COMPARISON OF ELECTRONIC MAIL WITH OTHER MODES OF COMMUNICATION AMONG COLLEGE LECTURERS

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ABSTRACT

The rapid growth of global telecommunication networks, and in particular the Internet, has placed emphasis on the electronic mail as a mode of communication, entertainment, educational tool, and personal correspondence medium. Emphasis should be given in colleges to understand the nature of its use and its implementation among lecturers since they are directly involved in the transmission of teaching and learning within the college. In order to assess the implementation of e-mail in INTI College Malaysia, a survey was done to seek lecturers' responses to its use and to compare its use in comparison to other modes of human communication. Results showed that the majority (52.6 to 79.4 %, from the five Schools) of lecturers reported that e-mails were an effective and efficient means of communication. Respondents expressed satisfaction with the e-mail system, as 55.1 % reported that e-mails increased their work productivity. E-mail was the most popular mode, followed by telephone and face-to face (FTF) communication. Other modes of human communication include written memos, group meetings, letters, voice mail on the hand-phones or desk phones, newsletters, teleconferencing and facsimile transmission. Only 40.6% of lecturers agreed that e-mail was replacing FTF communication. Overall, 59.3 % of lecturers agreed or strongly agreed that people tend to receive immediate feedback in meetings compared with using e-mails. The majority (77.3%) of lecturers agreed that certain messages should be given verbally, not by e-mail.

INTRODUCTION

The use of e-mail started with ARPAnet (as an Internet precursor) in 1963, and in the United States in 1970. E-mail in the beginning was thought of as a means for exchanging information within small and select groups. Its use has been extended to millions all over the world. Electronic mail is the most utilised service in Internet. Since 1970, it has been implemented as a practical mode for academic and personal communication. In 1990, e-mail was recognised as the standard means of communication because of the popularity and ubiquity over traditional modes of communication (Heredro *et al.*, 2000).

E-mail is one of the most successful computer applications, and there are millions of e-mail users world-wide who often spend significant proportions of their work time using e-mail. The success and popularity of e-mail has led to a high daily volume of e-mails being sent and received (Whittaker and Sidner, 2000). Research suggests that email has contributed to the growth of organisations by allowing people in different geographical areas to communicate across time and space. It has also led to the emergence of on-line communities by supporting asynchronous communication. E-mail has been the subject of many studies, including pioneering early work that focused on the social and communicative aspects of e-mail, compared with face-to-face (FTF) communication. Nevertheless, there is little systematic data on its usage and utility as a workplace technology.

E-mail has also been used as an official means of communication (Fox, 1996). Indeed, it

has been shown that the usage of e-mail increased inter-organisational communications (Romn and Rifkin,1996). From an organisational perspective, the implementation of e-mail improves relationships from the top level to the lower level of management. Hazen, *et al.* (1999) discovered that the usage of e-mail has increased while the usage of all other modes of human communications, such as face-to-face, meetings, telephone conversations, memos and other conventional media has decreased.

The adoption of e-mail also solves the logistical problems of collecting information from distant employees. Zack (1994) concluded that e-mail also increased inter-organisational effectiveness by accelerating information flow, since it is extremely fast in comparison to inter-office mail, courier services or post mail. Sillince (1998) reported an increase in overall efficiency in performing new business functions by using e-mail. E-mail can be stored in external memory for future retrieval, searching, editing and forwarding to others (Glausciusz and Yates-Mercer,1990).

A number of writings have focused on the profile of e-mail, and classify its usage into three areas: task, social and broadcasting (Kettinger and Grover, 1997). In its social use, e-mail is used to encourage higher participation in interesting activities, create and maintain personal contacts and seek new jobs. Users can request information from a community of inter-organisational e-mail users. E-mail communications are also dedicated towards accomplishing group work, such as disseminating information, obtaining feedback, problem-solving and coordination. Users can request information from a community of e-mail users.

Glausiusz and Yates-Mercer (1990) reported that the usage of e-mail increases quality by allowing the diversity of opinions to be presented and considered. Results from one experiment showed that when e-mail users were isolated from one another, they produced more original ideas than face-to-face (FTF) groups, and the ideas were of higher quality.

Much of the literature on the role of e-mail among lecturers shows that lecturers did not really know the existence of controls in the content of e-mails. Issues of control have been important themes in predicting e-mail effects on organisations (Garton and Wellman, 1995). Analysis shows the potential conflict between the management's desire to maintain control over organisations and the attributes of e-mail that extend traditional communication patterns.

