

Integrating an action role-playing game into an ancient Chinese prose

Abstract: The purpose of this research is to build a role-playing game system based on ancient Chinese prose to help students increase their learning of ancient Chinese prose through the exploration of the game tasks. Apart from other role-playing games, we put more emphasis on the enhancement of learning interests and integration of different game elements into our system, inclusive of an avatar system, whack-a-mole game, scrabble game, simulation game and so on. In the portion of content design of our game, we designed game elements based on the feedback from the expert interviews on different versions of Chinese textbooks. The system design was conducted in two stages: (1) system planning, and (2) system construction. In the first stage, we collected questionnaire data from 30 junior high school students to investigate their perception of learning ancient prose. In addition, we regarded preferences toward games from students as our design principles. In the stage of system construction, we invited the same students to test our game prototype in order to improve our game system. Moreover, we investigated the interests towards ancient prose from them through evaluation to improve the mechanism of our game. Given that statistic results, we can conclude that an average value of students' satisfaction questionnaire on the game system based on ancient Chinese prose is 5.48 out of 7. It shows that this game system brings a positive influence to students. To sum up, this research aims to enhance learning motivation and knowledge gains of ancient Chinese prose in the situation of self-directed learning through our implanted system.

Keywords: Information and Learning Technology, Game-Based Learning, Language Learning, Motivation, Engagement.

1. INTRODUCTION

In recent years, with the rapid development of science and technology, teaching methods have been changed, such as using a projector for teaching and interacting with media animation by the interactive whiteboard. The advancement of technology has brought a revolutionary change in teaching. Mobile navigation with handle devices, such as smart phones and tablet PC, has become one of tools for capturing knowledge. The improvement of the application software has accelerated the development of applications. The entry barrier of development of mobile applications has been declining gradually; "creativity" and "diversity" are becoming a crucial point in application market.

Digital game-based learning (DGBL) has become a popular learning theory and plays an important role in the field of using technology to assist learning. Although there is much research relative to digital game-based learning, the effectiveness of digital game-based learning (DGBL) is still increasingly being questioned. This research aims to break traditional rules of test-oriented DGBL to develop an action role-playing game based on an ancient prose. In the process of DGBL, learners might not learn regularized knowledge, but they could absorb the truth and thoughts on knowledge from the content. The motivation of this research is to repack the digital game-based learning to arouse learners' motivation of self-directed learning.

This research aims to develop a game-based teaching system mainly based on role-playing game and relative types of games supported an avatar system, whack-a-mole game, scrabble game, simulation game included. First, we came out with some basic requirements of designing a digital game-based learning system based on literature review, and then we summarized reasons why games can appeal players, enhance stickiness, and improve the motivation of playing. Second, we introduced an ancient

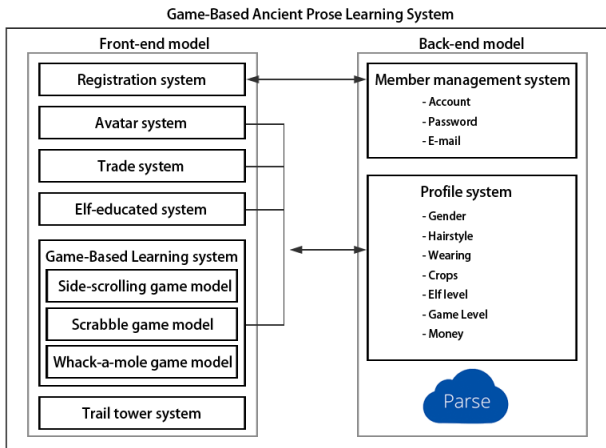
prose into a game story and designed interactive game mechanisms in a digital way, which aims to enhance the motivation, stickiness and participation of learners toward learning in order to arouse learners' motivation of self-directed learning and discuss learning effectiveness of this system.

