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INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) AS A MEDIUM OF COMMUNICATION: ICT USAGE AMONG UITM SHAH ALAM LECTURERS

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ABSTRACT

Many have argued that information and communication technology (ICT) has a significant role to play in the four primary functions of higher education institutions: teaching and learning, research, support and administration. However, the adoption of computer assisted learning technologies in teaching and learning in higher education must be understood in relation to the overall use of computers by university faculty. ***Researches have shown that while computer use by faculty in higher education in some countries has become widespread, there has not been wide diffusion of computers in teaching.***

Given the ICT infrastructure in placed at Universiti Teknologi MARA (UiTM) and the issues of diffusion and the integration of ICTs in teaching as raised in the literature, the related issue that arise is: to what extent is the ICT facilities being used by the faculty at UiTM Shah Alam for teaching and learning and communication?

The result of this research showed that although UiTM Shah Alam lecturers' usage of ICT facilities is widespread, only less than half of them use the ICT facilities for academic or research purposes. At the same time the majority of them claimed to use e-mail, a communication tool, for personal purposes. ***The result thus reflects findings from other countries, such as the United States and Canada, where the usage of ICT for teaching and learning is still very low.***

INTRODUCTION

The future of universities depends on their capability to adapt to the new information society and meet the need of an ever more demanding professional market. In the academic world, a strong message was conveyed to the higher education institutions to fully exploit the potential of information and communication technology (ICT) (Dearing, 1997).

Information and communication technology has a significant role to play in the four primary functions of higher learning institutions: teaching and learning, research, support and administration (Hazemi et al., 1998). However the adoption of computer assisted learning technologies within

these four functions in higher education must be understood in relation to the overall use of computers by university faculties. Researches have shown that while computer use by faculty in higher education in some countries has become widespread, there has not been wide diffusion of computers in teaching (Larose, 1999; Proulx and Campbell, 1997; Mitra et al., 1999; Geoghegan, 1994).

PROBLEM STATEMENT

The adoption of computer assisted learning technologies within the four functions of higher learning institutions must be understood in relation to the overall use of computers by university faculty. Researches have shown that **while computer use by faculty in higher education in some countries has become widespread, there has not been wide diffusion of computers in teaching** (Larose, 1999; Proulx and Campbell, 1997, Mitra et. al., 1999, Geoghegan, 1994). For instance, Proulx and Campbell (1997) in their study of the diffusion of computing technology into teaching practices by a Canadian university instructors found out that virtually all faculty use computer technologies for some tasks, but not necessarily as pedagogical tools. Most commonly, faculty use word-processing and electronic mail. For those faculty who extensively apply computer to teaching, they tend to have a strong set of computer skills which they carry into their teaching practices. Larose (1999) noted that while communications technologies is widespread among the teaching staff, the integration of these technologies in pedagogy remains isolated and sparse. These finding is further supported by an American national survey which revealed that only 5% of faculty use computers as active teaching tools (Geoghehan, 1994). Thus Geoghegan maintained that computers in teaching have primarily been used to print handouts or for preparing overhead transparencies.

Mean while Proulx and Campbell (1997) argued that when high commitment computing becomes more common among university faculty, then only will it be more frequently applied to teaching.

Given the above arguments, therefore **this research will address the issue of whether there is a wide spread diffusion of computers in teaching at UiTM** even though researches have shown that computer use by faculty in higher education has become widespread.

RESEARCH OBJECTIVES

With the increasing importance of ICT in the teaching and learning environment and the issues raised with regards to the acceptance and use of the technology in teaching and learning, this research will have the following objectives:

1. To gauge the **usage level** of ICT facilities among UiTM lecturers.
2. To identify the different **purposes** of ICT usage by UiTM lecturers (eg. teaching, communication and administration).
3. To identify **problems** related to ICT usage among UiTM lecturers.

4. To **profile ICT users** among UiTM Shah Alam lecturers.

RESEARCH DESIGN AND RESEARCH METHODOLOGY

The Survey Research Approach

In order to achieve the objectives of the research, this research employed the most common method of collecting primary data which is the survey approach (Zikmund, 1994). This method of data collection is most appropriately employed because it would allow for descriptive generalisation to be made from the data collected from the UiTM Shah Alam lecturers.

