Development Fluent and Flexible Thinking Using Design Electronic Slides Process

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Abstract: - The purpose of the study was to investigate the design of electronic slides that can enhance flexible and fluent thinking skills. A sample of (25) students studying the Computer and Instructional Media participated in the study. They were intentionally selected because they were required to design Instructional software using Microsoft Power Point programme. A control group of (25) students studying the “Group Work in Early Childhood” class at the same college were also chosen. Both groups took Torrance Test for creative thinking form “A”. During the semester, the experimental group was taught to design computer instructional programs using Microsoft Power Point. After six weeks, both groups took Torrance Test for creative thinking form “A” again. After analysing the data, the study revealed statistical significant differences ($\alpha=0.5$) between the two groups in favor of the experimental group.

Key-Words: - Fluent, Flexible, Thinking, Electronic Slides, Development, Design

1 Introduction

Technology environment will play a key role in helping students to develop the ability to think and act creatively thinking [1]. The strength of the computer and its associated modern technologies in raising the creativity is very clear. Enhancing the creative thinking using the computer is considered one of the most important Features of the third millennium [2]. Significant progress in the development of advanced computer-based learning environments that can interact with learners, meaningful learning in which a learner actively builds a mental model of the system they are to learn, and is best evaluated by problem-solving transfer in which the learner must use what has been learned to solve challenging new problems [3].

The problem of the study stems from the urgent need for the minds that can encounter the challenges of the future and identify the skills that students should master and the possibility of employing technology to develop the creative thinking skills they have, while the use of computers in the educational fields takes only the form of appearance in comparison to the great ability and high cost of the introduction of computer in the process of learning and education.

In the opinion of Moursand [4] if the computer is not exploited systematically in terms of education, i.e. it is only used by teachers and students to interact with computers in some simple activities such as the design of a card or paper, or print text, and then it is totally neglected and not exploited properly.

Many studies have shown that the use of computer develop creative thinking [5] have conducted a study in which they applied the Torrance test for creative thinking in verbal image was in accordance with the language of Logo, the results showed statistically significant differences between the application of pre and post application and multi-dimensional, the researchers attributed this result to the impact of Logo in the development of creative thinking among the members of the sample.

Silvern [6] held a study in which the logo language was taught in the method of problem solving, the researcher attributed this to the structural nature of Logo language, which offers a wider opportunity for students to draw lines, and develop drawings, and produce forms that develop their ability to create. Also Clements [7] conducted a study in which the students of the experimental group received a training on the language (Logos), the researcher found that there were differences statistically significant at a level less than ($\alpha=0.5$) for females in fluency, flexibility and creativity, researcher attributed this to the idea that girls spend more time using the computers than boys do, while he did not find substantial differences between girls and boys in originality.

The aim of Heaston study [1] to promote creative thinking through high-level thinking skills, to
develop students’ attitudes towards the use of a computer from the basic grades, determine the effect of the use of study methods enhanced by the computer in the development of creative thinking. The Results revealed that the learning environment enhanced by computer technology was important and had positive impact on students, in terms of developing creative thinking and advanced thinking skills to students, the study showed that using computers affects students positively in two areas: students’ creativity and their perspective towards computer.

This study reveals the effect of practicing using Power Point software to design some presentations on their creative thinking since this software that includes images, sounds, drawings and motion. And the hypertext links between the slides and the interaction among all of these.

2 Problem Formulation
The study was based on a pre- and post-test design with an experimental and a control group.

2.1 Participants
The study was conducted on 50 students, 25 in the experimental of 17 female and 8 male postgraduate students of early childhood course who chose to take a designing electronic slides using computers course. The average age of the students in the group was 20. The control group was 25 students also comprised of 17 female and 8 male students, selected randomly from a group of 40 students who were studying in the same field, but not taking a designing electronic slides using computers course. Their average age was 19. According to the results of the pre-test, there was no significant difference between the total fluency and flexibility scores of the groups.

2.2 Instruments
Several studies on employed Torrance test of creative thinking for the assessment of fluency and flexibility [8]. This study has used this test was chosen because it was more commonly used, and it was also easy to apply and evaluate. The same assessment tools were used as pre- and post-test.