2. SYSTEM DESIGN

2.1. SYSTEM FRAMEWORK

The framework of this system is based on an action role-playing game and the content design takes The Travels of Lao Can-Daming Lake published by Kang Hsuan Educational Publishing Corporation as a reference source. Through feedback from the experts, we separated the contents into several game points, and then in the game learning environment, learners can play an avatar to experience the moral and implication of an ancient Chinese prose. In Figure1, a system structure is composed of the front-end model and back-end model. The front-end model consists of a registration system, an avatar system, trade system, elf-educated system, game-based learning system, and Trail Tower. The back-end model contains the member management system and the profile system based on Parse database.

Fig.1. System structure



The member management system will record data, including student account, passwords, and an e-mail when students create a new account. After registration, these activities can be executed: (1) creating an avatar, (2) buying props to feed an elf, (3) educating an elf to have an attribute, (4) earning money and knowledge from a trail tower. Then students can play three kinds of games, inclusive of a side-scrolling game, scrabble game, and whack-a-mole game according to needs of contents. Table 1 is a system schematic diagram which describes representation of the elements of a system. The side-scrolling game allows learners to experience the landscape of ancient contents through the game screen. The scrabble game aims to let learners understand relative rules and implication of Chinese antithetical couplets through fixing them right. The whack-a-mole game tries to cultivate the ability of recognizing the representative of a color about a term.

Table 1: System schematic diagram

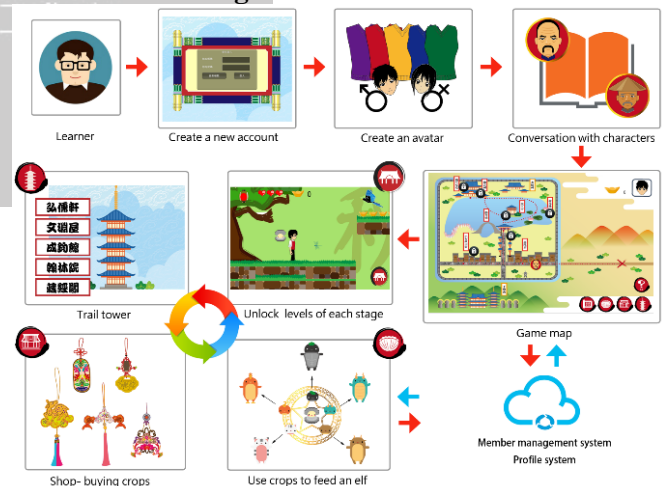
Game screen	Game elements	Course elements
	Main task - Side-scrolling game	Describe the scene of the text- i.e. dilapidated pot with chrysanthemums (老圃黃花)
	Main task - Scrabble game	Understand relative rules and implication of Chinese antithetical couplets
	Main task - Whack-a-mole game	Describe the color of the text- i.e. fiery-red (紅的火紅)
	Main task - Character conversation	Complemental materials

	Trail tower	Practice
	Elf cabin - Elf-educated	Connect the game and the trail tower in order to inspire students doing practice.

2.2. USER SCENARIO OF THIS SYSTEM

A user scenario is shown in Figure 2. When learners enter the game, they create a new account first. After logging in, learners can choose their favorite avatar and decorate it, and then they will be guided to watch a story about the world view. After that, they will come into a game map referring to real Da-Ming Lake design. Learners can go through each stage to explore game tasks to unlock levels according to the description of the contents of the ancient Chinese prose. After completing a level, learners can go to the Trail Tower to test their learning conditions and earn extra money for buying crops in the shop to feed an elf. Each crop has its own attribute which can change the appearance of an elf through different levels of growing. Importantly, an elf will accompany learners to beat their rivals each level.

Fig.2. User scenario



3. METHODOLOGY

3.1. PARTICIPANTS

We invited 30 junior high school students, 18 males and 12 females included. All of participants are thirteen years old coming from the same school located in southern Taiwan.

3.2. EXPERIMENT AND DESIGN PROCEDURE

For experimental purposes, we took one week in the computer classroom through the ancient Chinese prose class. At the beginner, we explained the rules and playing methods of this game system to students. Then each student was given a tablet computer with a short personal information survey. Students were asked for finishing the assigned task of the game step by step. The experiment cost 140 minutes in total. After students finished the game task, they were given a satisfaction questionnaire for forty minutes.

