

## TEACHER EDUCATORS' ATTITUDES TOWARD COMPUTERS: A STUDY AMONG TEACHER EDUCATORS IN TEACHER'- TRAINING COLLEGES IN JOHOR, MALAYSIA

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**Abstract.** Teachers shoulder the heavy responsibility of ensuring that students experience a meaningful learning environment. Information and communication technologies, in general, and computers, in particular has been put forward as a strategic tool for enhancing these learning environments. Teacher educators, as frontliners of the teacher preparation process, should themselves be well versed in the fields of integrating computers into the learning processes. Teacher educators who use computers regularly and have positive attitudes towards computers it is hoped, will rub on some of their knowledge, skills and enthusiasm to future teachers who will enter the school system. The purpose of this study is to determine the level of computer use and attitude towards computer among teacher educators. Differences in computer use among teacher educators based on selected demographic data are also investigated. This study also looks at the relationship between attitude towards computers, namely liking, confidence and anxiety with computer use for educational purposes among teacher educators. A questionnaire was designed to obtain the necessary demographics, levels of computer use and attitudes of the sample toward computers. The Computer Attitude Scale by Lyod and Gressard was used to measure the attitudes toward computers. The sample consisted of 224 teacher educators at three teacher-training colleges in Johor, Malaysia. Findings indicate that the teacher educators used computers moderately in the course of their work. Teacher educators mostly used the computers for preparing exercises and examination questions. Computer assisted instruction was seldom utilized. Teacher educators without experience in using computers exhibit significantly less computer use as compared to those with more than a year of computer use experience. In general, the teacher educators have positive attitudes and low anxiety toward using computers for teaching and learning. The three attitude domains (liking, confidence and anxiety) were significantly related to computer use. Confidence and liking were positively related to computer use while anxiety was negatively related to computer use.

**Keywords:** Teacher educator; attitudes; computer; teacher training college

**Abstrak.** Guru memikul tanggungjawab yang berat dalam memastikan pelajar mengalami suasana pembelajaran yang memerangsangkan. Teknologi maklumat dan komunikasi, khususnya komputer, merupakan alat yang strategik memperkayakan suasana pembelajaran. Pensyarah maktab merupakan barisan dapan yang sepatutnya mampu membimbing guru pelatih mengintegrasikan penggunaan komputer dalam proses pembelajaran. Pensyarah yang cekap menggunakan komputer dan memiliki sikap positif terhadap komputer diharap akan dapat menjana ilmu dan kemahiran mereka kepada guru pelatih agar dapat dipraktikkan dalam sistem persekolahan. Tujuan kajian ini adalah untuk mengenalpasti tahap penggunaan komputer dan sikap terhadap komputer di

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kalangan pensyarah maktab perguruan berdasarkan ciri-ciri demografi terpilih. Kajian ini juga melihat perhubungan antara komponen sikap afektif seperti minat, keyakinan dan kebimbangan terhadap penggunaan komputer dengan penggunaan komputer dalam urusan pendidikan. Kajian ini menggunakan soal selidik untuk memperolehi data demografi, tahap penggunaan komputer dan sikap terhadap komputer yang diperlukan daripada sampel. *Computer Attitude Scale* oleh Lyod dan Gressard telah digunakan untuk mengukur sikap terhadap komputer. Kajian ini melibatkan seramai 224 pensyarah dari tiga buah maktab perguruan di Johor, Malaysia. Dapatan kajian menunjukkan para pensyarah menggunakan komputer pada tahap sederhana dalam mengendalikan kursus yang mereka ajar. Penggunaan komputer yang kerap adalah pada penyediaan soalan dan pengubalan soalan peperiksaan. Penggunaan yang paling kurang ialah pada Pengajaran Berpandukan Komputer. Pensyarah yang tidak mempunyai pengalaman menggunakan komputer menunjukkan perkaitan yang signifikan dengan sikap jarang menggunakan komputer berbanding dengan mereka yang mempunyai pengalaman lebih setahun. Secara amnya, pensyarah mempunyai sikap positif dan kurang bimbang menggunakan komputer untuk pengajaran dan pembelajaran. Ketiga-tiga domain sikap (minat, keyakinan, kebimbangan) menunjukkan perhubungan yang signifikan dengan penggunaan komputer. Keyakinan dan minat mempunyai hubungan yang positif terhadap penggunaan komputer manakala kebimbangan mempunyai hubungan yang negatif terhadap penggunaan komputer.

