

# A CASE STUDY OF COMPUTER ASSISTED INSTRUCTION IN A JUNIOR GYMNASTICS CLASS IN JAPAN

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## INTRODUCTION

We now live in the age of multimedia. Today, a personal computer can be found in almost any place - from your home to your work. We can talk with anyone in the world by using the Internet's e-mail, Education using computers has advanced rapidly at schools around the world.

In the Japanese classroom, there is one computer for every student. Learning with the computer has spread to many subjects, but, until recently) there have been few practical uses for learning with computers in the field of physical education. However, as new mediums develop computers are gaining recognition.

Visual information is the most effective source of learning in physical education. In gymnastics, for example, teachers don't always have the specific, finely tuned skills that are necessary for teaching. So, for our research, we decided to use animated computer images. Such images should not be seen in a classroom before or after the target class. They should be seen at the time the actual physical education training takes place.

Computer animation can gain the valuable attention and interest of children. The Atlanta Olympic Convention was held in 1996, but the Japanese participants didn't finish with good results. Japanese athletes need to improve their performance. Improving their basic skills can achieve this. This trial will utilize computer assisted instruction (CAI) in the Japanese elementary school gymnastics club in order to determine CAI's validity in improving athletic skills.

## METHODS

The subjects were ten schoolgirls belonging to the Kanazawa elementary gymnastics team and their average physical characteristics were: height, 1.36m +/- 0.09m; weight, 30.30kg +/- 5.50 kg; and age, 9.40 +/- 1.51 yrs. Each subject participated in a fundamental gymnastics exercise program for eight weeks in 1996. In this study, software named "Aim at the Gold Medal" ("Mezase Kinmedaru" in Japanese) was newly developed with a personal computer (PC~9821Xa13, NEC) and applied to teaching

gymnastics skills together with the use of a video camera. Gymnastics skills acquisition will be discussed and a case study of CAI in sports will be shown.



**Table 1.** Start window "Aim at gold medal!"  
(cited from INTERNATIONAL GYMNAST. AUGUST/SEPTEMBER 1996: 56-63)



**Table 2.** Main menu window.



Table 3. Forward Rolls window.



Table 4. Forward Roll window.

## RESULTS

It was very new and exciting for the children to see their own performance results on the personal computer and video. Children were interested **and** enjoyed practicing. When using the equipment for the first time, the children were uncertain. At first, they seemed to be very embarrassed to be videotaped, and to see their own performance.

As practice proceeded, children began to take and watch their own videos without the help of the teachers. Before new skills can be tried, it is most important to get a complete and accurate image of the skill. It is indispensable to make progress. Figures 1, 2 & 3 illustrate the students' perceptions of the effectiveness of the CAI on their understanding skill levels. The use of the personal computer makes the image of the skill very clear and easy to study. One can see his or her mistakes by watching his or her performance on video. Then, one can correct those mistakes and practice the right way very hard. On video, one can see not only his or her mistakes, but also positive progress. The children took confidence gradually, but the video was unfortunately unable to show the children the timing and the amount of the strength needed.

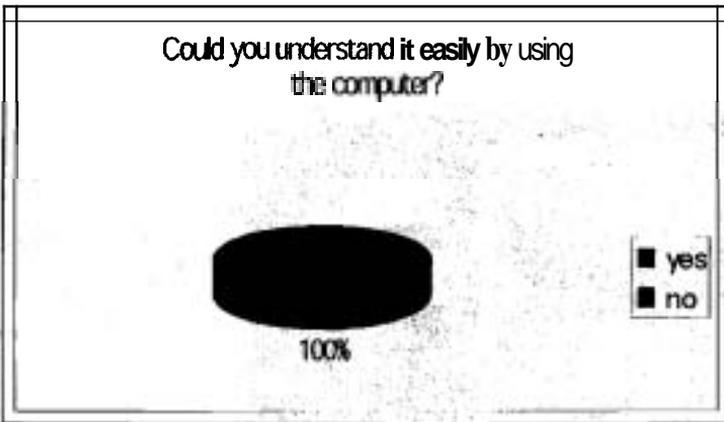


Figure 1. Easy understanding by using the computer.

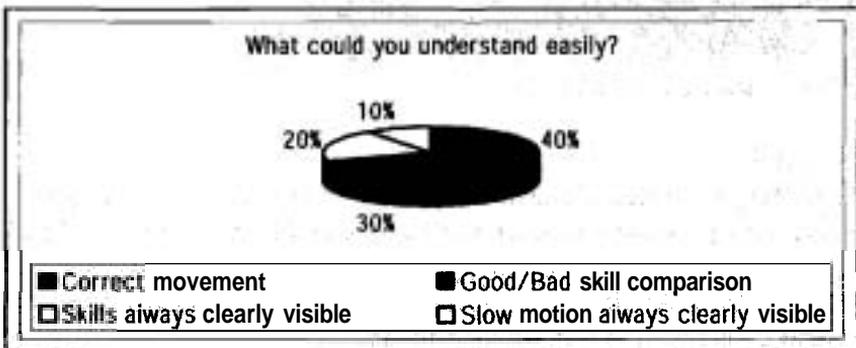
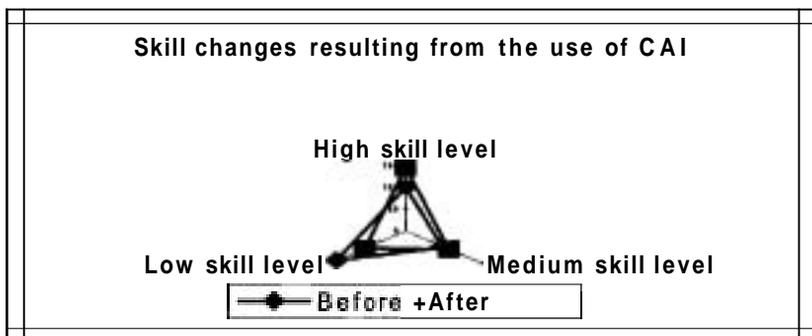


Figure 2. Something to understand.



**Figure 3.** Skill changes.

### **CONCLUSIONS**

It was determined that the utilization of the personal computer and the video can improve performance and perfect one's skills. However, the strength and timing of movement needed can't be understood by the images alone. CAI has the capability of increasing a child's desire to improve his or her skills.

We must plan more and more efficient ways of using this medium. We need to develop more software that will adapt to constant changes. Otherwise, the software will become outdated, causing children to lose interest and use the computer less and less.

### **REFERENCES**

End of the Road, (1996). INTERNATIONALGYMNAST. Volume, 56-63.