2.3 Procedures
The pre-test was administered to both groups – experimental and control – at the same time. The control group was not engaged to any computer programmed work under the supervision of the teachers after the pre-test. The experimental group, however, received designed electronic slides for 6 weeks. The treatment was held in a 3-h session once a week, in the afternoons; so, the group was exposed to 18 h (10 classes) designed electronic slides. There were no intervals in the classes. Both groups were given a post-test under the same conditions a week after the Computer and Instructional Media class was completed.

The creative design slide process were organized and run by the researcher who was also the group leader. Considering that a condition in which the researcher was at the same time the group leader could have affected the subjects, pre-test and post-test have been made outside of the design slide classes. Pre- and post-tests were administered in the “classroom management” course taken by all the students together and they were administered by the instructor of the course. Pre and post-test have been given to the control groups all together and have not been associated with the design process.

Table 1 Average and Deviation Values of Experimental and Control Group Pre and Post-Test

<table>
<thead>
<tr>
<th>Experimental group (No:25)</th>
<th>Control group (No: 25).</th>
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<tbody>
<tr>
<td>Pre-test</td>
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<td>31.  80</td>
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<td>8.3  4</td>
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<tr>
<td>flexibility</td>
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<td>7.  3</td>
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<td>8.1  2</td>
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<td>5.1</td>
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3 RESULTS
The researcher’s purpose in this study was to determine whether design electronic slides process would improve the participants’ fluency and flexibility levels in thinking. Thus, a pre-test and post-test design with the experimental and control groups was employed. To find out if there were any significant differences between their fluency and flexibility levels, subjects were given a one-way MANOVA analysis that conformed to a 2×2 design. The analysis was based on the pre-test and post-test score differences. Table 1 illustrates the mean and deviation values of the experimental and control groups’ pre-test and post-test scores, and their score differences.

The MANOVA analysis showed that there was a significant differing between the fluency (F (1, 47)
= 30.676, p < 0.00) and flexibility (F (1, 47) = 39.137, p < 0.00) scores of the experimental and control group. The average vectors of the two groups differed significantly. These results indicate that taking ‘design electronic slides process’ plays a significant role on fluency and flexibility.

Results of the study showed significant difference statistically for the experimental group compared with the control group. The researchers attribute this result to the earnings of slides designing of the development of thinking, and the ability to find creative solutions, and recruitment of expertise in attitudes in the search for new solutions. Thus, it can be concluded that the process of creative design electronic slides can enhance the two main aspects of creative thinking, fluency and flexibility. This section will discuss which characteristics of creative design electronic slides can be effective on the two skills above, considering the present approaches and the results of the studies.

Design electronic slides is a reflection process that occurs when individuals express their associations of various stimulants that activate their ideas and emotions words, Sounds, colors, graphics, photographs, and the processes and methods of hyperlink used by the designers of these slides and their choice of icons, develops their thinking in general and creative thinking in particular and the advantage of the slides design by PowerPoint addition to the content of the report and the way in modern and interesting presentation, the utilization of the design process in developing the capacity for creative thinking imposed by these operations effort works to expand the mental perceptions, the work of thinking in the selection of ideas and coordination of colors, graphics, pictures and links between slides through the private keys.

According to Hussein (2002) learning environment enhanced by computer technology was important and had positive impact on students, in terms of developing creative thinking and advanced thinking skills to students. It can be said that the process of creative design electronic slides may encourage individuals to decide to be creative.

4 CONCLUSION

Most of the computer applications were designed creatively, Microsoft PowerPoint one of these applications that contains rich and numerous features which allow the users to create original work, do a specific work in different ways, and modify existed work to fit specific purposes. Somel studies in the literature investigated the roles of computers in enhancing the Fluent and Flexible Thinking skills. However, only this study investigated the effects of designing electronic slides as a specific application for computers to enhance Fluent and Flexible Thinking. Significant findings were reported adding to the literature of information and communication technology (ICT) and teaching thinking the importance of using computers technologies in training, learning, and teaching which maximizes the students’ thinking and learning skills and minimizes time, effort, and cost in acquiring and developing new skills and expertise. However, more studies are recommended to investigate other computer technologies and applications impacts on enhancing thinking skills and Fluent and Flexible Thinking among students.

References: