EFFECTS OF COMPUTER LEARNING PROGRAM ON PRESCHOOLERS' COMPUTER ABILITIES

By

CHEAH ENG KHOON

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science

November 2004

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

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May 2004

Chairman: Associate Professor Rohani Abdullah, Ph.D.

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The objective of this study was to evaluate the effectiveness of an exposure to a computer learning program on preschoolers computing abilities and the factors that affect the acquisition of these skills. Two aspects of computer ability were measured in this study : (i) the ability to name the parts of computer, identify its usage and the function, and (ii) skills in a computer-operating environment. Eighty pre-school students were recruited from a laboratory preschool in Universiti Putra Malaysia (UPM) to participate in this research. Data was collected in three stages: First, the parents of the respondents were required to fill in a questionnaire about their children's computer knowledge and computer usage at home. Then, all the children were administered a pretest on their computer knowledge and skills in a computer-operating environment at the beginning of the study. Children were stratified by scores after Pretest. High and low scorers were systematically assigned to both experiment and control groups,

to ensure that there was no significant difference in the mean scores of both groups at the beginning of the study. The experimental group was given systematic computer lessons for three months, while the control group did not receive any lesson during that time. Third, both groups were post tested on their computer knowledge and skills at the end of the experiment. T-test analysis showed that (1) There is a significant difference in the pre and post test scores of computer ability of subjects in the control group who were not exposed to any computer learning program (t= 5.28, p<0.001); (2) There is a significant difference in the pre and post test scores of computer ability of subjects in the experimental group who were exposed to the computer learning program (t=20.41, p<0.001); Repeated Measures Analyses of Variance showed that (3) Children who were exposed to systematic computer lessons had higher post test scores than children who were not exposed to similar lessons ($F_{1,53}$ = 103.50, p < 0.001) . In order to examine the effectiveness of this program nationwide, further research may focus on comparing the improvement of computer abilities in various kindergartens using the similar teaching method.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

KESAN PROGRAM PEMBELAJARAN KOMPUTER TERHADAP KEMAHIRAN KOMPUTER DI KALANGAN KANAK-KANAK PRASEKOLAH

Oleh

CHEAH ENG KHOON

Mei 2004

Pengerusi : Profesor Madya Rohani Abdullah, Ph.D.

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Objektif kajian ini adalah untuk mengkaji kesan program pembelajaran komputer ke atas kemahiran penggunaan computer di kalangan kanak-kanak prasekolah. Pengukuran kemahiran dibahagi kepada dua aspek: (i) pengetahuan komputer bagi keupayaan menamakan bahagian komputer, mengenalpasti penggunaan dan fungsinya, serta (ii) kebolehan mengendali komputer dengan betul. Seramai 80 orang kanak-kanak (36 lelaki dan 44 perempuan) yang menghadiri makmal pra-sekolah Universiti Putra Malaysia, Selangor dipilih untuk melibatkan diri dalam kajian ini. Data telah dikumpulkan melalui tiga peringkat. Pada peringkat pertama, soal selidik diedarkan kepada ibu bapa kanak-kanak yang terpilih, untuk mendapat gambaran tentang penggunaan komputer di rumah. Pada peringkat kedua, kesemua kanak-kanak telah menjalankan pra-ujian untuk mengesan tahap pengetahuan dan kemahiran penggunaan komputer. Selepas itu, kanak-kanak

dibahagikan kepada kumpulan kawalan dan kumpulan eksperimen berdasarkan (i) kewujudan komputer di rumah (ada atau tiada) dan (ii) pencapaian markah dalam pra ujian tersebut. Kumpulan eksperimen telah diberi program pembelajaran komputer selama 3 bulan. Manakala kumpulan kawalan mengikuti seperti biasa. Dalam peringkat ketiga, kedua-dua kumpulan kanak-kanak diberi ujian "post". Hasil kajian menunjukkan kemajuan dalam pencapaian sebelum dan selepas eksperimen dijalankan. Namun begitu, keputusan Ujian-T menunjukkan (1) Terdapat perbezaan yang signifikan antara jumlah markah kemahiran penggunaan komputer di ujian pre and pos terhadap kumpulan kawalan (t= 5.28, p<0.001); (2) Terdapat perbezaan yang signifikan antara jumlah markah kemahiran penggunaan computer di ujian pre dan pos terhadap kumpulan eksperimen (t=20.41, p<0.001); Analisis Varians Pengukuran Berulangan membuktikan bahawa (3) Kanak-kanak kumpulan eksperimen yang didedah kepada program pembelajaran komputer mempunyai kebolehan penggunaan komputer yang lebih tinggi daripada mereka yang tidak ($F_{54,1}$ = 332.65, p < 0.001). Untuk mengetahui keberkesanan program pembelajaran ini di peringkat kebangsaan, kajian yang akan datang, adalah disarankan supaya pengajian perbandingan antara pencapaian pengetahuan komputer di beberapa tadika yang berasingan dengan menggunakan kaedah pengajaran yang berbeza. Kajian tersebut akan memberi gambaran yang lebih jelas tentang kaedah mana yang paling berkesan dalam meningkatkan pencapaian pengetahuan komputer di kalangan kanak-kanak.

ACKNOWLEDGEMENTS

My heartfelt thanks to my supervisor, Associate Professor Dr. Rohani Abdullah. Taib for her meticulous guidance and advice throughout this research project. I would also like to express my gratitude to my committee members Associate Professor Dr. Putri Zabariah and Associate Professor Dr. Aida Suraya for their motivation and valuable assistance which had indeed inspired me a lot.

My appreciation to the students and staffs of UPM preschool for their cooperation throughout the data collection that had contributed to the success of this project. Not forgetting to all my lecturers, special thanks for imparting valuable knowledge and skill in me.

Last but not least, I would like to thank my family especially to my parents and Lau Wai Hong, and also to all my friends who have given me the love, care and encouragement.

I certify that an Examination Committee met on _____ to conduct the final examination of Cheah Eng Khoon on his Master of Science thesis entitled "Effects of Computer Learning Program on Preschoolers' Computer Abilities" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as below:

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This thesis submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Master of Science. The member of the Supervisory Committee are as follow:

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DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.

_____

CHEAH ENG KHOON

Date:

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