham Script was founded on stone stele in 4th century and the Cham are still using this script system. To ensure preservation of Cham language, this study intends to develop Cham electronic dictionary application product in order to lookup Cham and Vietnamese. The framework of dictionary development includes three components; data, database and evaluation, learning environment design and application products. ADDIE model was employed in the whole development process. Questionnaire with a scale from 1 to 5 is used to measure the evaluation of Cham electronic dictionary, six proposed features of the dictionary were fully agreed on by 70 respondents of Cham people, and seven experts (academic) to evaluate with result has achieved 94.29%. This product is suitable and useful for schools, institutions, training organization in assisting teaching and learning Cham language. This is a Web based dictionary open to world wide access.

Keywords: Cham Dictionary; Cham Vietnamese Dictionary; Cham Script Dictionary

1.0 Introduction

Cham people are ethnic groups of the Champa kingdom was established in the second century in central Vietnam. Cham language is one of the languages in the family of multi-island "Austronesian". Therefore Cham language is close relationship with Malay language (Coedes, 1939; Lafont, 2011).

Using Cham electronic dictionary to lookup and preserve Cham language on computer has become necessary and useful for Cham communities. The application product provides knowledge about alphabets, letters, phonics, vocabularies, and the basic of Cham language grammar. Additionally, through using of these products, stimulate student to pride of Cham language and Cham script heritage, stimulate thinking ability and creativity in learning, research, preservation of Cham script to serve individuals and communities. Recently, there have been some bilingual dictionary widely used in Vietnam for ethnic minority people such as Vietnamese – Jrai; Vietnamese – Mnong; and Vietnamese – Stieng (Sang, 2007). However, There is not an electronic dictionary for Cham. Since our main purpose, we carry out to build an electronic dictionary for Cham.

2.0 Literature Review

Language is a special signal system, the basic means of communication and the most important member of the community. Language is the means and the development of thinking, is the basis of development and cultural exchanges of the nation. However, want

to use good and properly definition of words in communicate should understand the basic concept of the word. In life, not everyone can understand the concept, the meaning of a particular word, to make it easier to look up the word concept, the terminology, and the linguist has codified from words in the dictionary.

According to Alonso Rizo-Rodriguez (2004), dictionaries are very important language learning tool. The teaching and learning of English can be done not only on different grammatical studies, but also on a large range of dictionaries. Castells (1999), since the development of information technology, has opened a new era in the history of mankind and this development has profoundly altered most aspects of social life: economic, cultural, tourism, commerce, communication... As for the development of information technology, users looking for different types of information from many different areas, and can be updated quickly to save their time in searching. Some researchers have attempted to classified electronic dictionaries in various types based on different criteria. An electronic dictionary typology by Ehr (1996), which focuses on technical and lexicographical evaluation. This model has distinguishes between online or offline dictionaries based on technical evaluation. In which, Offline dictionaries comprise pocket electronic dictionaries (PEDs) and PC dictionaries. PC dictionaries include dictionaries in CDROM, floppy disk and other formats. This typology newly developed electronic dictionaries, as well electronic dictionaries with both print and innovative appearances from distinguish between electronic dictionaries based on their paper versions.

3.0 Objective

In order to achieve this aim, the objectives of the research to be investigated are as follows:

- (i) To build the Cham - Vietnamese bilingual dictionary using three kinds of writing are Cham Latin, Cham script (traditional Cham script) and Vietnamese.
- (ii) To preserve the Cham script and Cham language by using Cham electronic product to lookup the Cham and Vietnamese.
- (iii) To develop Cham electronic dictionary application based on ADDIE model.
- (iv) To evaluate the product Cham -Vietnamese bilingual electronic dictionary for ease of use, convenience and quality.

4.0 Methodology

The main purpose of this research is to develop Cham electronic dictionary application to preserve the Cham script and Cham language. In this study, a quantitative research method has been employed in data collection and analysing the research data. The application product was developed using ADDIE model (Analysis, Design, Develop, Implement, and Evaluate). In analysis phase, we have carried out some conceptual and analytical such as the data, database and evaluation, Figure 1 refers to the analysis and designs a set of learning materials on electronic dictionary.