This paper describes a survey carried out among lecturers at INTI College Malaysia, with the view of comparing e-mail with various modes of communication, such as telephone, facsimile, teleconferencing, memo, group meetings, voice mail, letters, face-to-face communication and newsletters. The study has the following objectives:

1. To investigate the effectiveness and efficiency gained by lecturers when using e-mail compared with other modes of communication;
2. To assess lecturers' response to using e-mails and analyse their expectations on using e-mails;
3. To compare the use of e-mails with other modes of human communications;
4. To record the advantages of using e-mails;
5. To study the substitution of face-to-face communication by e-mails;
6. To study the substitution of meetings by e-mails;
7. To study the substitution of telephone communications by e-mails; and
8. To study the problems faced by lecturers when using e-mails.

MATERIALS AND METHODS
Questionnaire form
A questionnaire was designed to enable the

generation of data that could potentially enhance lecturers' understanding of the use of e-mail and their perceptions about it. Special attention was given to the structure and clarity of the 63 questions. The structured questionnaire was a five-page document which would take respondents about 15 minutes to complete. To support the analysis, interviews were conducted with lecturers.

The questionnaire was administered in six sections. Section 1 probed the demographics of the respondents . Section 2 examined the actual use of e-mail by means of multiple choice multiple response scale and the Likert scale. Section 3 studied the level of effectiveness and efficiency of using e-mail among lecturers by means of a five-point Likert scale. Section 4 of the questionnaire analysed the level of satisfaction and expectations of lecturers when using e-mail. The multiple choice multiple response scale and a five-point Likert scale were used in this section. Section 5 examined the substitution of e-mail for other modes of human communications such as face-to-face (FTF), meetings and telephone conversations. Finally, Section 6 examined the problems faced by lecturers when using e-mail.

A Likert scale is used when respondents specify the level of agreement or disagreement with statements that express favourable or unfavourable attitudes towards the concept under study. The author has used the Likert scale in analysing questions throughout the survey.

Survey methodology and data collection

One hundred and sixty five questionnaires were circulated personally among lecturers from five schools by the author, but only 150 completed questionnaires were received from respondents. The number of lecturers who responded from the five Schools were as follows : 35 from SOBAL (School of Business and Law), 32 from SOCIT (School of Computing and IT), 25 from SOEAT (School of Engineering and Technology), 28 from SOLLA (School of Languages and Liberal Arts)

and 30 from SOSAM (School of Science and Mathematics) .

The majority (53.3%) of the respondents were female and 56.7% had advanced degrees. The majority (62%) of the 150 respondents degrees were between 26 to 35 years old, and 40.7% had experience in using e-mail over a period of 2 to 4 years.

Variables and data collection

The study also looked into the usage of variables which help in data analysis. The dependent variables are the primary interest of the researcher and the independent variables are variables that influence the dependent variable in positive or negative ways. The relationship between the independent and dependent variables is shown in Figure 1.

Analysis of results

The comparative analyses were done by using Statistical Package for Social Science (SPSS).

RESULTS AND DISCUSSION
Effectiveness and efficiency of using e-mails by lecturers

The majority of lecturers agreed that e-mails were an effective and efficient means of communication (Table 1). The benefits include easier sharing of ideas, user-friendliness, faster communication, presence of a back-up system, improvements in the quality of the lecturer's life, reliability and efficiency. However, only 38.7 % reported that e-mails provided accurate and complete information, because lecturers reported that they received much "rubbish" or junk mail.

