Does interactivity with content enhance the quality of learning?

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Abstract

This paper describes the development of interactive electronic tool (etool) for learning Japanese Kanji (Chinese) characters; especially the stroke count and stroke order for writing the characters. The study started with the survey and analysis of available etools for writing Kanji character. Most of the available etools for practicing writing Kanji characters are not interactive enough to engage students in the process of learning. The etool developed for this research study considered sound pedagogical principles in its design. In this paper the authors will discuss if the interactivity or engagement with the content (learning stroke order for writing Kanji characters) enhances the quality of learning.

1. Introduction

Writing might be one of the most difficult but a vital part of learning Japanese. It is very important to know stroke count and stroke order when writing Kanji. The stroke count is the number of strokes used to write the Kanji character. Both stroke count and stroke order help in writing Kanji characters properly. The stroke count is also useful when using a Kanji dictionary. The Kanji for "mouth" looks like a square drawn with only one stroke. However the stroke count of this Kanji is three figure 1) [1].

2. Interactivity and quality

Interactivity in learning is "a necessary and fundamental mechanism for knowledge acquisition and the development of both cognitive and physical skills" [2]. Generally, the quality of the interaction in microcomputer courseware is a function of the nature of the learner's response and the computer's feedback. If the response is consistent with the learner's information processing needs, then it is meaningful [3].

Interactivity is an essential strategy for engaging a learner, but engagement goes beyond this. Are the content and its presentation interesting? More important, will the learner recognize the relevance of the content to learning tasks? Are the learning activities hands-on? These are some of the important factors we have taken into consideration while designing the etool.

3. Analysis of the available etools

Some Kanji learning sites have incorporated videos of an actual person's hand drawing the Kanjis. The problem with these is that one cannot clearly see the stroke being written; parts are hidden by the moving hand [4].

Some animations have a brush at the beginning point of the stroke, which is good for learners to see from where to where each stroke goes, but after a while the presence of the animated brush icon gets annoying and possibly distracting [5].

Problems with writing practice tools on the net is that most of them recognize the strokes based on where the mouse has touched the screen, which means that in some cases the program doesn't recognize your strokes even if they are correct just because the mouse movement is not in the designated area[6].

In our design we tried to overcome all these obstacles. Our etool for learning the stroke orders for writing Kanjis allows students not only to write the strokes in correct order but also provide feedback.
regarding the direction of each stroke and the correct shape of each stroke in a Kanji character.

4. Design of the interactive etool

In the development of the etool particularly the presentation of the content and designing the human computer interaction we have considered the relevant learning theories to inform the design process. While the structuring of the content sequences is closely associated with the pedagogical dimension, the level and depth of content and the underlying information and presentation design is critical to the overall interactive experience. It is predicted that more detailed emphasis on the way in which the content elements, and the media used to represent them, are linked to the underlying rationale for the application will result in more effective interactions and consequent learning. This is well demonstrated by the dimensions of design identified by Shedroff [7] (figure 2).

Figure 2 : Aspects of content design
In our design of etool we have paid attention to all the three aspects of content design (figure 2). Review of available literature and available etools for learning writing of Kanji provided us valuable information about designing animation for formation of Kanji characters [8] which was then followed by interactive etool for writing Kanjis. In the interaction design we have incorporated the hands on activities where learners will have the opportunity to write the Kanjis with a mouse. We have given attention to the sensory design where students will get appropriate prompts in text, audio and change of colour as feedback for correct or incorrect order of writing the strokes.

5. Quality measures

The concept of quality is very much depended on the context and the objectives of the learning activities. In our case we have decided to concentrate on the three aspects of quality measures.

Students’ engagement: Students’ engagement will be measured by keeping the log of time spent in interacting with the content.

Students’ satisfaction: Students’ satisfaction of using the etool will be qualitatively measured by administering a survey (using a five point rating scale).

Students’ achievement: Students’ test marks will be collected after different intervals which will provide the information on retention of information.

6. Conclusions

From these three quality measures it will be possible to find information on other factors such as students’ motivation, involvement in the learning process, practice, interest, etc. Analysis of the results of quality measures will reveal the information for further improvement of the etool.

7. Acknowledgement

The developmental work for the etool (Visual tool for learning Japanese Kanji characters) is supported by “Funds for Innovations and Excellence in Teaching 2006 award”, Massey University, New Zealand.

8. References