Interface Efficiency Designed for a Traditional Shadow Play Lesson

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Abstract—This paper discusses the use of computer interactive media in a traditional shadow play lesson for elementary students. The researchers digitalized traditional shadow play rules, photos, and other related information by applying two-dimensional animation techniques. The instructional material was used to assist the instructor’s teaching, as well as to help the students to understand the major themes of traditional shadow play. Learners were able to manipulate the operations and performance skills of Shadow Play through this interactive CD-ROM. This paper examines the role of computer interactive material in order to explore students’ perceptions of multimedia applications in classroom settings and how digital technology motivates learners to come to an understanding of specific content area. Students were asked to complete a survey comprised of four-point Likert Scale questions based on their learning attitudes toward this lesson.

Keywords—Traditional Shadow Play, Interactive Instruction, e-Learning, Learning Attitude

I. INTRODUCTION

In the past decade there has been a strong push to place educational technology into the hands of teachers and students while at the same time continued advancements have outstripped the ability of schools to keep up technologically (Gura, 2001). During this period, teachers, educators and the organizations that accredit teacher education programs have recognized the importance of preparing teachers to use technology effectively (Duhaney, 2001; Willis & Raines, 2001). Huang & Lee (2007) have pointed out that student learning and motivation are greatly enhanced by multimedia and computer interactive learning. Such multimedia, according to Huang & Lee, is challenging and purposeful in the achievement of the elementary curriculum goals. Lee (2006) defines multimedia as a form of technology that involves the learner in text, graphics, animation, and sound. When students participate in the interactive process of using multimedia application, for the creation of multimedia projects, learning and motivation appear to improve significantly.

The traditional shadow play, also called a leather-silhouette show, is a traditional folk art in which puppets made of hard paper or hide are projected onto an illuminated screen to create moving images (Zhu, Li, Shen, Ma, & Stempel 2003). Shadow plays are not yet commonly digitalized for use as instructional materials (Lee, 2008). Thus, the researchers in this study attempted to develop an instructional material by integrating text information, shadow play images, the puppets creation processes, shadow play locations, and other related information. All the instructional materials were digitalized using the commercial software packages: Adobe Photoshop, Adobe Illustrator, and Adobe Flash. The researchers also developed an on-line four-point Likert-type survey consisting 10 questions about attitudes concerning learning about shadow plays. This study focuses on providing a new perspective on learning a traditional art, and analyzing the students’ learning attitudes as they were expressed in the completes surveys.

II. LITERATURE REVIEW

According to Lee’s (2006) study of experimental design in art, students had more positive attitudes toward art cognition when using interactive instruments. An earlier survey in 1991 by Kulik & Kulik had already found that 15 of 19 studies reported more favorable attitudes toward computers than traditional methods, and 16 of 22 studies found more positive attitudes toward computer interactive instruction. Recently Gulek & Demirtas (2005) asserted that art teachers must be prepared to provide technology-supported learning opportunities for their students if their learners are to survive in the technology-laden world of tomorrow. They indicated that being prepared to use technology and knowing how that technology can support student learning must become integral skills in every teacher’s professional repertoire (NETS, 2002). More importantly NETS concluded that classroom teachers must teach students to apply strategies for solving problems and to use appropriate tools for learning, collaborating, and communicating.

With the benefits of technology being used in the field of education, Worden (2000) has posited that the application of digital content brought new expectations to art application. This application challenged instructors to reconsider their instructional materials, as well as their roles in the classroom. This use of multimedia application has also inspired a new way of viewing traditional art works in
classrooms (Zhu, Li, Shen, Ma, & Stompel, 2003). Ting (2004) has pointed out that utilizing interactive multimedia and digital images as supplements in traditional art classrooms has become a standard tool of instruction at many art institutions. However, the interactive multimedia and digital images in traditional art courses still need to be preserved more in a digital form (Hsu & Li, 2005).

Software such as Adobe Photoshop, Adobe Illustrator, Macromedia Flash and Macromedia Director are standard programs for creating interactive instrumentations (Doe, 2004). These software packages enable a combination of instructional materials, images, texts, animations, self-quizzes, charts and sounds which results in an efficient form of communication and an ease of presentation that is inevitably more successful than traditional classroom instruction.

III. METHODOLOGY

A group of 40 students who attended a traditional art winter camp were presented with this interactive multimedia material. The instructional content was about the history and characters of traditional shadow plays and how to make shadow play puppets, and the characters of shadow play puppets. The students received three hours of instruction related to traditional shadow plays, and were then given an hour to play with the CD-ROM in order to accomplish specific tasks such as alternating the shadow play puppets’ costumes. The students then completed a survey consisting of ten questions using a four-point Likert-type scale based on their learning attitudes toward this lesson. The research question was: Does the role of computer interactive multimedia material for traditional shadow play learning influence students’ learning attitudes in a positive way? The survey data was analyzed under the rule of descriptive statistic using SPSS software.

