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Creation-Island: A Game-Based Writing Environment to Support Students' Writing Development

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Abstract: In this paper, we proposed a scaffolded writing and rewriting model which combined 4 kinds of activities: reading, creating, talking, and revising (RCTR). This scaffolded writing and rewriting process provides students plenty of various inspirational guidance in writing process. Based on this model, we developed a game-based writing environment, called Creation-Island (CI). Specifically, the CI provides peer feedbacks prompts which could scaffold their writing skills in rewriting process. Next, we will examine the effect of CI with RCTR model in improving students' writing ability and interest in a primary school.

Keywords: Reading, Writing, Talking, Revising

1. Introduction

1.1 Game-based Learning

During the past decade, the acceptance of the potential benefits of digital games has increased gradually among educators, researchers, and practitioners. It has been widely agreed that digital games could increase the attractiveness of learning (e.g. Gee, 2003; Kiili, 2005; Prensky, 2001; Rosas et al., 2003; Squire, 2009). When treating digital games as an element of pedagogical strategies, we could find that it seems to be easy for any games to stimulate students to learn in classrooms or e-learning environments. The reason may be that students' attention is easily attracted by the effect of multimedia. However, these studies focused on how to stimulate students' motivation rather than to sustain students' motivation, even ignoring to cultivate students' habit. We observed that many digital games with pedagogical strategies are only designed for stimulating motivation, but educational games should be further designed for sustaining motivation. Many researchers also believed sustaining motivation is critical point for transforming learning form the use of digital games to educational goals (Gee, 2003; Kiili, 2005; Prensky, 2001, Barab, Thomas, Dodge, Carteaux, & Tuzun, 2005).

1.2 Writing Studies

Besides, previous research (Yang, Yeh, & Wang, 2009) investigated that 3051 elementary schools 6th students' Chinese writing difficulties in Taiwan. Yang et al. (2009) indicated that 511 students feared to receive negative comments from teachers; 520 students didn't like handwriting; 819 students didn't know how to write the beginning of article; 1173 students didn't have ideas about the topic; 1272 students didn't know how to organize the content of article; and 1514 students worried they wrote poor or short content. In other words, Taiwan elementary school students often lack confidence, writing ideas, and skills of writing. Besides, researches on the writing process, skill, and knowledge have increased markedly in recent years (Graham, McKeown, Kiuhara, & Harris, 2012; MacArthur, Graham, & Fitzgerald, 2006). Graham and his colleague (2012) also attempted to identify effective writing instructional practices for elementary students. Graham et al. (2012) found that four writing interventions, for scaffolding or supporting students' writing procedure, produced statistically significant effects: prewriting activities, peer assistance when writing, produce goals, and assessing

writing. Moreover, Rohman (1965) divided writing into three stages, including prewriting, writing, and rewriting. Base on above studies, this paper proposed a scaffolded writing and rewriting model with game-based learning environment, which provides students plenty of various inspirational guidance in writing process and peer feedback prompts in rewriting process as scaffolds for building their writing skills. Students can arrange their self-ideas and combine related sentences by using build-in organization of suggestions; students can give detailed corrections, comments, and reasons of grammatical errors by using build-in revision of suggestions. This paper also implemented a Creation-Island (CI) according to this model for helping elementary school students to writing and rewriting in order to cultivate a writing habit by using a portfolio management game.

2. Reading, Creating, Talking, and Revising (RCTR) Model

This paper proposed a scaffolded students' writing and rewriting model, entitled RCTR model. This model mainly encourages students to write and rewrite by 2 composition strategies: 1) *reading for creating* and 2) *talking for revising*. This study defined that the process which students composed an article including writing and rewriting process. Regarding as the composition strategy in writing process, students could overcome the writers' block by free-writing (Elbow, 1973), and then write the first draft by organizing ideas and combining sentences. Regarding as the composition strategy in rewriting process, students could revise and edit the article by refining topic sentences or thesis statements, and reorganizing content (Saddler, & Graham, 2005). In particular, the composition strategy of reading for creating as a reading-based approach to writing; the composition strategy of talking for revising as a talking-based approach to rewriting. In other words, students can utilize this RCTR model to record and then observe their process of developing writing skills with scaffolds of ideas organization; students also can also give responses and comments about overall organization and perspective of written texts.

