

Kana no Senshi (Kana Warrior): A New Interface for Learning Japanese Characters

Kristen Stubbs

Department of Computer Science and Engineering
University of Minnesota
Minneapolis, MN 55455 USA
kstubbs@cs.umn.edu

ABSTRACT

This paper presents the design and testing of Kana Warrior, a new interface for basic Japanese character recognition based on a game-style user interface. Kana Warrior is a game designed to help Japanese students learn to read characters quickly. A small pilot study has been conducted with very encouraging results. These results support the idea that game-style interfaces may be of benefit to users outside of the realm of entertainment programs.

Keywords

Game interface, language learning, Japanese

INTRODUCTION

Beginning students of Japanese are often frustrated by the fact that they must learn three separate alphabets in order to be able to read and write in proper Japanese. The two phonetic alphabets, known as kana, are called hiragana and katakana; these alphabets are used to spell out native Japanese words and words of foreign origin, respectively. The third alphabet, known as kanji, consists of thousands of characters borrowed from Chinese that represent entire words and ideas. Before learning kanji, however, each student must master all of the basic kana. In this project, a new computer interface for helping beginning Japanese students to master these basic characters was designed, built, and tested. The goal of this research is to create an interface that is both more fun for students to use and more effective in helping them learn to read kana quickly. The program that was developed and tested is called Kana no Senshi (Kana Warrior).

RELATED WORK

Creating program interfaces based on computer games is a relatively new idea in the HCI community. Clanton in [2] proposes a set of guidelines that interface designers can

use based off of computer and video games. One of the more interesting examples of applying game UI to a work-related task is PSDoom [1], developed by Chao. Chao adapted the Doom game engine in order to assist users in managing the processes running on their computers. While a game interface may not have been perfectly suited to this particular task, there may still be other tasks well-suited for which a game-style. The development of Kana Warrior has focused on the application of a computer game UI to a language learning problem.

Little work has been done in the HCI community regarding computer games for foreign language instruction, especially the learning of foreign characters. Regardless, numerous computer programs have been created to help Japanese students learn kana. On the whole, however, they tend to be very similar. The two main types of user interaction are multiple-choice type questions, in which the user is presented with a kana or a Romanized syllable and asked to choose its translation from a list; and typing, in which the user is presented with kana and must type in the appropriate Romanization. The Kana Game created by Jesse Lake [4] and Kana for Windows by ComCul International [3] are good examples of traditional kana-learning interfaces. It is important to note that traditional interfaces do not place any emphasis on reading kana quickly; in both the Kana Game and Kana for Windows, the user has essentially unlimited time to answer any given question. While these and other language programs are often successful, they are not designed to be entertaining as games are. Kana Warrior is designed to be a game, following such design principles as outlined by Clanton. At the same time, it attempts to provide a means for players to learn effectively.

INTERFACE DESIGN

The design of Kana Warrior was inspired by the Sega game *The Typing of the Dead*, itself an extension of Sega's *The House of the Dead*, a first-person shooting game [5]. *The Typing of the Dead* is a typing tutor; the player must kill zombies by typing the English phrases displayed next to them before the zombie reaches the player and takes away one of the player's lives. In Kana Warrior, however,

each zombie has associated with it one Japanese character (either hiragana or katakana) as shown in Figure 1 below. Players must type the correct romanization in order to kill the zombie. As correct letters are typed, zombies appear wounded and a progress bar indicating the total number of letters required is updated to show how many letters have been typed. When a player successfully kills a zombie, some number of circle symbols appear indicating how well the player did; more circles indicate greater speed and accuracy. These symbols represent the number of points a player earned for that particular zombie. The player's health is shown in the upper-left hand corner of the screen. When a zombie reaches the player, it momentarily displays the correct romanization for its kana before reducing the player's health and disappearing.