In the follow-up interviews, the majority (79.3%) of lecturers stated that e-mail was very important, as it helped them complete their work. E-mail also proved to be an infrequently used means of communication since the majority (68%) of lecturers access their e-mail account fewer than 5 times daily. The majority (37.3%) of lecturers used e-mail for communication,
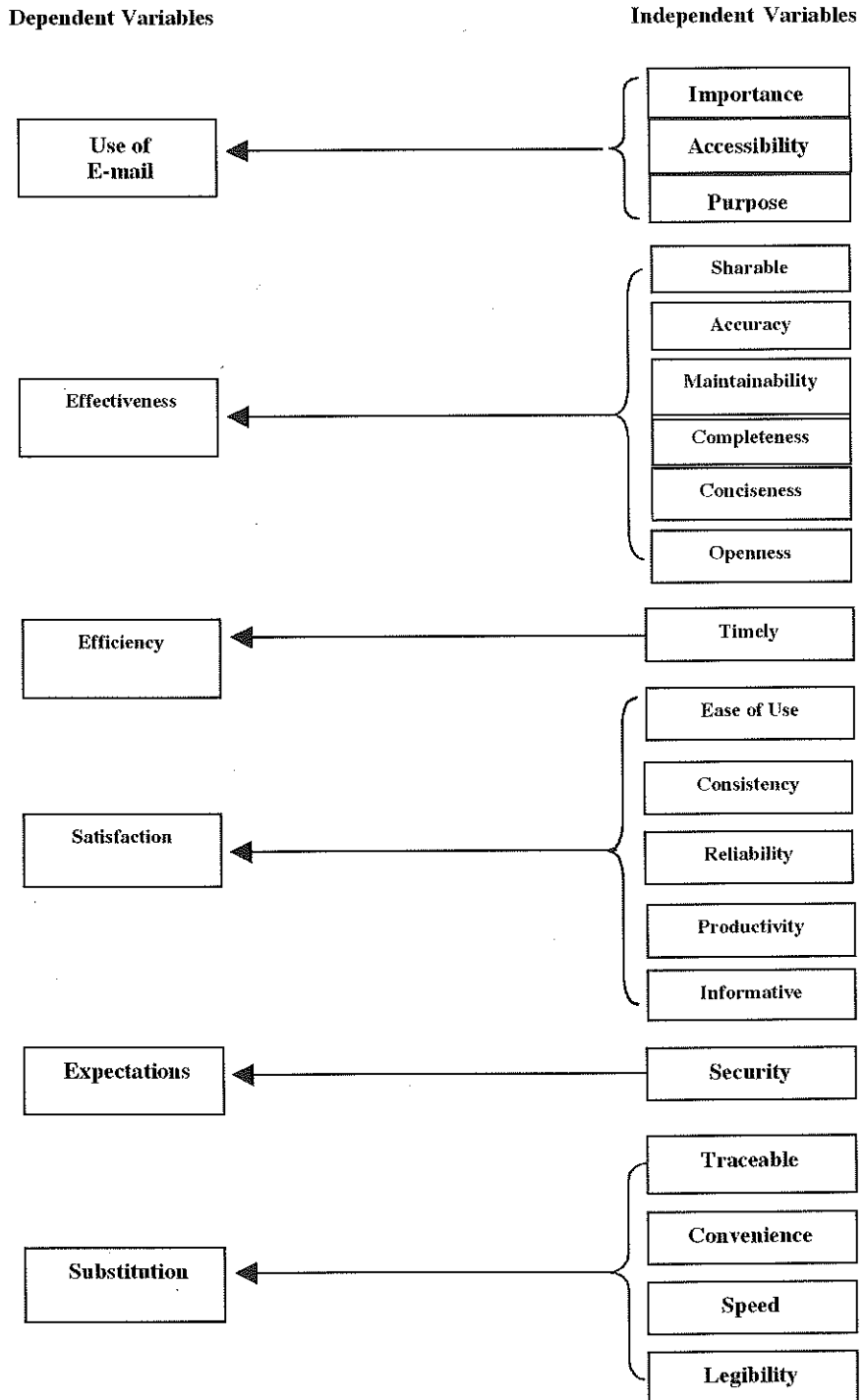
Dependent Variables   **Independent Variables**

Use of E-mail	←	Importance / Accessibility / Purpose
Effectiveness	←	Sharable / Accuracy / Maintainability / Completeness / Conciseness / Openness
Efficiency	←	Timely
Satisfaction	←	Ease of Use / Consistency / Reliability / Productivity / Informative
Expectations	←	Security
Substitution	←	Traceable / Convenience / Speed / Legibility

Figure 1. The relationship between dependent and independent variables

Table 1. Effectiveness and Efficiency of using E-mails.