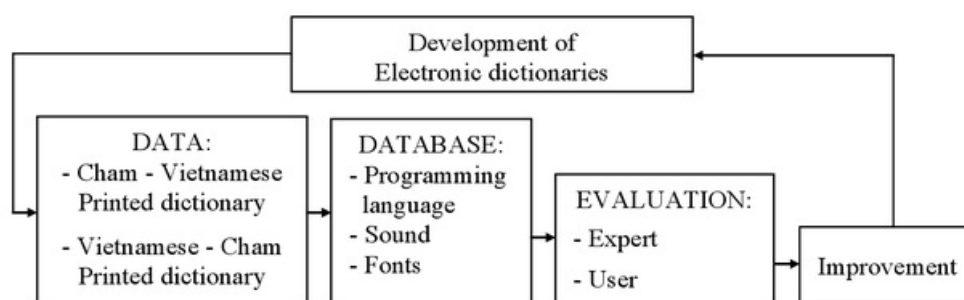


Figure 1. Framework of Electronic Dictionary Development

In design phase, Microsoft Access was created for dictionary database. The data source is based on two printed dictionary. First, the Vietnamese - Cham printed dictionary (Sakaya, 2014) and second the Cham - Vietnamese printed dictionary (Moussay, 1971). In


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graph TD
    VE[Vietnamese entry] --> WC[Word-class]
    WC --> CM[Cham meaning]
    CM --> VP[Vietnamese phrases]
    CM --> CP[Cham phrases]
    VP --> VEx[Vietnamese example]
    VEx --> CEx[Cham example]
    CEx --> VI[Vietnamese idioms]
    VI --> CI[Cham idioms]
    CI --> VP
    CI --> CP
    VP --> VEx
    CP --> CEx
  
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In addition, we have designed a number of basic functions such as input new entry, edit entry, delete entry, update the dictionary, search entry, review the list of entries, lookup by cross-link entries in the dictionary, change some options of attributes such as font, size, color..., coding, support user guide, and pronunciation of Cham language. After entering the entries into the dictionary, the program system allows to pronounce the Cham entries. Audio file is process standardized, accurate, high quality and sufficient quantity. Following that the development and Implementation phase of dictionaries are conducted step by step as analysis and design, and finally the application product was evaluated by a group of experts and users.

To evaluate some functions of dictionary, we have listed a number of attributes including some basic functions for the dictionary, and chosen seven experts (academic) to evaluate with a form. As a result, all of them totally agreed with a number of basic functions which were launched for dictionaries. An evaluation survey result is as shown in Table 1.

Dictionary basic functions	
Accepted	94.29%
Almost	5.71%
Not Accepted	0.00%

In this experiment, we have tested the level of acceptance for the dictionary application product. Each question with a scale from 1 to 5 is used to measure the evaluation of Cham electronic dictionary through their answer in the questionnaire. The assessment result for each question is presented in Table 2.

No.	Item	Agree	Strongly Agree	Total
1	Electronic dictionary is useful for looking up Cham words.	33 (47.1%)	37 (52.9%)	70 (100%)
2	Electronic dictionary is easy to use.	30	40	70

		(42.9%)	(57.1%)	(100%)
3	I like to search the Cham dictionary entries by using the EFEO Cham Latin.	8	62	70
		(11.4%)	(88.6%)	(100%)
4	I like the dictionary using Cham script and annotation by EFEO Cham Latin.	6	64	70
		(8.6%)	(91.4%)	(100%)
5	I like the way using cross-link to search Cham entries in Cham dictionary.	6	64	70
		(8.6%)	(91.4%)	(100%)
6	Dictionary entries are pronounced correctly and clearly.	56	14	70
		(80.0%)	(20.0%)	(100%)

1

The following is the interface of research products, the interface of Vietnamese - Cham and Cham - Vietnamese dictionary was built as shown in Figure 3.

