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Development of a Management Game for English Vocabulary Learning

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Abstract: In this paper, we describe the development of a management game, My-Pet-Shop, to support incidental learning for English vocabulary. The design rationale of the system lies in the fact that vocabulary learning should learn from meaningful context rather than abstract description. In addition, a management game could help students regulate their learning in a joyful way. Based on the two rationales, we develop the My-Pet-Shop, which consists of three components, including self-representation, self-management, and social interaction. In addition to the introduction of the three components, their underlying thoughts are also described. In the near future, the system usability and its influences on student learning would be conducted.

Keywords: Management game, incidental learning, English vocabulary

1. Introduction

Vocabulary plays a critical role in learning a foreign language because vocabulary is a fundamental element to link other skills, such as reading, writing, listening, and speaking. Specifically, an adequate number of vocabularies could help students communicate well with others (Nguyen & Khuat, 2005). However, it has been indicated that, on the one hand, rote vocabulary learning might be a boring exercise and it is difficult for students to be engaged in such learning activities. On the other hand, it has been indicated that vocabulary acquisition should not separate from learning contexts. Instead, the meaning of vocabularies should be acquired from contexts. In such a vein, more and more digital games are related to vocabulary learning (Yip & Kwan, 2006). This is because game playing is a popular way to engage students in language learning (Schultz & Fisher, 1988).

Among game genres, the genre of management games has several unique characteristics. For instance, management games not only engage students in a game playing, but also offer students opportunities to play the role of manager, during which students learn how to make decision and also learn how to be responsible. In other words, students need to learn how to regulate their planning, strategies, and behaviors for the game goal. This key characteristic is closely related with self-regulated learning, especially when students could manage their learning in a management game. Nevertheless, how a management game could support vocabulary learning is seldom investigated. Thus, it is still unclear concerning the benefits and limitation of such a game-based learning environment. In this study, a game-based learning environment, My-Pet-Shop, is developed. Based on this system, its influences on student learning could be further investigated in the near future.

2. Development of My-Pet-Shop system

2.1 Theory and system concept

The development of the My-Pet-Shop system is underpinned by the theory of incidental learning (Marsick & Watkins, 1990), in which learning takes place without students' intention to learn. More specifically, incidental learning refers to that learning occurs naturally as the by-product of another interesting activity, and thus could be regarded as the side-effect of the activity. Since incidental learning allows students to learn in a joyful activity, it has been related to game-based learning, especially in the domain of English vocabulary learning (Huang & Yang, 2012; Nguyen & Khuat, 2005). Based on the incidental learning, we develop the My-Pet-Shop system, which consists of three components, including self-representation, self-management, and social interaction.

2.2 Self-representation

Since people tend to regard the behavior of their self-images in the virtual environment as themselves (Nass et al., 1998), it is significant to consider how to help students represent themselves in the virtual environments so that their identities and ownerships could be established. For a learning environment, self-representation is also significant for students. In addition to students' identities and ownerships, self-representation is further closely related with students' engagement and their self-efficacy about what they learn. Because of this significance, virtual characters are often used to enhance students' feelings of telepresence (Qiu & Benbasat, 2005) in the virtual environments. By doing so, the students could clearly observe what they did and what they gained via virtual characters, the cause-and-effect relationship between effort they made and outcome they gained become clearer, which, in turn, might shape their positive learning attitude.

As illustrated in Figure 1, avatars are used to make students be more aware of their learning status in this study. Avatars are frequently used in digital game-based learning to represent the students' presence, appearance, and actions. This is due to the fact that avatars refer to graphical representation of students' self-image in the form of virtual characters. More specifically, the students not only could see what they do from a third-person point of view, but they could also be observed by others via these virtual characters. Thus, avatars could enhance students' feelings of telepresence, even as their second-self or alter ego in the learning environment (Qiu & Benbasat, 2005).

2.3 Self-management

Although digital games have different genres, management games are chosen to support incidental learning. Such choice is due to the fact that, on one hand, a management game can concretize what a student has learned as manipulated objects. On the basis of concretized objects, the sense of ownership on what they have learned could be enhanced, which, in turn, might contribute to the self-awareness of learning status. By doing so, managing the concretized objects is just managing their learning. On the other hand, a management game involves the process of control, goal-setting, monitoring, and improving, which could be aligned to self-regulated learning. This process gives students freedoms to determine what to do, pursue their different goals, and develop their distinguishing features, which are also helpful to their individual learning.

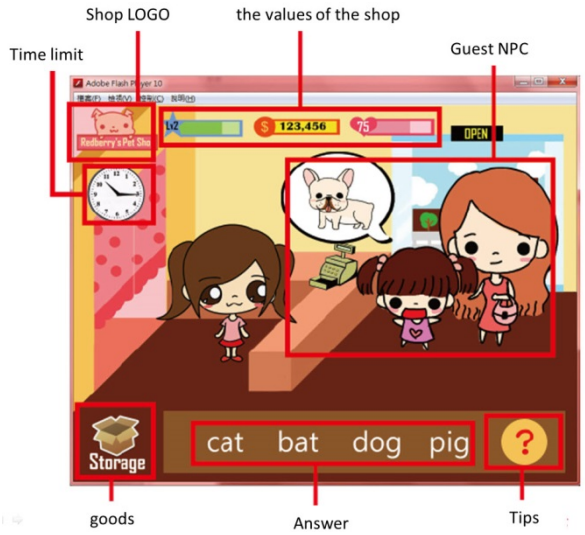

Figure 1. Screenshot of My-Pet-Shop

Figure 2. Street of the pet-shops

Based on the reasons described above, a pet-shop management game is developed to support English vocabulary learning. Students play as the role of manager to run a pet-shop, in which guests would visit the pet-shop to ask for different services, such as buying the pets, feeding their pets, washing their pets, and healing their pets. The game goal is to satisfy the needs of these guests. For instance, as shown in Figure 1, a girl with her mother comes to the pet-shop to buy a pet. While the

girl expresses which pet she wants, the pet-shop manager needs to respond to her correctly. Under such a context, the student would learn the vocabulary from the situation, instead of abstract one. In addition, the goal for the student is to run the pet-shop well. The student would be engaged in the game-playing, which results in the side-effect of the vocabulary learning.

2.4 Social interaction

Regarding the social interaction, the design focus has shifted from self-representation and self-regulated learning to social interaction, which is underpinned by the hypothesis of zone of proximal development (Vygotsky, 1978), a distance between what students can achieve by themselves and what they can achieve when provided with appropriate support through social interactions with peers. In other words, social interaction offers more opportunities to enhance student learning. The protocol of social interaction could be further categorized as collaboration and competition. In this study, the protocol of competition is used to promote social interaction. This is because, on the one hand, competition is a powerful motivator for student behavior regularly applied in education research. Some studies have found competition to have positive effects on student learning (Cheng, Wu, Liao, & Chan, 2009).

On the other hand, the protocol of competition involves the concept of open learner model: making the status of students' learning accessible to the students themselves within the educational system (Bull et al., 2009). The movement from "hidden" to "open" student models benefits students in various ways. For example, open student models serve as a "mirror" (Bull & Kay, 2007; Velez, Fabregat, Bull, & Baldiris, 2009) or "virtual companion" (Chen, Chou, Deng, & Chan, 2007) so that students have more opportunities to reflect on what they have learnt and have not yet mastered. Thus, as shown in Figure 2, the street of pet-shops is designed to foster social interaction. Students could observe and visit the pet-shops of their friends.

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