Description	Percentage		
	Agree and strongly Agree	Neutral	Disagree and strongly disagree
E-mail is more efficient and reliable than other methods of communication	52.6	37.3	10.0
E-mail is an user-friendly communication media	78.0	15.33	6.67
E-mail lets me share my ideas, information and knowledge more freely with others	79.4	14.0	6.6
E-mail provides accurate and complete information	38.7	38.0	23.4
E-mail provides a backup to your e-mail messages	62.0	30.0	8.0
E-mail reduces time in communication compared with other modes of human communications.	75.3	18.7	6.0
E-mail has improved my knowledge of business	46.0	41.0	13.0
The quality of my work life has improved due to the usage of e-mail	57.3	30.0	12.7

Table 2. Lecturers' response to using E-mails and their Expectations.

Description	Percentage		
	Agree and strongly Agree	Neutral	Disagree and strongly disagree
E-mail has increased my work productivity	55.1	36.2	8.7
I am satisfied with my job delegations by using e-mail.	55.4	37.3	7.3
I like using e-mail because I know when a person has received my messages	56.7	31.3	12.0
I receive too many e-mails	44.0	36.7	19.3
I think using e-mail is less professional than a telephone call when doing business	28.0	30.7	41.3
I would like a stronger e-mail policy in my company	36.0	48.0	16.0
E-mail should be used only for urgent messages	16..7	23.3	60.0
We should go back to paper or verbal messages	11.4	24.0	64.7
I consider e-mail as a secure tool for communication	37.3	32.0	30.6

followed by 26.7% for work-related operations and 25.3% for personal correspondence.

The analysis shows that the majority (59.3%) of lecturers sent fewer than 5 messages, compared to 20.7% who received fewer than 5 messages each day. However, 28.7% of lecturers sent 5 to 10 messages compared to 46% who received 5 to 10 messages on an average day. The majority (67.4%) of lecturers agreed that e-mail led to openness in communication.

Lecturers' responses to using e-mails and their expectations

Respondents expressed satisfaction with the e-mail system as 55.1 % reported that e-mails increased their work productivity (Table 2). They preferred using e-mail because e-mails reached the recipients promptly. However, 8.7% did not agree with this perspective.

Table 2 shows that 55.4 % of the lecturers agreed that they were satisfied with the jobs delegated via e-mails; however, 7.3% of lecturers were not satisfied, of which 4% were from the School of Languages and Liberal Arts. These lecturers still preferred using other modes of human communications.

Table 2 shows that 56.7 % replied that they were able to know if their recipients received their e-mails. The majority (60 %) disagreed that e-mails should only be used for urgent messages, and the majority (64.7%) would not like to revert to paper or verbal messages.

Lecturers have high expectations associated with the usage of e-mail, and 36% agreed with the need to have a stronger e-mail policy within the college, compared to 48% who were neutral on this issue. Many believed they might not have adequate knowledge on the security features, even though they have been using e-mail for some time. Interestingly, 44% reported that they received many e-mails.

Electronic Mail (E-mail) as a Substitute for other Modes of Human Communica-tions

The majority of lecturers from the 5 Schools used e-mails very often, compared with 87.5 to 97.2% who used the telephone, and 60 to 85.7% who communicated face to face with one another (Table 3). Other modes of human communications included written memos, group meetings, letters, voice mail on the hand-phones or desk phones, newsletters, teleconferencing and facsimile transmission.

Advantages of using E-mail when compared with other modes of communication

The majority (81.3 %) agreed that e-mails were convenient to use while 84 % felt comfortable with composing, sending and receiving e-mails; 60 % reported that they could trace what they wrote or received (Table 4). Interestingly, 84.7 % reported that e-mails conferred the advantage of speed; 66 % reported that there was accuracy when using e-mails. E-mail is not only one of the modes of human communications, but it is also an alternative that has become popular because of its advantages (Table 4).

E-mails compared with face-to-face communication

The overall analysis showed that only 40.6% of lecturers agreed that e-mail was replacing FTF communication (Table 5). This showed that e-mail was just one of the alternatives to other modes of human communications. Lecturers used e-mail since it was faster and more efficient than meetings or FTF.

The overall analysis showed that 41.3% of lecturers reported that people tended to write using e-mails rather than converse with one another. Compared with FTF communication, 34.7% agreed that people tended to be more truthful when using e-mail. In e-mail communication, there is no physical contact with the other person, compared with FTF situations and meetings. The majority (37.3%) were neutral on the issue that people tended to be more aggressive in e-mails than in FTF conversations (Table 5).

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Table 3. Percentage using various Modes of Human Communications.