Qualitative techniques such as in-depth interviews used to draw information from key informants is not implemented in the present study because descriptive analysis is considered sufficient enough in providing information and answers to the research questions.

Sampling Design

This research would be ideal if the respondents from the wider UiTM system throughout Malaysia are to be included. However given several limitations, in particular financial, the sample for this research is limited to the UiTM lecturers from the various faculties and centres within Shah Alam and Section 17 campuses.

Zikmund (1994) argued that typically large samples are more precise than small samples, but if proper probability sampling is implemented, a small proportion of the total population will give a reliable measure of the whole. Since sampling frame which comprised of the list of lecturers in each faculty is available, probability sampling approach is considered appropriate for this research. The most appropriate probability sampling technique to be used is the Proportional Stratified Random Sampling. In Proportional Stratified Sampling, a subsample is drawn utilizing a simple random sampling within each stratum. The researchers decided that the stratification variable be the various faculties and centres in UiTM Shah Alam. The selection of this stratification variable is appropriate because the characteristic within each stratification variable are homogenuous.

For this research, the respondents were chosen at random using simple random sampling method. Since it is a proportional sample, the number of respondents drawn from each stratum is in proportion to the relative population size of the stratum. The reason for taking a stratified sample is to have a more efficient sample that could be taken on the basis of simple random sample. With this type of sampling technique, random sampling error is reduced because the groups are internally homogenous but comparatively different between the groups. Another reason for taking a stratified sample is the assurance that the sample will accurately reflect the population on the basis of the criterion or criteria used for stratification.

The Research Instrument

The research instrument used is a five-page self-administered questionnaire which require the respondents to answer the questions asked without the assistance of the researcher.

The questionnaire is divided into five parts. The first part is the introduction which explains the background as well as the objectives of the research to the respondents. The second part comprises of questions on the demographic profile of the respondents. The third part ask the respondents on their usage of the ICT facilities at UiTM. The fourth part seeks the respondents' opinion of UiTM's homepage. The final part asks for the respondents feedback with respect to problems they may have faced in using the ICT facilities. Their recommendations were also sought.

The Data Collection Process

A total of 1,092 questionnaires were distributed to the UiTM lecturers at the Shah Alam and Section 17 campuses via their mailboxes at the end of December 1999. The questionnaires were distributed proportionately at random according to the sample size chosen. The number of respondents chosen was based on the number of lecturers found at the 22 faculties and centres (refer to **Table 1** for the distribution). The lecturers were identified from the list obtained from Pusat Sistem Maklumat Bersepadu (PSMB) which furnishes the lecturers' names, academic positions and their locations (faculties or centres). Even though the lecturers were identified from the list, they were not required to furnish their identities when they answer the questionnaires in order to encourage anonymity.

Table 1 Distribution of questionnaires

	Prof	Assoc Prof	Senior Lecturers	Lecturers	Instructors	Total
Number of questionnaires distributed	30	129	386	454	93	1092

A total of 445 questionnaires were received from the respondents by the end of the second week. This is about 40.8% response rate out of the total number of questionnaires sent out.

DATA ANALYSIS

The following statistical analysis of data using the SPSS statistical package was performed:

- One way frequency (counts) and percentage tables on single variable
- Multiple response tables showing the joint frequencies (counts) and percentages of two independent categorical variables
- Graphical presentation such as pie charts and cluster bar charts

This research has its limitations among which are:

1. Time constraints – researchers are also carrying out other responsibilities as coordinators, lecturers as well as other research projects.
2. The findings cannot be generalised for the whole of UiTM system as this research only covers Shah Alam campuses. The findings however may shed some lights on the issues to be investigated.

RESEARCH FINDINGS

The overall usage of ICT as claimed by UiTM Shah Alam lecturers

The research revealed that the ICT facilities are not evenly being used. The ICT facilities claimed to be **widely used** by the respondents are e-mail (87.4%), net surfing/WWW (86.7%), electronic presentation (74.6%), information retrieval/storage from database (71.7%) and multimedia presentation (54.4%).