*Kata kunci:* Pensyarah maktab perguruan; sikap; komputer; maktab perguruan

## 1.0 INTRODUCTION

Malaysia aspires to be a fully developed nation by the year 2020 (Ahmad Sarji Abdul Hamid, 1993). To achieve that she has embarked on various IT projects in order to keep abreast with developments in the information era (Corridor of power, 1997; Ministry of Education, 1997). One such project is the Smart School, which is one of the seven flagship applications of the Multimedia Super Corridor (Corridor of power, 1997). This will involve a major transformation of the Malaysian school system. Some of the expected changes will be the wide use of computers and related information and communication technologies (ICTs) in the classroom. By the year 2010, all the estimated 10,000 Malaysian schools will be Smart Schools, involving an estimated enrolment of 5.8 million students and 450,000 teachers (Ministry of Education, 1997, p. 130).

These developments have serious implications on the role of teachers. Teachers are expected to be “a guide by the side” replacing the traditional role of “the sage on the stage”. Being a guide or a facilitator involves more than just guiding the students. It means that the teachers have to be computer literate, be able to use the Internet and other ICTs to create and maintain meaningful learning environments (Mohd Najib Tun Abdul Razak, Zawawi Ismail, Harris, Kulathuramaiyer, Hong, Khoo, Fitri Suraya, & Teh, 1999). This would necessitate reviewing and revamping of the present training programs for teachers.

Clark (in Handler, 1993), states that “it has been said, we teach in the ways we were taught”. Therefore, other than revamping the teacher-training program, there is a need for teacher educators to actually use computers during the teaching and learning process. However, Handler (1993) reported that the teacher trainees have

no opportunities to see their lecturers actually use the computers on them. Norma Daud (1995), Jusni Nasirun (1995) and Trushell, Paine and Slater (1995) reported similar feelings among teacher trainees.

However the actual use of computers among teacher educators are also related to their attitudes toward computers. Bagozzi, Davis and Warsaw (1992) state that attitude towards using new technologies will contribute towards the actual use of the technology. Thus only teacher educators who are interested and have positive attitudes and confidence can use computers effectively (Zoraini Wati Abas, 1995).

## 2.0 PURPOSE OF THE STUDY

This study describes the status of teacher educators in three teacher-training colleges in Johor, Malaysia, with regards to their levels of computer use and their attitudes toward computers, the differences in the level of computer use based on demographic variables, such as age, gender, computer ownership, and experience in using computers, and the relationship between level of computer use and attitude towards computers.

## 3.0 REVIEW OF THE LITERATURE

Research on attitude towards computers have been conducted in Malaysia among students (Ismail Abdullah, 1985; Zulkifli Abdul Manaf, Zoraini Wati Abas, & Abdul Hamid Abdul Rahman, 1997); teachers (Zoraini Wati Abas, 1995; Nuraihan Mat Daud, 1996, Hong & Koh, 1998; Abang Ridzuan, Hong, & Koh, 2000), trainee teachers (Zulkifli Abdul Manaf & Raja Maznah Raja Hussain, 1994; Wan Hanizah Wan Mohamed, 1994) and school administrators (Mustafa Sidi, 1995; Muriatun Mohd Said, 1998; Abang Ridzuan, Hong & Mohd Husin Abdul Rahman, 1999). Studies on teacher educators were conducted by Jusni Nasirun (1995), Norma Daud (1995) and Abang Ridzuan & Nuinda Alias (1999). Most of the local studies reported findings of low computer anxiety levels and positive attitudes toward computers. A negative linear relationship between computer anxiety and attitudes toward computers was also reported by Abang Ridzuan, Hong and Koh (2000). Teachers who owned computers and have more computing experience were found to have lower anxiety and more positive attitudes.