2.1 Reading for Creating

The composition strategy of reading for creating in writing process includes 3 steps: theme-based reading, association-stimulation freewriting, and organizing into a draft. Specifically, students can gain domain knowledge about writing topics through theme-based reading in step 1 (Wiley, & Voss, 1999). The theme-based essay had to be convincing and based on authentic information sources. Students can generate ideas with guidance extensively through association-stimulation freewriting in step 2. Elbow (1973) defined freewriting as writing without stopping and editing. Further, Li (2007) declared freewriting as a powerful technique for developing writing ability. Students can compose an essay based on written ideas through composition in step 3 (Cerdán, & Vidal-Abarca, 2008).

2.2 Talking for Revising

The composition strategy of talking for revising in rewriting process includes 3 steps: examining others' articles, peer talking, and self-revising. Specifically, students can access and aware other students' content of articles through examining other articles in step 1. Students can read classmates' articles and give suggestions for helpfulness and specificity. Students can provide textual and oral responses with scaffolding prompts through peer talking in step 2 (Strijbos, Narciss, & Dünnebier, 2010), such as, supporting classmatesby cueing them about their articles or about aspects of revision; students can revise an essay based on other students' suggestions through self-revising in step 3 (Fitzgerald, 1987). We enabling students' meaningful revision activity, not just editorial actions.

3. Creation-Island System

Creation-Island system provides an engaging island-construction environment where students can build and maintain an island with residential, commercial, and industrial buildings (reading for creating), and invest their money in other students' island in order to attract tourists' attention and interest (talking for revising), see Figure.

Figure 1. Different regions represented different discipline areas.

Among game categories, the category of management games has one characteristic: students play the role of "island constructor" to administer of his/her island for long period of time. This characteristic is helpful to sustain students' motivation to learn. We applied this management rules to design the Creation-Island. While students build their own island or invest others' island, they do actually take good care of their own learning status in the form of game playing. In particular, the Creation-Island incorporates many elements of an island, using a simplified interface designed to be intuitive for young students. As in real life, "island constructors" in the game cost money for buildings and resources. Besides, a successful island should contain roads, houses, places for people to work, and essential services, such as police offices and fire departments and hospitals. Moreover, the Creation-Island incorporates the island' map and provides feedbacks designed to arouse the students' caring nature. The idea was used to enhance and transform the learning process by skillfully interweaving writing and managing to create a new environment. In other words, a Creation-Island provides an interchange between game activities and learning activities.


Figure 2. Numbers of buildings represented the numbers of writing article.

In addition, Kay (1997) and Chan (1996) advocated the usage of learning profiles promote self-reflection, and stated "it should make it available to the learner for improving their own learning through better self-knowledge (Kay, 1997, p. 18)". The buildings changing appearance provides students with a "visible" learning status. The statuses of island map change according to students' writing progress and performance. In this way, students' awareness of self-reflection might be enhanced. Hence, the

strategy of buildings changing may promote students' reflection on their learning, seeing Table 1. In particular, Creation-Island implemented four design strategies under long-term management approach.

Table 1: Buildings upgrade was represented the writing process

Level	Game Activity	Writing Activity	RCTR Model
5F (5th Floor)	House completed	Students can publish their own essay	Talking for Revising
4F (4th Floor)	House repair	Students can revise essay	
3F (3rd Floor)	House upgrade	Students can review others' essay by peer-talking	
2F (2nd Floor)	Building the Walls and Roof	Students can compose an essay based on written ideas through composition	Reading for Creating
1F (1st Floor)	Breaking Ground Designing Your Home	Students can generate ideas with guidance extensively through association-stimulation freewriting	
B1 (Basement1)	Finding a Location	Students can gain domain knowledge about writing topics through theme-based reading	

#1 strategy. Different regions in Creation-Island represented the different discipline areas. Creation-Island which is comprised of four regions: Chinese Language, Social and Humanities, Health and Sports, and Nature and Science. #2 strategy. Weekly report represented the writing habit. Students can create and manage a visual representation of a portfolio and determining an efficient allocation in Creation-Island. #3 strategy. Buildings upgrade represented the writing process. #4 strategy. Numbers of buildings represented the numbers of writing article.

4. Remakes

In this paper, we developed a game-based writing environment based on RCTR model, called Creation-Island. In Creation-Island, students can build their own island or invest others' island while practicing different theme-basic articles. Currently, this game-based writing environment includes the third grade to the sixth grade writing topics, but it is designed to be expandable to other grades and topics, as well. Teachers can use Creation-Island as a part of their classroom instruction for students to practice and master specific concepts. For future studies, we will have an opportunity practically to examine the model in a primary school to understand students' competence for writing performance and the influence of CI. We will also explore the relationships among reading, and writing, and re-writing in order to determine whether increasing students' writing motivation. We hope that future research will provide more detailed results.

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