Apply Sound Performance to Web-based Instruction

Lung-Mei Hsiao, Fong-Ming Xu

0206

National Taichung University of Science and Technology, Taiwan

The Asian Conference on Media and Mass Communication 2012

Official Conference Proceedings 2012

Abstracts

Visual web browsing experience is ordinary. However, it is necessary to consider that Web content is accessible for all or not, inclusive of people who suffer from various disabilities and deficiencies. Further, improve overall quality of Web page and reduce barriers of using mobile devices are benefits that Web accessibility techniques brought. This study adopts voice-based navigation as the alternate to access Internet and World Wide Web. Consequently, it is the trend to follow Web standards while developing Web. Since the teacher in the future should be a facilitator for developing Web-based instruction, the know-how of web design with W3C standards is required. From the analysis of aural media to application of sound performance of CSS3, our primary objective is to diminish the interpersonal divide of basic music capacity through adaptive learning.

Keywords: CSS3, WBI, Web Standards
1. Introduction
The Web has brought magnificent changes to people’s lives, such as the visual impaired people can access Internet and World Wide Web through voice-based user interface. However, it is regular to have a deficient appearance, or encounter sites that download slower while navigating Internet and World Wide Web. This is the outcome that content authors or web developers ignore Web standards and have misconception to it.

An investigation shows that 78% of world’s population has no access to Internet and World Wide Web. These are the underprivileged who cannot afford end device (computers, mobiles, etc.), or reside in areas where electricity is not available, or are textually illiterate. As compared to GUI-based feedback, voice-based IT systems have much appeal for the illiterate and semi-illiterate population in developing countries. Sasayaki, an intelligent voice-based user agent, improved the quality of voice browser navigation; Spoken Web, for the underprivileged population, enabled websites created and browsed in voice over an ordinary telephone call. Research above provided alternate access to Internet and World Wide Web beyond visual navigation. People suffer from different disabilities and deficiencies temporarily or permanently can expand their possibilities and capabilities in navigating the Web while content provided with advance web development practices. Increasing number of web designers and developers recognize the importance of web accessibility. Moreover, the benefit of web accessibility techniques includes of improving the overall quality of and web site and easing mobile access to web content.

As a junior high school teacher of Music in Taiwan, it is not hard to find out some exciting problems. For example, vast difference of general music capacity of the interpersonal (student-to-student); official head count (35 students in a class) in a class and instructional hours (45 minutes a week) are not proper. These will be disadvantage to adaptive instruction. With the development of future classroom, both the basic infrastructure and the digital content for instruction are constructed simultaneously. A teacher should transform oneself to a facilitator who is also the designer or developer of instructional content.

Here we take Web-based Instruction (hereafter use “WBI”) as an extension of learning in physical classroom. The objectives of this study are:
- To promote the general music capacity of students under average.
- Voice-based web navigation could be alternative to students of different cognitive
styles.

- Investigating know-how of Subject Matter Experts (hereafter use “SME”).

According to ATI, aptitude-treatment interaction\(^6\), as the evidence of adaptive instruction, there are visual-oriented and verbal-oriented styles of cognition. SME supplied knowledge only in the past, but how to provide and design instructional materials as digital content is necessary.

2. Method
2.1 Pretest
The number of objective students is 318, from seven to eight grade of normal placement in every class. The writing test includes self-assessment survey about eLearning\(^7\), and basic capacity about reading scores.

2.2 Aural media analysis
2.2.1 Model of aural communication
Generally speaking, functions can be combined as a set. One of functions is primary. As Fig.1 shows, to evaluate which function is the primary depends on the relative quality.

![Fig.1](image)

Jakobson’s Model(1992)
For instance, the primary functions of alarm are conative and phetic because the effect about emergency and attention on addressee and contact. Even the sound isn’t sweet dose not matters.

2.2.2 Semiology on aural communication
Oral communication is the process between addresser codes the signal, and addressee decodes the signal. Teacher has to make students familiar with species of sign/code and the representative meaning. The diversification of meaning can be assisted information for understanding. Speaking of the factor of culture, it reveals that more accumulation and application of sign will promote understanding of group belong to restrictive codes. Especially students have different background and some have difficulty in comprehension.

<table>
<thead>
<tr>
<th>Sign/Code</th>
<th>icon index symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaning</td>
<td>denotation signification connotation</td>
</tr>
<tr>
<td>Culture</td>
<td>elaborated codes restrictive codes</td>
</tr>
</tbody>
</table>

Fiske(2001)

2.3 Implement of web page
WBI is online unit, inclusive of bulletin board, practice, activity, bibliography(also see Fig.4). Student-centered, construction of knowledge, and situated learning are the feature of WBI. There are three elements to develop the WBI environment(Fig.3):

- Flexible access to multimedia resources
- Usage of asynchronous communication
- Diversity of information showing

To students, WBI just like a tutor with endless patience. Students could repeat and exercise till mastering the content. For teachers, WBI can be a assistant to deal with teaching management and administration. Different from traditional learning, teacher’s task is to enable construction of a web where learning become individualized, reflection and conversion procedure.

2.3.1 System architecture
Client and server connect with programs. As Fig.2 shows, client sends the request, and server return the result with HTML form.

Fig.2
Client-Server model

2.3.2 Execution Environment
- Browser: Opera 10.01
- IBM Multimodal Runtime Environment 4.1.3
- OS: Window 7/XP
- Jsp
- DB for web: MySQL 5

Fig.3
Frame of Instructional Web
3. Discussion
Voice is the sound that carries the message. It should be flexible, moving from one pitch level to another for emphasis, and should have a variety of rate and volume. Fig.5 displays the location of style properties about CSS3\(^{10}\).

4. Conclusion
Because of sequential voice representation, it is necessary to reconsider the feature of sound while designing the Web, particularly conflict occurs with visual performance.
Previewing web page on different web browsers can confirm the CSS high support is available or not. Coding guideline is not relative to entirety and maintainability of Web, but beneficial work division. With the growing number of use about CMS, the template production would be discussion. So does the localized program in Traditional Chinese.

References