SCHOOLS	SOCIT		SOBAL		SOEAT		SOSAM		SOLLA	
Modes of Paper or Verbal Messages	Very Often	Seldom	Very Often	Seldom	Very Often	Seldom	Very Often	Seldom	Very Often	Seldom
Phone	87.5	6.3	97.2	0	88	0	93.4	0	92.8	1.3
Facsimile (Fax)	3.1	43.8	11.4	40.0	12.0	28.0	6.6	73.4	10.7	64.3
Teleconferencing	3.1	75.0	2.9	88.5	20.0	72.0	6.6	93.3	0	5.7
Memo	21.9	43.8	37.2	25.8	45.9	16.6	23.4	30.0	46.4	17.9
Group Meetings	31.2	37.5	34.3	34.3	40.0	16.0	16.7	40.0	28.6	21.5
Voice Mail	15.6	56.2	11.4	57.1	24.0	44.0	3.3	63.3	14.3	67.8
Letters	31.2	31.3	14.3	40.0	32.0	36.0	20.0	15.6	25.0	32.1
Face-to face (FTF)	75.0	3.1	85.7	2.9	60.0	20.0	75.3	10.0	64.3	7.8
Newsletters	3.1	43.8	11.4	40.0	12.0	28.0	6.6%	73.4	10.7	50.0
Electronic Mail	100.0	0	94.2	2.9	84.0	0	90.0	3.3	75.0	14.2

Table 4. Percentage citing E-mails as a substitute for other Modes of Human Communications

Advantages	Convenience		Comfortable		Traceable		Speed		Accuracy	
SCHOOLS	Strongly agree and Agree	Strongly disagree and Disagree	Strongly agree and Agree	Strongly disagree and Disagree	Strongly agree and Agree	Strongly disagree and Disagree	Strongly agree and Agree	Strongly disagree and Disagree	Strongly agree and Agree	Strongly disagree and Disagree
SOCIT	87.6	6.3	81.3	0	59.4	3.1	78.1	3.1	50.0	6.3
SOBAL	77.2	0	88.6	0	60.0	11.4	97.1	2.9	71.4	11.4
SOEAT	80.0	0	74.0	0	44.0	16.0	88.0	8.0	68.0	4.0
SOSAM	93.4	0	96.7	0	63.3	10.0	76.6	3.3	73.3	6.7
SOLLA	67.7	7.1	75.0	3.5	71.5	10.7	82.3	3.6	67.8	0
Overall	81.3	2.7	84.0	0.7	60.0	10.0	84.7	4.0	66.0	6.0

Table 5. Response on E-mails as a Substitute for Face-to-Face Communication

Description	Percentage		
	Strongly agree and agree	Neutral	Strongly disagree and disagree
E-mail is replacing face-to-face (FTF) communications.	40.6	30.7	28.7
People tend to write using e-mails rather than converse face-to-face (FTF).	41.3	36.1	22.6
People tend to be more truthful on e-mail than are in face-to-face (FTF) conversations.	34.6	30.7	34.7
People tend to be more aggressive on e-mail than they are in face-to-face (FTF) conversations.	38.0	37.3	24.7

E-mail as a Substitute for Meetings

Overall, 59.3% agreed that participants received immediate feedback during meetings compared with using e-mails (Table 6). Furthermore, 59.3% agreed that they got spontaneous response in meetings rather than from e-mail. A separate follow-up analysis showed that out of 3.3% of the lecturers who had been using e-mail for more than 8 years, only 0.7% agreed on this issue. This shows that experienced e-mail users still continue to communicate via meetings. Respondents who were experienced e-mail users tended to be more active participants in face-to-face as well as e-mail groups (Garton and Wellman, 1995). The majority (63.3%) agreed that it was easier to establish good communication and relationship in meetings than by using e-mail (Table 6).

E-mail as a Substitute to Telephone Conversation

The majority (77.3%) of lecturers agreed that certain messages should be given verbally, not by e-mail (Table 7). Thirty-four per cent disagreed that using e-mail was less professional than a telephone call when conducting business, compared with 40.7% who were neutral on this issue. This shows that lecturers preferred making telephone calls rather than sending e-mails.

Interestingly 44% agreed that telephone conversation created a friendlier environment compared with e-mail (Table 7). However, 40.7% were neutral on this issue.

Problems faced by Lecturers when using e-mails

Some preferred to communicate via meetings due to problems they faced such as "flaming" and receiving of "junk" or "rubbish" mails (Table 8).

