Using Virtual Learning Environment (VLE) as an Input to Development Visual Perception Skills (VPS)

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Abstract

The paper examines the effect of using VLEs on the development of preschoolers' visual perception skills based on the importance of VLEs in preschooler processing information in a way that is characterized by the great use of visual field, which may help the preschooler to over some visual perception-related learning difficulties such as visual identification, visual recall, visual analysis and visual closure. VLEs develop these skills in a more remarkable way than children using the conventional approach. This will substantially help tackling the said difficulties and contribute to a substantial improvement in the child's behavioral performance.

Keywords: Virtual Learning Environment ; E-Learning ; Visual Preception ; Virtual Reality

1. Introduction

Virtual Learning Environment (VLE) offer one of the most robust learning environments for complex text and voice-based social interactions and experiences. Despite their potential contribution to the field of education, this area remains comparatively under-researched in academia [1]. A Virtual Learning Environment is a computer simulated environment that offers a graphical representation of a physical environment in which users can interact with one another and manipulate the environment by modifying or creating objects [2;3]. Virtual Learning Environment also offer opportunities for more engaging learning experiences and interactions that cannot be easily experienced using other teaching platforms [4]. Within virtual worlds, users have a space to interact with one another and manipulate the space by creating or modifying objects, thereby simulating a real world experience. As educators migrate from face-to-face modalities to online environments, their pedagogy adapts to embrace technologies and cultures resident within virtual learning environments. This migration and translation offers instructional designers opportunities to design instruction that will enable effective utilization of virtual worlds' capabilities to support desired outcomes. A pertinent question arises about traditional instructional design (ID) models providing precise guidance for the design of instruction in virtual learning environments.

According to Chen (2010) [5], traditional ID models do not offer precise guidance for designing instruction in virtual learning environments. Traditional models tend to be too process oriented, static, and linear and do not meet user expectations in virtual environments [6]. Some instructional designers have taken constructivist approaches to guide design and development of virtual world activities that enable effective utilization of virtual worlds' capabilities to support desired learning experiences for users; yet literature that describes how existing ID is being used to develop instruction for users; yet literature that describes how existing ID is being used to develop instruction in virtual environments is still scarce [7]. Virtual learning environments are one of the subjects of interest for current research; this study explored how existing instructional design models are being used to develop instruction in virtual learning environments.

Since virtual learning environments cares deeply in a way that is characterized by the great use of visual field which may help the preschooler to over some visual perception-related learning difficulties . Virtual Learning Environment (VLE) gives possibility to personal learning, and VLE will be best at achieving learning effectiveness when it took the needs of preschoolers into development of preschoolers' visual perception skills . Ideal VLE should be able to identify preschoolers needs and customize solutions that foster successful learning and performance, without an instructor to supplement instruction.

2. Research Questions

The problem of the current study can be put forward in the following major question:

What is the effect of using a Virtual Learning Environment (VLE) on the development of preschoolers' visual perception skills?

This question can be branched into the following sub-questions:

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- What effect does the Virtual Learning Environment (VLE) on the development of preschoolers' visual identification skills ?

- What effect does the Virtual Learning Environment (VLE) on the development of preschoolers' visual recall skills ?

- What effect does the Virtual Learning Environment (VLE) on the development of preschoolers' visual analysis skills ?

- What effect does the Virtual Learning Environment (VLE) on the development of preschoolers' visual closure skills ?

3. Research Importance

The importance of the current study may be ascribed to the following:

- Building realistic VLE to learn and train preschoolers in performing the tasks that may impose a burden upon them.

- Providing preschoolers with the opportunity to experience and test natural environments inaccessible in the real world.

- Providing preschoolers with high skills in performing certain tasks such as doing organizational operations to minimized possibilities of error when moving to real practice.

- Virtual Learning Environment ensures preschoolers' active participation, and provides them with interaction with others.

4. Research Procedure

In view of the nature of the current study, the author will use the experimental method to identify the relationship between using VLE and Visual Perception Skills (VPS) and its impact on the development of this Skills. The study includes the following variables:

- *Independent variables:*

There are one independent variable is The educational program based on Preschoolers' access to an Virtual learning Environment through the computer.

- *Dependent variables:*

there are four dependent variables:

- Preschoolers' visual identification skills attached with certain knowledge included in the topic of VLE.

- Preschoolers' visual recall skills attached with certain knowledge included in the topic of VLE.

- Preschoolers' visual analysis skills attached with certain knowledge included in the topic of VLE.

- Preschoolers' visual closure skills attached with certain knowledge included in the topic of VLE.

4.1 Design of the Experiment

In view of the independent variable it is expected that such a study will have the experimental design shown in the following table:

Table 1: Experimental Design Table

N	Groups	Type of Treatment
1	Experimental Group	Use of VLE with Preschoolers' learning difficulties
2	Control Group	Without any experimental treatment (conventional treatment) with Preschoolers' learning difficulties

4.2 Theoretical Framework

To review the related studies on the study variables including:

- Virtual environments (concept, characteristics and relationship with Learning)
- visual perception skills with Preschoolers (concept, components and historical development)
- Preschoolers' learning difficulties and how to development skills with learning environment .

4.3 Experimental Framework

- Selection of VLE subject.
- Identification of Instructional objectives to be achieved by the environment.
- Analysis of the VLE contents.
- Analysis of learners' characteristics as well as Preschoolers' learning difficulties activities.
- Preparing, building, designing and production of the VLE using a number of VR building author ware programs.
- Validation of the VLE through presenting it to a number of judges to express their commenting of deletion form, addition to or modification of the VLE, and executing these modifications.
- Building and validation of an observation form on the topic of VLE to verify its stability and reliability.
- Random selection of the sample of the pilot study.
- Implementing the pilot study so as to decide on the time suitable for the implementation of the main study and identifying the difficulties the author may face and overcome when implementing the main study, assessing the internal efficiency of the program.
- Modification of the program based upon the findings of the pilot study to achieve success, as well as modification of the study tools to perform the main study.

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- Selection of the main study sample and dividing them according experimental design.
- Implementation of the VLE on the experimental groups
- Application of the observation form to Preschoolers while in the Environment .

Fig. 1 Example of VLE Interface.

5. Research Results

The current study came out with a number of results. These are:

A. There are significant differences (p = 0.05) between the average scores of experimental and control group, in the post-test visual perception skills total score, to the favor of the experimental group.

B. There are significant differences (p=0.05) between post-test visual identification skills average scores of experimental and control group, to the favor of the experimental group.

C. There are significant differences (p=0.05) between post-test visual recall skills average scores of experimental and control group, to the favor of the experimental group.

D. There are significant differences (p=0.05) between post-test visual analysis skills average scores of experimental and control group, to the favor of the experimental group.

E. There are significant differences (p=0.05) between post-test visual closure skills average scores of experimental and control group, to the favor of the experimental group.

6. Conclusion

In view of the above findings, we can use The VLE outlined in the current study by incorporating this environment in the academic courses studied by Preschoolers' learning difficulties in Kindergarten .The architecture of the VLE should be made use of in the design and production of such environments. From here illustrated the close relationship between the use of VLE and visual perception skills and visual memory, which have a tremendous impact to Preschoolers' learning difficulties.

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