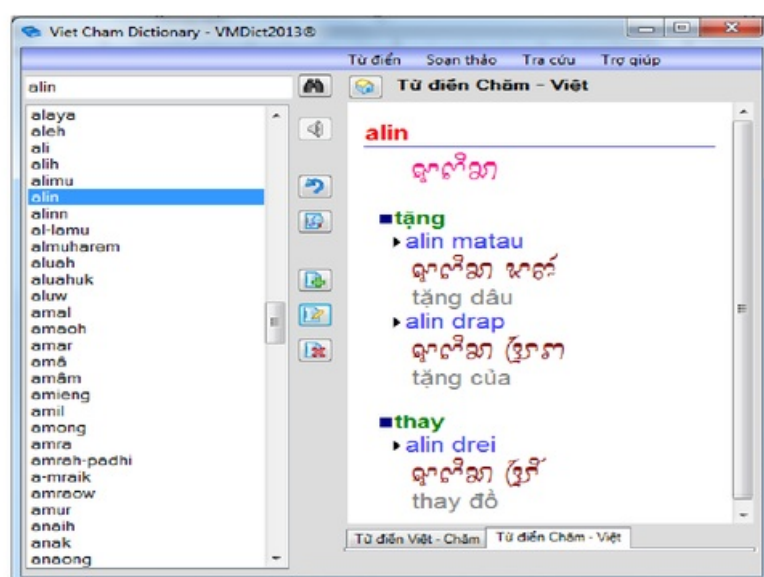


Figure 3. Vietnamese - Cham and Cham - Vietnamese Dictionary Interface

6.0 Discussion

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Cham electronic dictionary has important implication in studying, teaching and searching as well as preservation of Cham script and Cham language. To test the level of acceptance for the dictionary application product, we have examined, as the results are presented in Table 2. The results show that the respondent answer with two choices are agreed and strongly agreed with a total of 70 (100%). This implies that the respondent has a good level of acceptance towards Cham electronic dictionary. All the respondents stated only their agreement by circling agree and strongly agree on scale, and not a single one stated their disagreement. Specifically, among the six items asked, item number 4 and item number 5 showed the highest value which is 64 (91.4%). The findings of the study tell us that the respondents have good perception towards the dictionary using Cham script and annotation by EFEO Cham Latin, and the way using cross-link to search Cham entries in Cham dictionary. In addition, item number 6 with lower value on the scale, implies that among the six items, item number six is the one to which respondents have showed the lowest perception; the dictionary entries are pronounced correctly and clearly. However, this item is still considered as of high value.

From Table 2, we computes the score of 6 items for each respondent. The result is displayed as in Table 3 and Figure 4.

Table 3. Respondent and Total Score

Number of respondent	Total score
5	30
22	29
20	28
16	27
2	26
2	25
3	24

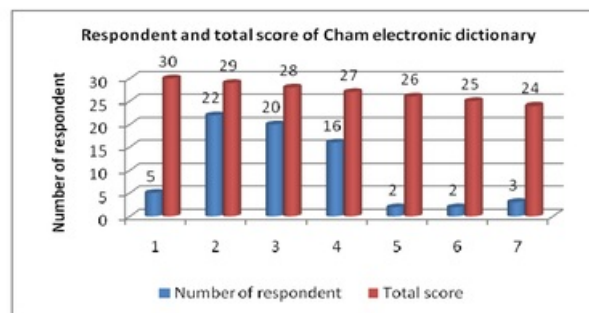


Figure 4. Graph of Respondent and Total Score

In order to make decision, we decided to categorize the score to two categories as follow:

Table 4. Categories of Total Score

Categories	Total score
Not Accepted	6-18
Accepted	19-30

Based on Table 4 and Table 3 it can be concluded that all respondent 70 (100%) accept the Cham electronic dictionary.

As the Conclusion, the Cham electronic dictionary was designed to be a very useful application, the survey results have a good level of acceptance, this product is helpful for searching, self-studying and improving knowledge of the Cham language and script.

7.0 Conclusion

We have presented a new approach of Cham electronic dictionary. In this application, a quantitative research method has been employed in data collection, data analysis, and application product was developed using ADDIE model. The findings show that all features of dictionary application products were fully agreed by respondents of Cham people.

The research has shown that Cham electronic dictionary applications has useful for Cham community in searching as well as in learning, teaching and preserving of Cham script and Cham language.

This study is a contribution to quality education in Cham language with the development of the educational technology. Further research will develop applications both online and offline and ensure that Cham language is highly valued and continues to be developed in future.

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