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The Implementation of a Game Based Character Model E-Learning System

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Abstract: This study focuses on animal image through visual converted into digital role in the real digital games learning, for a characteristic animal in Taiwan as a blueprint, through literature analysis, game-based learning theory and the role of design, actual design and develops a game named "Wind Wings". The game used 2D and 3D technology, combined with cute animal shapes features and eco-park design; also eco-environment and animal knowledge-oriented are focusing on the correct values, at the same time, learners benefit knowledge about environmental conservation during the game.

Keywords: Digital games learning, Character design, Visual design

Introduction

Background and Motivation

In this day and age, "computer games" is the favorite of modern young students, and playing online games is the most popular entertainment. After school, the topic of regular students is to discuss experiences of playing online games; as a result, we can see the charm of online games. However, in recent years, seldom games combine with knowledge of animal ecology in children's computer games. It is a challenge and meaningful work for students to shift the attention on conservation through online games. In addition, if combined with knowledge of the ecological environment and animal-oriented, transfer student's attention to conservation knowledge, perhaps it could help children benefited knowledge on environmental conservation during playing games.

Research Purposes

In recent years, due to computers and internet are among in general household, digital games, whether stand-alone or online games are very popular. The company – Adobe, introduced flash multimedia development software, which has developed easy and high interactive features, if we can use the software as a learning tool to children's favorite games and provision different learning fun during playing games. Therefore, this study focuses on third grade children, developed a real game "wind wings", which including ecological knowledge of animals. It used a digital learning game to explore the meaning of development the endemic animal to the role of visual design, interaction mechanism in a modular way of the game.

1 Literature

In this study, the company, Adobe, introduced Flash multimedia development software designed as a platform of games, contains of learning animal ecology elements, the following research conducted for literature.

Game-based Learning

Loves games are children's natural, games are the important part of their lives. Eisner (1982) Games let children explore possible experience to understand the way the world is a natural childhood activities. Prensky (2001) against that there are few characteristics for games on digital learning: 1, Entertainment 2, Games 3,Regularity 4, Targeted 5, Human-computer interaction 6, Results and feedback 7, Adaptive 8, Victory sense 9, Competitive nature of conflict and challenge 10, Problem solving 11, Social interaction 12, Plot of the image. Hogle (1996) Computer games can lead to intrinsic motivation and increase interest in strengthening the memory and to provide high-level thinking in practice and feedback.According to Ebner and Holzinger (2007), the study also shows that learning materials can show the real situation and experience more than the traditional teaching media. Malone (1981) factors that there are three elements of making a fun game: 'challenge', 'sexual fantasy' and 'curiosity'. Therefore, we can design digital games to let children in games through interactive operations and exploration in order to enhance intrinsic motivation and interest, and to focus on children interactive content on games, access to animal ecology of the relevant knowledge.

Character Design

Successful role in the design, the effect of expanding out from the core values, Yesi Yi, Song Yun Lu (2004) mentioned, good character design will cause the player's interest in the conduct of the process through the game, so players like the roles and produce on the role of emotional Contact (Hook), or the so-called recognition. Shi Hengda (2004) says if the situation similar to the story, but the role of treatment between the different results caused by the difference, it leads to more attracted attention of learners, and enhancing learning efficiently. Huang-Huai Lin (2001) targeting children in Taiwan, and the sample was 540 questionnaires, which in order to understand children's modeling style preferences of the image, the results show that both boys and girls are clearly the theme of any story like cartoon style. In addition, Wang Menghui (2005) in who studies of children's illustration style preferences, the characteristics of the image modeling, which shows different classification of styles. One of the feature of cartoon-style, focused on the lovely appearance and childish of the values and behavior, they are important conditions, such as pattern cartoon character form proportion, color flat painted surface, simplified or disappearance of the shadow of a clear outline of closed contour lines or thick and so on. From the literature, understand about the importance of character design, not only allow learners to the role of the affective, but also more recognition to help familiar with the learning content. Therefore, this study will focus on the actual development of Taiwan's endemic species of animals, design role, Relate to the game unit needs, individual design of six different animal characters.