Discussion

The findings show that lecturers agreed that e-mail is an effective tool of communication. The majority (82.7%) agreed that e-mail is an important IT application for capturing and disseminating information. This survey showed that 78% agreed that e-mail is a user-friendly communication medium (Table 1). Note that 4.7% of lecturers were over the age of 55. Four percent agreed that e-mail is a user-friendly communication media while 79.4% agreed that they were able to share their ideas, information and knowledge more freely with others.

Only 46% agreed that e-mail has improved

Table 6. Lecturers' responses on E-mails as a substitute for Meetings

Description	Percentage		
	Strongly agree and agree	Neutral	Strongly disagree and disagree
People tend to receive immediate feedback in meetings compared with using e-mail.	59.3	30.7	10.0
People get spontaneous response in meetings rather than in e-mail.	59.3	31.3	9.4
In meetings, it is easier to build good communication and relationship compared with using e-mail.	63.3	28.7	8.0

Table 7. Analysis on Substitution of E-mail with Telephone Conversation

Description	Percentage		
	Strongly agree and agree	Neutral	Strongly disagree and disagree
Certain messages should be given verbally, not by e-mail	77.3	18.7	4.0
Using e-mail is less professional than a telephone call when doing business.	25.3	40.7	34.0
People can create a friendly environment in telephone conversations compared to e-mail.	44.0	40.7	15.3

Table 8. Analysis on Problems faced by Lecturers when using E-mails

Description	Percentage		
	Strongly agree and agree	Neutral	Strongly disagree and disagree
Receiving " flaming" (the receiving of rude or nasty messages)	32.0	35.3	32.7
Receiving a lot of rubbish /junk mails.	46.7	26.7	26.6

their knowledge of the business, because some used other modes of communication such as face-to-face, meetings and telephone conversations to improve their knowledge of business (Table 1).

The study then looked at the independent variables. Results show that 57.3% agreed that the quality of overall work life has improved due to the usage of e-mail. Only 12.7% disagreed with the issue, and the majority of them were from SOLLA (School of Languages and Liberal Arts) and SOSAM (School of Science and Mathematics). This shows that lecturers in both Schools used other modes of communications in improving their overall quality of work.E-mail increased efficiency since the majority (75.3%) reported that they were able to manage their time more efficiently, as well as save time in communication, compared with other communication media (Table 1).

Overall, e-mail is an effective and efficient mode of communication, although some lecturers were neutral on this issue. This is due to the usage of other modes of human communications such as face-to-face, telephone conversations and meetings which are still being used by lecturers.

SUGGESTIONS FOR FURTHER RESEARCH
Communication by e-mail improves the efficiency of work processes in college environments. Further research on the efficiency and effectiveness of using e-mails among students, lecturers to students (or vice versa), staff to external customers (parents) is suggested. More research is needed to develop enhanced software that is more effective in preventing junk mail or computer viruses from entering the E-system, so that lecturers need not waste time eliminating such mail or suffer the consequences of damage caused by such viruses.

CONCLUSION
The present case-study in a private college in Malaysia shows that the majority of lecturers had a positive attitude towards the use of e-mail

as a mode of communication. E-mail is an effective and efficient means of communication, as are written memos, group meetings, letters, voice mail on hand-phones or desk phones, newsletters, teleconferencing and facsimile transmission. Respondents expressed satisfaction with the e-mail system, as it increased their work productivity. E-mails reached the recipients promptly and can be used for multiple purposes such as communication, personal correspondence, work related activities, education and entertainment.

In spite of the increased usage of e-mails, lecturers still used other modes of communication. They placed high expectations on the usage of e-mail to ensure that it is safe to be used for various purposes. Training of lecturers is needed so that they may reap the full benefits of using e-mails and the Internet.

E-mail is used as an alternative to other means of human communications such as face-to-face, meetings and telephone conversations. In order to cope with dynamic changes in the global scenario, the top management of INTI needs to brainstorm strategies and come up with an effective action plan that can eliminate "junk mail" and maximise teaching and learning.

This will facilitate organisational learning that will help the college build up its pool of knowledge workers, lecturers and graduates. This view was supported by Owen (2000), who pointed out that business processes are complex and dynamic; manual labour is being replaced by knowledge workers who require high levels of skills and expertise.

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