3.3. MEASUREMENT

To understand the learning effect, a satisfaction questionnaire was conducted by the junior high school students. The questionnaire consisted two parts. One was about the satisfaction on the game system based on ancient Chinese prose. This satisfaction questionnaire was divided to 7-point scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The other one was the open-ended questions.

4. RESULTS AND DISCUSSION

The missions of this research contain research study, content design, system implementation, pilot evaluation, and test. In the research stage, we have conducted questionnaires and interviewed 30 students and teachers from one junior high school in Kaohsiung, Taiwan. As we show in Table2, we try to find students' preferences toward game. We found that the standard deviation of role-playing game is $0.507 > 0.5$, which means the RPG game is more popular with students than others.

Table2 students' preferences toward games

Tower Defense Games	
Mean	.30
N	30
SD	.466
Adventure Game	
Mean	.40
N	30
SD	.498

Role-Playing Game	
Mean	.47
N	30
SD	.507
Puzzle Game	
Mean	.13
N	30
SD	.346

Table3 shows the satisfaction questionnaire on the role-playing game system based on ancient Chinese prose. We can conclude that an average value is 5.48 out of 7, and the standard deviation is 1.40. It shows that this game system brings a positive influence to students. One of the Students attending to the game system test said that this game strongly inspired him to read the ancient Chinese prose. The questionnaire also revealed 48 percent of students showed the positive response to one of the questions which is "*I try to connect the ancient Chinese contents through game screen.*" The result indicated that this game can effectively enhance students' learning motivation.

The purpose of questionnaires and interview is to understand the familiarity and perceptions toward ancient proses and students' preferences of types of games for game system design's reference. As for the content design, we analyzed the contents and teaching elements from three kinds of the most famous publishers in Taiwan and collected the feedback from the teachers about the course design for our game content design. We have spent four months on developing the system and carrying out the preliminary study. We will conduct a pilot evaluation in the same junior high school to get some ideas and suggestions from students towards game features and course design. At the same time, we interview teachers again to modify and complete the system.

Table3: Satisfaction questionnaire on the game system based on ancient Chinese prose**Table 3.** Satisfaction questionnaire on the game system based on ancient Chinese prose

	<div style="display: flex; justify-content: space-between; align-items: center;"> Strongly disagree Strongly agree </div>							Ave.	SD
	7	6	5	4	3	2	1		
1. I try to understand the characters' conversation while playing this game.	30%	20%	20%	20%	7%	3%	2%	5.30	1.52
2. I work hard when I am facing the mission.	33%	20%	18%	18%	5%	6%	0%	5.30	1.62
3. I try to earn money through playing game.	28%	21%	16%	23%	8%	3%	0%	5.28	1.45
4. I try to feed my self to change the appearance of it through different levels of growing.	23%	13%	20%	26%	5%	8%	3%	4.87	1.66
5. I like to show my accomplishment to my friends through this game.	39%	10%	31%	18%	2%	0%	0%	5.67	1.21
6. The content of this game and characters of this game keep me playing this game.	51%	13%	21%	13%	0%	2%	0%	5.97	1.23
7. I try to connect the ancient Chinese contents through game screen.	48%	16%	21%	15%	0%	0%	0%	5.97	1.13

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CONCLUSIONS

The results from the first stage of questionnaires and interviews indicated that the standard deviation of role-playing game is 0.507, which means that most students are in favor of role-playing game. This research is now in the preparation of pilot evaluation stage. We have constructed a system of integrating an action role-playing game into an ancient prose. We hope that learners can experience the pleasure of ancient proses through integration of diverse game elements and course design in order to enhance the motivation and interests of learning and ancient proses. Given that reasons, we chose an action role-playing game to be our target direction and discussed with teachers to come out with the framework of the system. In the future, we expect to get more positive data and reliabilities from the coming pilot evaluation, and then we aim to set up our teaching goal to expand the numbers of ancient proses to other ancient Chinese proses. Finally, we truly hope that learners can improve the interests of reading ancient proses to enhance the possibilities of self-directed learning.

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