What Effects Do Virtual Learning Tools Have on Preschoolers Kinesthetic Learning?

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Introduction

Technology is becoming widespread among k-12 California schools. When considering use of technology at the preschool level, educators need to consider developmentally appropriate practice. Most school districts use computers and tablets to improve the learning process, but some medical experts say giving iPads to very young children could hinder learning rather than help.

This study explores the question of whether preschool children can acquire the same skills on an iPad that they can using physical didactic materials, with the aim of ascertaining what effects tablets have on the learning process.

Materials and Methods

A pre-experimental design was used. The sample group consisted of 18 children ages 3-5. Montessori Materials were used for the pre test, and an iPad with a Montessori app using the same materials and lessons was used for the posttest.

Qualitative data was obtained through observation and anecdotal records. The researcher served as both teacher and researcher.

Results

Each student was given a value of one if they achieved the aim of each lesson. Each total activity had a maximum score of eight for any one activity. Scores were then combined for both cycles, to give a total score for the the pretest, and a total score for the post test. These are the two scores that were input into the t-test calculator. Initial raw data scores showed that the children overall scored higher using the materials manually than they did using the iPad to do the same activity. After inputting these raw data scores into a t test calculator, results for the three year group showed a two tailed P value of 0.6651. While this result is not considered statistically significant, when using .05 as the a value, there was a decrease in mean scores from manual results to iPad results of 9.38 percent.

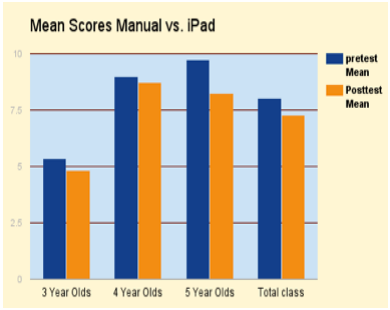
When all the groups scores were combined to establish results of the whole class together, the difference in manual and iPad scores was a decrease of 9.35 percent, and a two tailed p value of .2000. However, this indicates no statistical significance in the decrease . The following bar graph helps to visualize the difference in mean scores.

Table 1. Quantitative Data Summary

Age Groups	Pretest Mean	Posttest Mean	% Change (-/+)	P value
3 yoa Score Range 0-8	5.33	4.83	-9.38%	.6651
4 yoa Score Range 0-12	9.0	8.75	-2.77%	.7110
5 yoa Score 0-11	9.75	8.25	-15.38%	.0138
All	8.02	7.27	-9.35%	.2000

As indicated by this bar graph the mean scores using the iPad for each group were slightly less than the mean scores for using the materials manually. The scores indicate that the total group of children appeared to achieve more of the lesson's aims by doing the activity manually than on the iPad. While the decrease in the overall class scores was 6.03% less than that of the five year olds, it was comparable to the score in decrease among the three year olds, with a .03 difference in scores, and still more of a decrease than can be seen in the four year old group. Because the p values are not of statistical value, a larger sample would be needed to determine if these results were the outcome of the iPad treatment

Figure 1. Mean Scores Manual vs. iPad



Conclusions

The effect technology has on kinesthetic learning in the preschool classroom depends on age, the individual learning style and abilities of the child. Results were statistically inconclusive, although the five year old scores suggest more success with the traditional physical materials, possibly indicating more familiarity with Technology should not be ignored as a viable learning tool. Tools such as iPads, should be included in curriculum to enhance learning, however, it is important to consider the developmental maturity of the child. Twenty-first learning classrooms should contain numerous materials for ample use of kinesthetic and tactile exploration and schema building as well as tablets, or other such devices for further exploration and continuous growth of neurons in the brain for use of such devices. Technology is here to stay, and the key to good education is in how we as educators use it, not to replace but to enhance.

Primary Literature Cited

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