The Application of Game-Based Learning in Early Childhood Acquisition

Sanko Lan[a*], Joni Tzuchen Tang[b*] , Yie-Su Hwang[c]

[a&b]*APP Department, Kizi Lab Inc., Taiwan*
[b]*Graduate School of Curriculum and Instruction, National Taipei University of Education, Taiwan.*
[c]*The Department of Early Childhood Care and Education, Cheng Shiu University, Taiwan.*
[a]*lan@allproducts.com
[b]*jttang0@gmail.com

Abstract: In this paper, we addressed the issue on application of game-based learning in early childhood acquisition. Accordingly, the new game design company, Kizi Lab Inc., had implemented the theoretical background of game-based learning and early child acquisition into the developed process to make the games playable, enjoyable and learnable for 2-8 years old children. Kizi Lab Inc. had found children can play kids' tablet, Kizipad, individually and automatically with highly motivation and interests of learning, and the games also showed children are able to learn from the games effectively.
Game Play Video:
https://docs.google.com/a/tradeserv.com/file/d/0B8673eHDKiOPaGRrNFVuT3BIdzQ/edit

Keywords: Game-based learning, Early Childhood Acquisition, Kizipad.

1. Introduction

Kizi Lab Inc. is a new game-design company for early childhood education area. The rationality of this company is to develop mobile games for 2-8 years old children. The newest released product in Kizi Lab Inc. is called Kizipad (http://www.kizipad.com/). Kizipad is a kind of children tablets, which allow 2-8 years old children to have their own responsible toy and motivate children to play and learn automatically.

2. Theoretical Background

2.1 Early Childhood Acquisition

First, we need to clarify the differences between "learning" and "acquisition". According to Brown (1989), learning happens when students have awareness, whereas acquisition is an unconsciousness and automatic process. Different theory showed different ideas of early childhood acquisition.

Table 1: Theoretical Framework

Theory	Belief on early childhood acquisition
Behaviorism	Learning can be acquired by stimuli, reinforcement, and operation (Skinner, 1945).
Cognitivism	Learning acquisition goes through the meaningful process. Learners would revise their intrinsic to understand the external environment (Piaget, 1926).
Humanism	Learning acquisition is entirely innate. It is the potential of human development; it is a spontaneous progress (Chomsky, 1993).
Social constructionism	Society itself would provide the experience; the society can scaffold learners' thought (Vygotsky, 1978).

Kizi Lab believes early childhood acquisition can be nature and innate, learning can occur in a provided game.

2.2 Game Based Learning

Game-Based learning (GBL) is a game play which has defined learning outcomes. The idea of Game-Based Learning believe that if we can motivate children and allow them to develop an awareness of consequentiality, children can learn and acquire knowledge and information automatically (Van Eck, 2006).

Why do we need Game-Based learning in early childhood acquisition? There are several reasons. First, children are interested at games. If we can provide games in learning, we can gain children's learning motivation. Second, mobile devices can carry games; therefore, we can provide ubiquity of learning for children. Third, game-based learning believed learning can be automatically, which is related to our belief in early childhood acquisition.

3. The Road Map of Kizi Lab

3.1 Develop a Curriculum Map

In order to provide a curriculum map, Kizi Lab Inc. had several educational consultants to develop the map together. The curriculum map followed the learning objectives, predicted outcomes, and related research.

Right now, Kizipad had followed seven main areas from the curriculum map, which is: English as Second Language, Mathematics, Science, Life and Society, Creative Tools, Stories, Songs, and Screening Test.

3.2 Design the Practical Games

All of the games have followed the curriculum map, and design the practical and learnable contents. The games had been justified by several tests to ensure 1) Does the game meet the curriculum map? 2) Can children play the games individually? 3) Do children like the games? 4) Can children learn from the games?

All of the justified tests had been recorded, which allowed games designers to revise and rethink how to make the game become more practical and learnable.

3.3 Test Each Games Reliability and Validity

By ensuring the games had reliability and validity, all the games went through educational consultants to meet the games' validity, and all the games had been tested by 2-8 years children to meet the reliability needs.

The game went to circle process, and each test had been recorded to allow the games to meet the users' reliability, and educational validity.

3.4 Released the games

After the games meet all the criteria, the games can be released; however, the process had not been ended.

3.5 Adjusted the games

All of the games had recorded from the players. By the recording statistics, we can know how the players like the games and what are the norm for the players' ability to finish the game. If we find the games are too hard for most of players, we would adjust the games to make it easier.

4. Kizipad

Kizipad is a kind of kids' tablets, which design for 2-8 years children. Kizipad had 83 games, and users can download games monthly. All of Kizipad now is in Chinese, and later may release different language version in the future.
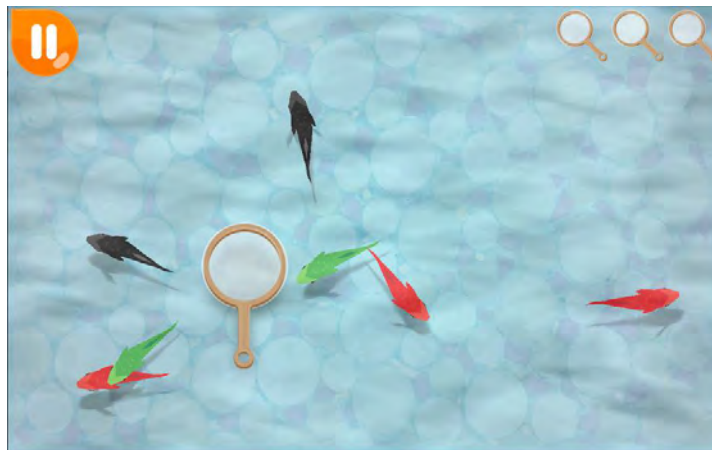

Figure 1. Kizipad's appearances

Figure 2. Coloring Games from Kizipad

Figure 3. Sorting Games from Kizipad

Figure 4. Moving Ball Games from Kizipad

Figure 5. users' recording statistics from Kizipad

For more Kizipad's content: www.kizipad.com
Game Play Video:
　　https://docs.google.com/a/tradeserv.com/file/d/0B8673eHDKiOPaGRrNFVuT3BIdzQ/edit

5. Contribution

Kizipad had opened a new view in early childhood area. By doing the several tests, we found 2-8 children enjoy playing Kizipad, and many of our researches and tests had found games can enhance children learning individually, automatically, and effectively (Tang, Hwang & Lan, 2013).

References

Brown, J. S., Collins, A., & Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*(January-February 1989), 32-42.

Chomsky (1993). *Language and Thought*. Wakefield, RI: Moyer Ball.

Piaget, J. (1926). The language and thought of the child. Routledge & Kegan Paul: London.

Skinner, B. F. (1945). The operational analysis of psychological terms. *Psychological Review.* 52, 270-277, 290-294.

Tang, J. T, Hwang, Y & Lan, S (2013). The experiment of mobile learning in early childhood vocabulary. *2013 Pacific Neighborhood Consortium (PNC) Annual Conference and Joint Meetings*, Kyoto University, Japan.

Van Eck, R. (2006). Digital game-based learning: It's not just the digital natives who are restless. *Educase Review,* 41, 2, 1-16.

Vygotsky L. (1978). Mind in society : The development of higher psychological processes. Cambridge, MA : Harvard UP.