2 Study and design

The main purpose of this study was designed to learn a game with using a computer technology with characteristics of entities animal visual images, design and develop of animal ecology in Taiwan. Due to a system design process by studying animal ecology expert

feedback to amend the content and the final integration work, the study completed a six-unit learning games.

2.1 Study

After research design is completed, we invited 60 third grade children to operate the actual software testing.

2.2 METHOD Conceptual Design

Taiwan's endemic animal ecology as the theme of learning games, the development of flow include visual design, expert feedback, multimedia integration and system design stage, the stage of the process design shows in Figure 1.

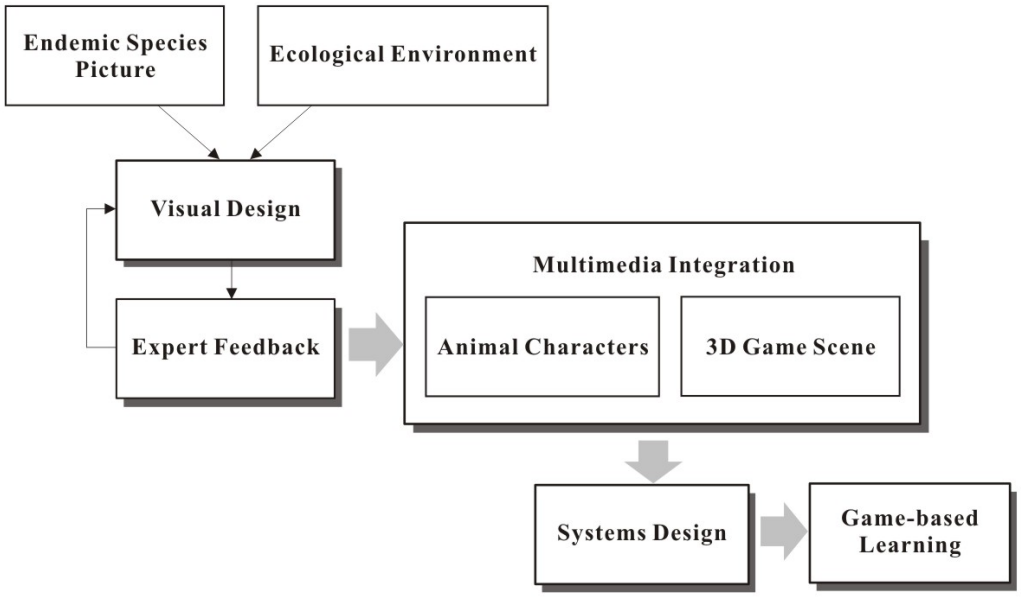

Figure 1: Conceptual Model and System Architecture

2.3 Animal Character Design

The role of animals for games unit design, the design characteristics of animals, such as the role of style, with lovely shape, color coated flat surface simplification, closed contours to the design. The conversion process shows in Figure 2.

step1.animal images step2. Transformation step3.Computer Drafting

Figure 2: the role of the visual design of the conversion process animal

2.4 Operation process

Children into learning the game screen after the procedure, the order of animation context, ecological scenes, the role of animals unit games, shows in Figure 3.

Figure 4: Control screen flow

3 Conclusion and Discussion

The purpose of this study is to develop learning style games combining the contents of animal character design and integration into ecological relevant elements of knowledge for children. From the results, the game really can attract third-grade children's interest in learning, and lead to active learning about the content of ecological knowledge with cute character design style. Due to the time, resources and other factors, only completion of building the current 3D Animal Ecology Park, and six roles of the theme on the game, yet other animals eco-related design and development. In the ecosystem, animals have their unique living environment, and also are the most valuable property resources. In addition, researchers can continue to enrich the related teaching materials in the future.

In this study, researchers can development of animal ecology learning games assist children a valuable reference through the visual experience of the process of transforming the image of animals in the future. Finally, the expectations and results of this study can promote ecological conservation and environmental protection and make a contribution in our society. Also hope this study can makes a discussion to be able to draw all the attention of animal conservation.

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