What are some of the variables that may contribute to the level of computer use among the owners of personal computers? Several variables have been investigated. Among them age, gender, computer ownership and attitude towards computers. Abang Ridzuan, Hong and Mohd Husin Abdul Rahman (1999) found no significant differences in computer usage levels based on position, gender and age. There was no significant linear correlation between the levels of computer usage and school administrators' attitudes toward computers. Some of the problems faced by their

samples in using computers were difficulties in obtaining the appropriate software, hardware damages, inadequate hardware and computer viruses.

Muhammad A. Al-Khalidi, & Ibrahim M. Al-Jabri (1998) on the other hand in their study reported significant relationship between attitude and computer use. In another study, Thompson, Higgins & Howell (1994), however reported significant differences in computer utilization for gender and age groups. Young (1984, in Bagozzi, Davis & Warsaw, 1992) reported that its owner never utilized 25% of personal computers sold. The main reason for this was because the owner did not attempt to learn how to use the computer. Thus desire and computer ownership do not guarantee that the computer purchased will be used

Wan Hanizah Wan Mohamed (1994) in her studies among 231 teacher trainees revealed that the teacher trainees only used computers when instructed to and seldom used them for teaching and learning purposes. Some of the problems faced by the teacher trainees were language barrier and lack of support from the teacher educators. Handler (1993) based on responses from 133 teacher trainees found that his sample was not clear on how to integrate the use of computers into the teaching and learning process and how to use the computer across the curriculum.

Nonetheless most teacher educators perceived computers to be an important component of the teaching and learning experience in a teacher training program (Norma Daud, 1995). The use of computers was perceived as improving their efficiency in preparing teaching materials, saving time and improving the process of delivering instruction.

## **4.0 METHODOLOGY**

### **4.1 Sample**

Three teacher-training colleges in Johor, namely Maktab Perguruan Temenggong Ibrahim, Maktab Perguruan Mohd Khalid and Maktab Perguruan Batu Pahat were chosen for the study. The sample was drawn from all 319 teacher educators from the three teacher training colleges. Out of 319, only 227 (71.15%) returned the questionnaire and 3 were incomplete. Thus a total of 224 were processed and used as sample for this study.

### **4.2 The Research Design**

A survey design method was used for the study. A questionnaire to measure computer use and computer anxiety and attitude towards computers was developed and validated by the researchers.

### **4.3 Research Instrument**

A questionnaire was designed to collect the relevant data for the study. The ques-

tionnaire consists of three parts. The first part contains four items that dealt with the respondent demographics: age, gender, computer ownership, and experience in using computers.

The second part of the questionnaire measures respondents' interest, confidence and anxiety towards computers. This section of the questionnaire was based on the Computer Attitude Scale (CAS) developed by Gressard and Lyod (1986). CAS is a convenient, reliable and valid measure of computer attitude, and can be confidently and effectively utilized in research program evaluation. (Gressard & Lyod, 1986). CAS has been widely used in local (Zoraini Wati Abas, 1995; Abang Ridzuan and Nuinda Alias, 1999) and international studies (Woodrow, 1991a; Muhammad A. Al-Khaldi & Ibrahim Al-Jabri, 1998).

There are a total of 30 items in CAS. For each item, the respondents have four choices of responses, "Strongly Disagree", "Disagree", "Agree" and "Strongly Agree", with the respective statement. Fifteen of the items were negatively worded and the other 15 items were positively worded. Items 6, 12, 18, 24 and 30 measure interest in using computers. Items 1, 8, 14, 20, and 26 measure confidence in using computers. Items 4, 10, 16, 22, and 28 measure anxiety in using computers. Loyd and Gressard (1986) reported the reliability for CAS as 0.85 for subscale Interest, 0.89 for subscale Confidence, 0.89 for subscale Anxiety and 0.95 for CAS.

The last part of the questionnaire measures respondents' level of usage of computer in teacher-training colleges for teaching and administration purposes.

#### 4.4 Data Analysis

The data from the respondents were analyzed using SPSS (Statistical Packages for Social Sciences) version 8.0. The analysis was done using frequencies, means, Independent t-tests, One-Way ANOVA and Pearson's correlation. The significance level of 0.05 was used. For Pearson's correlation, the strength of the correlation was interpreted based on the guidelines suggested by Fitz-Gibbon and Morris (1987).