ICT facilities which are **not widely used** as claimed by the respondents are computer aided learning (32.2%), electronic organizer (28.9%), electronic bulletin board (28.5%), computer assisted instruction (27.2%), electronic conferencing/internet relay chat (25.7%) and voice mail (20.6%).

From the research, the overall frequency of ICT usage among the respondents can also be determined. The findings is summarised in **Table 2.**

Table 2 Frequency of ICT Facilities Used

ICT facilities	Usage rate
Information retrieval/storage	More than **five times** in a week (28.7%)
Net surfing/WWW	More than **twice** a week (69.1%)
E-mail	More than **five times** in a week (50.0%)
Voice mail	More than **twice** a week (55.9%)
Electronic bulletin board	More than **twice** a week (48.8%)
Electronic conferencing/internet relay chat	More than **twice** a week (42%)
Electronic organizer	More than **five times** in a week (43.2%)
Multimedia presentation	More than **twice** a week (32.8%)
Computer aided learning	More than **twice** a week (23.9%)
Computer aided instruction	More than **twice** a week (29.3%)
Electronic presentation	More than **twice** a week (28.1%)

Profile of ICT users among UiTM Shah Alam lecturers according to academic position, length of service and administrative/management post held

From the research, ICT users among the lecturers can be profiled according to the type of facilities used. The summary of the profile is shown in **Table 3.**

Table 3 Profile of ICT users among UiTM Lecturers

ICT facilities	Users
E-mail	• Professors • those who have served between 11 to 15 years • Course Tutors and Coordinators.
Net surfing/WWW	• Lecturers • those with 16 to 20 years of service • Course Tutors and Coordinators
Electronic presentation	• Seldom use
Information retrieval/storage from database	• Associate Professors • those who have served between 16 to 20 years • Course Tutors
Multimedia presentation	• Associate Professors • those with less than five years of service • Course Tutors

Purpose of ICT usage

One of the objectives of this research is to determine the purpose of the ICT usage by the lecturers. The different purpose of the ICT facilities being used by them is summarised in **Table 4.**

Table 4 Purpose of Using ICT Facilities

Purpose	ICT facilities used
Academic	• net surfing/WWW (55.6%) • electronic presentation facilities (48.2%) • information retrieval (45.1%) • electronic mail (45.1%)
Research	• net surfing/WWW (49.1%)
Administrative	• very low
Personal	• electronic mail (65.9%) • net surfing/WWW (45.5%)

Where ICT facilities are accessed

The study also revealed information with regards to the computers used and the place where they are used by the respondents (**Table 5**). A great majority (63.5%) of the lecturers do their work at home using their own computers. A further 18.4% however use their own computer which they brought to their workplace.

Table 5 Place where ICT facilities is accessed

Place where ICT facilities is accessed	Percentage
Use own computers to access the ICT facilities from home.	63.5 %
Use own computers at the workplace	18.4%
Shared UiTM computers with others at faculties or departments.	45%
Use computers provided personally by UiTM by virtue of holding administrative/management posts	26.7%

Problems and comments on ICT usage at UiTM Shah Alam

The main **problems** highlighted by the respondents are the limited number of devices available (47.5%), poor support and services (46.9%), little or no formal training on ICT usage (40.1%) and the lack of knowledge in using ICT tools (40.0%). These findings is reflected also in their comments among which are summarized as follows:

1. Each lecturer's room must have a UiTM supplied PC (which is networked and the technology updated from time to time) either for individual use (eg. as a Coordinator, etc.) or to be shared with the other lecturers

occupying the same room. This will reflect UiTM as a university, at par with the other universities and will also encourage computer literacy among the academicians. For example FSPU at the moment has only 3 computers to be shared amongst 200 lecturers.

2. Class/lecture rooms should incorporate facilities such as nodes and multimedia terminals to allow laptops to be used by lecturers for presentations (eg. power point, spreadsheet).

3. UiTM should provide continuous courses/training on how to use ICT tools. appropriately and effectively. UiTM should provide lecturers the time to relearn new IT skills.

