Manga University: Web-based Correction System for Artistic Design Education

Takeshi Sugiyama, Tsuneko Kura, Naoyuki Kakehi, Tokiichiro Takahashi
NTT Cyber Solutions Laboratories
3-9-11, Midori-cho, Musashino-shi, Tokyo, Japan, 180-8585
{sugiyama.takeshi, kura.tsuneko, kakehi.naoyuki, toki.takahashi }@lab.ntt.co.jp

Abstract

In Artistic design education, the teacher instructs each student individually face to face. As a result, it is difficult to share coaching with a third party or to teach distantly. To solve these problems, we have developed Manga University, which is a web-based application to aid artistic design education. It enables distant teaching or shared teaching and provides learning portfolio for collaboration. It is applicable several other types of artistic design education, such as fashion design or GUI design for software or the web.

1. Introduction

We have developed Manga University, which is a web-based correction system for artistic design education. It enables students to easily submit their contents and enables teacher to directly coach by drawing something on the web. It also enables teachers and other students to look back at students’ histories and lets other students share the correction. These days, there are many web-based education systems. However, there are few systems for artistic design education. It is difficult to aid it by information technology because it has some unique features, such as face-to-face coaching. We made a prototype and used it to aid lessons on how to creating Manga, which is Japanese cartoons or comics, by forty students and four teachers at Kyoto Seika University (KSU) from May to September 2001. The results of that experiment show that our prototype was effective for artistic design education [1]. But, it did not have enough functions, such as to handle multiple contents. We consider the features of artistic design education and picked up its problems. Manga University solves these problems. This paper explains the problems of artistic design education and describes how Manga University solves them.

2. Problem

Artistic design education has three main features.

- **Individual face to face coaching**
  The teacher instructs each student individually face to face because the instruction points depend on the student’s level or personality. It enables adaptive coaching. However, it is impossible for other persons to see other coaching. As a result, it is difficult to share coaching with a third party, such as other teachers or other students.

- **Teachers usually create objects**
  Some teachers are professional artists. However, they do not have much time available for teaching and must travel from their studios to the student’s school. So, it sometimes is difficult to coach face to face.

- **Direct Coaching through the creations**
  Usually the teacher directly corrects the student through his creations. It directly lets the student understand important points or how he should re-create. However, it needs face to face coaching.

3. Solution

To satisfy these requirements, we propose a web-based application to aid artistic design education. It uses the Internet, a database and an electronic drawing board. Using the Internet, it is possible for the teacher to coach the students remotely anytime, anywhere, at his convenience. The database allows everyone to easily share the coaching. This has a multiplying effect for students because they can be exposed to viewpoints

![Figure 1: Workflow of Manga University](image-url)
other than their own. Moreover, the database enables them look back over the past and refer their history as a personal portfolio. It supports the management of individual histories and shared coaching. Finally, to solve the problem caused from direct coaching through creations, we propose using drawing tools running on a web browser. This lets the teacher directly coach the students through their creations via the web. We developed a web-based correction system for artistic design education, which is called “Manga University”. Figure 1 shows its workflow. The student submits his scanned creations to a server via the Internet. The teacher looks at them and coaches directly using a drawing board in a browser. After coaching, the teacher uploads the corrections to the server.

4. System Configuration

We employed the following approach to develop Manga University to satisfy the above requirements.

- **Web-based archiving system**
  As a web-based archiving system, we employed CyberPedia, which is a multimedia archiving system [2]. We modified CyberPedia by adding some features, such as history management, to handle multiple contents and bulletin boards for each submission. It lets students archive and manage their submissions and acts as a personal portfolio and supports collaborative creation with peers. It overcomes temporal/spatial restriction, shares the teacher’s coaching and stores the coaching history. Figure 2 shows a sample of a submission in teacher site. You can see plural thumbnails of contents.

- **Available Drawing Tool on the Web**
  As an available drawing tool, we employed CollaBoard, which is an ActiveX component for drawing images on the web [3]. It lets teachers correct through the contents on the web using Scalable Vector Graphics (SVG) [4]. It enables objects to be drawn directly. It also enables several teachers to correct individually because CollaBoard provides multi-layer control. Figure 3 shows an example of correction using CollaBoard.

We paid considerable attention to design of the graphical user interface because it should be easy for anyone to use. For example, to enable easy browsing of the contents, we developed WebComic, which is a book-like browser.

4. Experiment and Discussion

We ran an experimental Manga University in KSU from October to December 2001. We found that Manga University improved the efficiency of instruction, allowed coaching anytime and anywhere, made creative activity compatible with instruction, reflected teaching or learning history, and allowed peers to share the coaching. Additionally, it raised students’ motivations to create, such as submitting many extra creations besides homework assignments.

5. Conclusion

Manga University can assist artistic design education effectively. It not only improves the efficiency of instruction but also improves students’ motivations to create. It also enables shared teaching and provides learning portfolio for collaboration. It is applicable not only to Manga but also several other types of artistic design education, such as fashion design or GUI design for software or the web. It can also assist coaching about creating animation or movie, submitting storyboard and video contents. Moreover, it can be used for collaborative design work by distant creators.

6. References