### 5.0 RESULTS

#### 5.1 Attitudes Towards Computers

The responses to CAS were coded as 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, and 4 = Strongly Agree. Negative statements were reverse-coded before analysis was carried out. Mean scores of 1.00–2.00, 2.01–3.00 and 3.01–4.00 were attributed as low, moderate and high level of interest, confidence and anxiety towards computers respectively.

Table 1, shows that the majority (59.4%) of the respondents showed moderate interest towards computers. More than a third of the respondents (39.7%) showed high interest in using computers.

**Table 1** Interest in Using Computers

Level	Frequency	%
Low	2	0.9
Moderate	133	59.4
High	89	39.7

Table 2, shows that approximately half (50.9%) of the respondents were moderately confident towards using computers. The remainder of the respondents (49.1%) were highly confident in using computers.

**Table 2** Confidence in Using Computers

Level	Frequency	%
Low	-	-
Moderate	114	50.9
High	110	49.1

Table 3, shows that almost all of the respondents (96.4%) showed moderate anxiety towards the use of computers. Only seven (3.1%) of the respondents had showed low anxiety in using computers and one respondent (0.4%) was highly anxious when using computer.

**Table 3** Anxiety Towards Using Computers

Level	Frequency	%
Low	7	3.1
Moderate	216	96.4
High	1	0.4

## 5.2 Level of Computer Use

The level of computer use among the respondents was based on their responses to 16 items in the third part of the questionnaire. Each item in this part of the questionnaire has four choices, 1 = Seldom, 2 = Occasionally, 3 = Often, and 4 = Very Often. Mean scores of 1.00–2.00, 2.01–2.00 and 3.01–4.00 were considered as low moderate and high use of computers respectively in carrying out their duties at the teacher training colleges.

Table 4, shows the distribution of computer use levels among the respondents. More than half of the respondents (63.4%) used computers moderately for teaching

and learning and administrative purposes. The remainder of the respondents were equally divided between using the computers lowly and highly in performing their duties at the teacher training colleges.

**Table 4** Level of Computer Use Among Teacher Educators

Level	Frequency	%
Low	42	18.8
Moderate	142	63.4
High	40	17.9

Further analysis indicates that the respondents used computers mainly to perform tasks such as preparing exercises and examination ( $M = 3.18$ ), implementing course work ( $M = 2.95$ ), academic writing ( $M = 2.79$ ), and implementing research work ( $M = 2.77$ ). The use of computers to supplement the teaching and learning activities and computer aided learning (CAL) was not widely implemented among the respondents ( $M = 2.06$  and  $M = 2.04$  respectively). From Table 5, the general finding is that respondents tended use the computers to prepare teaching and learning materials and for administrative tasks. Computers were seldom used to enhance the teaching and learning processes.

**Table 5** Mean for Computer Use for Various Tasks

Items	Mean	Level
Preparing exercises and examination	3.18	High
Implementing course work	2.95	Moderate
Academic writing	2.79	Moderate
Implementing research	2.77	Moderate
Analysis of examination results	2.70	Moderate
Preparation of lesson plan	2.67	Moderate
Preparing teaching and learning material	2.63	Moderate
Implementing co-curriculum activities	2.42	Moderate
Management of students progress profile	2.42	Moderate
Management of staff training	2.40	Moderate
Implementing academic tutorial	2.34	Moderate
Management of student welfare	2.33	Moderate
Management of practicum	2.33	Moderate
Management of mentoring program	2.19	Moderate
Computer supported teaching	2.06	Moderate
Computer aided instruction (CAI)	2.04	Moderate

### 5.3 Differences in Computer Use Based on Demographic Factor

This study also looked at the differences in computer use based on demographic data such as age, gender, computer ownership, and experience in using computers. There was no difference in computer use level based on gender ( $t = 0.872$ ,  $df = 224$ ,  $p = 0.38$ ), computer ownership ( $t = 1.204$ ,  $df = 224$ ,  $p = 0.230$ ), and age ( $F = 1.448$ ,  $df = 3/220$ ,  $p = 0.230$ ). A significant difference in computer use level was detected for teacher educators with varying experience in using computers ( $F = 3.580$ ,  $df = 3/220$ ,  $p = 0.015$ ). Tukey HSD post-hoc test reveals a significant difference in computer use between teacher educators with no experience using computers and those with more than a year experience using computers.