Instrumentation

The researcher in this study designed a computer multimedia CD-ROM for the lesson (Figures 1-5).

The digital instructional CD-ROM was developed through the following steps of the ADDIE instructional model: Analysis, Design, Develop, Implement, and Evaluate (Hall, 1997).

The ADDIE instructional design model is comprised of the follow contents.

1. The Analysis phase: the subjects of this study were 40 students from the same public elementary school in Tainan City, Taiwan who attended a traditional puppet art winter camp. The gender distribution of the 40 subjects was composed of 23 boys (57.5%) and 17 girls (42.5%). The instructional objectives need to be reached by students and should be emphasized in the instructional material design. The instructional objectives for this research focused on aspects of students’ knowledge of traditional shadow plays such as the definitions of shadow play, characters, and the making of materials. According to Gagné (2005), instructional objectives need to be reached by students and should be emphasized in the instructional material design. The instructional objectives for this research focused on the students’ abilities to explain the idea and the history of traditional shadow play.

2. The Design phase: the researchers developed concept maps and flowcharts to discuss and incorporate the ideas of instructional content at this stage. The flowcharts developed depended upon the concepts, goals, and objectives of this study (Figure 6).
3. The Development phase: the researchers developed an interactive instructional CD-ROM by using Macromedia Flash software consisting of e-text, animation, music and test questions at this stage (Figure 1-5). Learners can manipulate the CD-ROM contents to learn the shadow play puppets or to watch the dramas, as well as to answer related questions which arise.

4. The Implementation phase: the participants of this study were 40 students at a public elementary school in Tainan City in Taiwan. The researcher was involved in the instruction. The duration of the instruction was an initial session of three hours followed by an hour long period during which students were asked to explore the CD-ROM.

5. The Evaluation phase: At this stage, the researchers examined how the instructional CD-ROM worked. To address the research question, the researcher developed a four-point Likert-type on-line survey with 10 questions about attitude concerning learning traditional shadow plays. All subjects of this study were asked to answer the survey right after the conclusion of the full four hour session.

IV. SURVEY FINDINGS

To address the research question, the research developed a four-point Likert-type survey with 10 questions about attitudes concerning learning traditional shadow plays. The survey data were analyzed using descriptive statistics. Subjects were asked to rate from 4 to 1: 4 = strongly agree; 3 = agree; 2 = disagree; 1 = strongly disagree, to report their attitudes toward learning. The mean score of 3.44 from all subjects was well above the agree level (rate 3). The median of 3 and 4 both reveal strongly satisfied attitudes of the students toward traditional shadow plays.

Figure 7 shows the means among each attitude survey item (items 1-10). The highest mean of the attitude survey items was on item 10 (3.55) which asked if the subjects had enjoyed the class. 14 (45%) subjects rated it as a 3 (agree) and 18 (55%) subjects rated it as a 4 (strongly agree). The lowest mean of the attitude survey items was on item 6 (3.23) which asked if the instruction had helped them to appreciate the traditional arts. 3 (8%) subject rated it as a 2 (disagree), 22 (63%) subjects rated it as a 3 (agree), and 7 (29%) subjects rated it as a 4 (strongly agree).

The descriptive statistical data indicated a highly positive attitude of the students in this study (mean = 3.44). The means for each survey question were quite similar, between 3.23 and 3.55(Figure 12). The data shows that most students responded with a response of “agree” or “strongly agree” regarding their experience with the digital approach used in the instruction.

Listed below are the 10 survey items which the students responded to.

1. I feel that this unit has added to my knowledge of shadow plays.
2. I feel that this instruction has helped me to make the connection between texts from the book and the real puppets of shadow plays.
3. I feel that this instruction has added to my understanding of traditional Taiwanese arts.
4. I feel that this instruction has helped me to understand the definitions of shadow plays.
5. I feel that this unit has helped me to appreciate shadow plays.
6. I feel that this unit has helped me to appreciate the traditional art.
7. I feel that this unit has made me more creative.
8. I feel that the instructor has provided sufficient quality to art materials during the course.
9. The teaching materials in this class were of value to me as a student.
10. I have enjoyed the class.
Huang & Lee (2007) showed the use of technology gives students greater control of their education, increases their motivation to explore and discover, and plays a major role in helping them reach new heights of achievement in school. This result was in consensus with the report from the Apple Institution (2002) which indicated that one of the important contributions digital content has made in education is to positively impact students' learning styles and learning attitudes to be more positive.

REFERENCES