4. Provide adequate budget for improvement, maintenance and service of the existing hardware and software capabilities in UiTM.

5. Common computer labs for all staff and students (irrespective of faculties) need to be created on campus.

UiTM Homepage

UiTM homepage is one of the official communication channels for UiTM. This research also sets out to gauge the effectiveness of this channel as a source of information. Among the findings are:

- A majority ie. 64.4% of the respondents **have visited** UiTM's homepage
- Almost half ie. 45.5% said that they visited the homepage within the last one month, while 24.4% said that they last visited the homepage between one to three months ago
- Of the 35.6% who have **never visited** the homepage, 36.3% of them said that they don't have the time to do so. Alarmingly a big percentage ie. 30.3% either don't know the homepage address or don't know that the homepage exist.

The majority of the respondents found that the language used in the homepage is simple (76.9%), the homepage is user friendly (58.8%), the content is informative (57.1%) and homepage is attractive (51.6%). However only 36.4% of the respondents found that the homepage is interactive enough.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The result of this research showed that UiTM Shah Alam lecturers' usage of ICT facilities, although widespread, is limited to certain facilities. In general, less than half of the respondents claimed to use these facilities for academic and research purposes ie. less than the majority of UiTM Shah Alam respondents use the ICT facilities for academic or research purposes as evidenced by the low usage of the ICT facilities such as Computer Aided Learning, Computer Assisted Instruction, and Electronic Bulletin Board. However 65.9% of the respondents claimed to use e-mail, a communication tool, for personal purposes. The result thus reflects findings from other countries, such as the United States and Canada, where the **usage of ICT for teaching and learning is still low.**

Recommendations

This research revealed that ICT literacy among UiTM lecturers is high. However the usage of ICT among UiTM lecturers for teaching and learning can be enhanced further by implementing strategies to train (including time and finance) and equip the lecturers with current ICT skills including net-learning skills. The lecturers must also be provided with more upgraded computers (hardware and software) at the workplace which are networked for the lecturers' use ie. at least one computer to a lecturer's room. Lecture rooms/halls should have facilities such as nodes and multimedia terminals to facilitate the use of ICT tools for lecture presentation. Furthermore by making UiTM servers accessible from out of campus at all time would also encourage the use of ICT tools among the lecturers.

The respondents were also asked how UiTM can increase the level of ICT usage among the lecturers (**Table 6**). They indicated that UiTM should increase its investment in ICT skills training for staff (as pointed out by 82.5% of them). This should be followed by an increase investment in ICT facilities (as indicated by 76.9%). At the foremost, the ratio of computers to lecturers should ideally be 1:1. The low ratios (refer Table 1.1 of Chapter 1) does not fully reflect UiTM as 'an institution of knowledge' which should be seriously embracing the Information Age development in tandem with the nation's strive towards being a knowledge driven economy (K-economy).

About 68% states that reference material/manuals of ICT tools should be made available to the staff. Keeping administrative procedures in implementing ICT infrastructure simple is also suggested by 61.7% of the respondents as a step to increase the level of readiness in ICT usage.

Table 6 Ways for UiTM to increase respondents' level of readiness in ICT usage

Ways to increase ICT usage	Percentage
Invest in ICT skills training for staff	82.5
Invest more in ICT facilities	76.9
Reference material/manuals of ICT tools be made available	68.2
Administrative procedures to implement ICT infrastructure be kept simple	61.7
Consult staff when implementing new technology	51.8
Set up special department to administer ICT usage	48.0
Recognition to those who use ICT facilities daily	43.5

While it can be recognised that through the use of ICT costs could be reduced without reducing quality, deliver education to anyone, anywhere and at anytime, it should also increase the capability of higher education to reach new markets, increase productivity and permit teaching larger numbers of learners without a decrease in quality of instruction.

Thus enhancing the strategies in implementing Asynchronous Learning Network (ALN) methods on the Web (ie. net-learning) could help to achieve the above. Net-learning can provide a technique for reaching many more people at a lower cost than traditional means, thus an attractive means for managing large class sizes in line with UiTM's vision to become a reputable university.

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