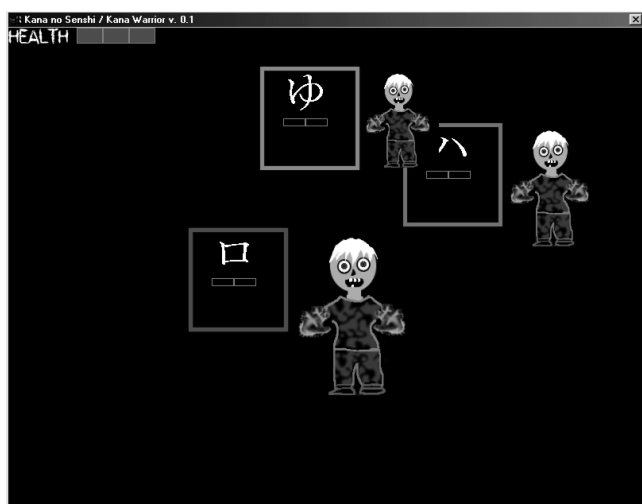


Figure 1. Screenshot from Kana Warrior.

The Kana Warrior interface has several advantages over more traditional Japanese character recognition programs. Most notably, it challenges players to read kana quickly, as they only have a limited amount of time before a zombie reaches them. As the player progresses, zombies move more quickly to encourage the player to read even faster. An additional benefit is feedback in the form of the circle symbols; the player can judge how well he or she is doing not only by whether or not he or she typed the kana correctly, killing a zombie, but also by how fast and how accurate he or she was. With these features, Kana Warrior is designed to be more fun to use than traditional programs; if players find the game both exciting and beneficial, hopefully they would continue to play it and further improve their kana-reading skills.

PILOT STUDY

Six beginning Japanese students were able to participate in a small pilot study comparing Kana Warrior to a traditional interface. The students had the opportunity to use both programs, during which time their

performance was monitored, as well as to fill out a brief survey regarding their own preferences about the interfaces. There were few significant differences in student performance between the two interfaces, although it is interesting to note that students who used Kana Warrior first tended to type faster when using a traditional interface. In addition, every participant rated Kana Warrior as more fun to use than the traditional interface.

DISCUSSION AND CONCLUSIONS

On the whole, the results of the pilot study were very encouraging. While it is difficult to draw far-reaching conclusions when working with so few users over such a short period of time, the students' performance suggests that a game-style user interface is at least as effective for helping them to learn kana as a traditional interface and is also more entertaining.

To better understand the differences between this new game-style interface and a traditional interface, a longitudinal study with more participants would be extremely useful. This would allow long-term tracking of students' performance as they used each interface. Kana Warrior itself would benefit from improved graphics and the use of sound effects. Eventually it may be extended to help players learn kanji as well.

While this study has yielded very preliminary results, these results do support Chao's conclusion that game interfaces may prove beneficial to users outside of the context of pure entertainment. In addition, it is likely that the Kana Warrior interface could be modified for other language-learning environments. The relative success of Kana Warrior suggests that game-style user interfaces should be considered in future user interface development for similar problems.

ACKNOWLEDGMENTS

The author would like to thank Dr. Loren Terveen for his advice and encouragement. She also appreciates the assistance and input of her Japanese instructors Mr. Kenichi Tazawa and Ms. Kazue Oda.

REFERENCES

1. D. L. Chao. Doom as an Interface for Process Management. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (CHI Letters 3, 1), pages 152-7. ACM Press, New York, 2001.
2. Clanton, Chuck. An Interpreted Demonstration of Computer Game Design, in *Proceedings of CHI '98* (Los Angeles CA, April 1998), ACM Press, 1-2.
3. ComCul International. Kana for Windows. Available at <http://www.vir.com/~comcul/>.
4. Lake, J. The Hiragana/Katakana Game. Available at <http://www.msu.edu/~lakejess/kanjigame.html>.
5. Sega Corporation. <http://www.sega.co.jp>.