**Table 6** Multiple Comparisons for Computer Use Based on Experience Using Computer

	None	Less than 6 months	6 months - 1 year	More than 1 year
Mean	36.21	38.91	40.64	41.88

$p < 0.05$

### 5.4 Attitudes Toward Computers

The respondents showed high interest ( $M = 2.99$ ) and were very confident ( $M = 3.10$ ) towards using computers at work. They generally showed low anxiety ( $M = 2.43$ ) towards computers. Computer use was positively correlated with interest and confidence in using computers ( $r = 0.285$  and  $r = 0.364$  respectively,  $p < 0.001$ ). As expected, the level of computer use was negatively correlated with anxiety towards using computers ( $r = -0.141$ ,  $p < 0.05$ ).

## 6.0 DISCUSSION

The results indicate that teacher educators used computers only moderately in the course of their work. Furthermore, they mostly used the computers for tasks not related to the teaching and learning processes. This does not augur well for advancing the knowledge and skills of the teacher educators and in the long run may obstruct the efforts to instill familiarity of using computers for teaching and learning among our future teachers. Handler (1993), Norma Daud (1995), Jusni Nasirun (1995) and Trushell, Paine and Slater (1995) have reported that teacher trainees would like to use computers in teaching and learning but have no opportunities to actually see their lecturers practising on them. Wan Hanizah Wan Mohamed (1994) in a study among 231 teacher trainees reported that although teacher trainees use computers during their training at teacher training colleges, their level of computer skills and knowledge were low. The use of computer supported learning was also limited. Handler's study (1993) of teacher trainees shows that they needed a better



understanding of how to integrate computers into the teaching and learning of the various subjects. Teacher educators need to increase their use of computers in actual teaching and learning transactions rather than just verbally promoting its use or themselves setting an example of just using the computers to produce lecture notes and examination questions.

Only experience in using computers has an impact on computer use among teacher educators. Those without any experience in using computers exhibit less computer use. Levine and Donitsa-Schmidt (1998) and Levin and Gordon (1989) note that experience in using computer home at house could influence confidence in using the computers at work. There is no substitute for hands-on experience in using the computer to enhance the confidence and ability of the user towards using the computer for educational purposes. Teacher educators must be willing to learn and use the computer regularly to improve their skills and also to set an example for the teacher trainees to use computer in their future teaching endeavour. However care must be taken to ensure that support is available within the teacher educator community to ensure that the computer experience is a pleasant experience. A bad experience can produce the reverse effect (Rosen & Weil, 1995; Bradley & Russell, 1997; Woodrow, 1991b).

However this study does not reveal any significant differences in computer use based on age, gender and computer ownership. Thompson, Higgins & Howell (1994), however reported significant differences in computer utilization for gender and age groups. This study supports the contention that gender and age may not be a significant issue in the context of Malaysian users (Hong & Koh, 1998; Abang Ridzuan, Hong, & Koh, 2000).

Nurairhan Mat Daud (1996) concludes that one major barrier to implementing CAI in schools is teachers's inability to overcome their anxiety towards using computers. In introducing new technologies into the teaching and learning process, a major consideration is the teachers' attitudes toward the technology itself. This study found that teacher educators generally have a moderate to highly positive interest, confidence and attitudes toward using computers and low anxiety level towards computers. However this commendable attitude did not seem to translate into action in using computers for teaching and learning. Teacher educators must use the computers not only to improve their computing skills but also to enable the teacher trainees to experience actual computer-supported learning experiences.

As expected there was a significant positive relationship between confidence and liking towards computers with computer utilization among the teacher educators. High computer utilization was also correlated with low anxiety towards computers. Muhammad A. Al-Khaldi, & Ibrahim M. Al-Jabri (1998) also reported significant relationship between attitude and computer use.

## 7.0 CONCLUSION

In conclusion, teacher educators in Johor, Malaysia, display moderate to highly positive attitudes toward computers and have low computer anxiety levels. There exists a positive relationship between computer utilization and computer attitudes toward computers. Computing experience caused differences in computer use levels among the teacher educators. However there is a need for the teacher educators to increase their use of computers for learning related process such as computer aided instruction or computer supported learning activities.

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