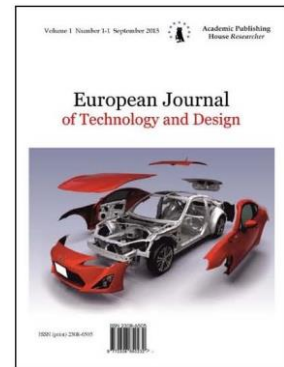


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Communication Technology Adopted in Four Industries in Northern Peninsular Malaysia

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Abstract

Arguably, communication technologies serve as the backbone of organizational dynamics. This research examined the effectiveness of using certain communication technology to communicate at work, such as electronic mails, intranet, newsletter, memos, faxes, manager, voicemail, and phones in hotlines and co-workers. The study also looked into statistically significant differences in communication technology effectiveness when the respondents were grouped by age, type of industry, and job function. A total of 55 respondents working in four industries, namely, logistics, manufacturing, services, and trading in Bayan Lepas Industrial Zone, Northern Peninsular Malaysia, completed the questionnaire. The findings revealed that a mixture of communication technology was perceived to be effective in different industries, and that the respondents' perceptions seemed to be not consistent when grouped by age, type of industry, and job function.

Keywords: communication, technology, manufacturing companies, Malaysia.

1. Introduction and Theoretical Groundwork

In any organizational dynamics, communication seems to be the most complex, if not the least understood, element of social relationship and interaction. This can be attributed to its sociological nature, which takes form and interpretation in various perspectives. Simply put it, communication involves the transfer of information, and information is transferred through the use of symbols, which can be verbal, non-verbal, or both. In depth, however, communication is more than just symbols per se. Communication technologies enable communication to be understood, to be facilitated, and to bridge relationships at work and elsewhere.

According to Ross (1983), communication is a process involving the sorting, selecting and sending of symbols in such a way as to help listeners perceive and recreate in their own mind the meaning contained in the mind of the communicator. Communication is dynamic and ongoing, functional and purposeful, and social and complex. These interrelated processes, assert Ivancevich, Konopaske, and Matteson (2005), assist organizations to accomplish both individual and collective goals, implement and respond to organizational change, coordinate organizational activities, and engage in virtually all organizationally relevant behaviors. In many companies in the US, new employee orientation programs represent the first important opportunity to begin the process of effective communication with employees. At Marriott International, for instance, the rate of employee turnover has been significantly reduced because the company has embarked on a

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concerted effort to improve the content and manner in which the management would communicate with new employees during orientation (Ivancevich et al., 2005).

Wagner and Hollenbeck (2005) cited that 75 % of a manager's time is spent on meetings and telephone calls. Seemingly, nowhere is technology having a greater impact on the workplace than in the area of communication technologies. Facsimile, e-mail, and mobile phones all reduce the need for travel among executives, businessmen, and professional workers, yet make these people more efficient when they must travel. At Pitney Bowes, Inc., for example, copy machine repair workers carry wireless data terminals that enable them to tap into a database while they are servicing remote repair jobs. It was estimated that the system has improved productivity by 15 % and simultaneously increased customer satisfaction.

A simplified communication model (Figure 1) proposed by Sanford, Hunt and Bracey (1976) focus on five important situational variables that influence the potential success of a communication exchange, namely:

- Climate in which communication takes place;
- The perceived communication purpose of the sender and receiver;
- The communication skills demonstrated by the sender and the receiver;
- Whether the message has been intentionally or unintentionally transmitted;
- Whether the message is verbal or non verbal.

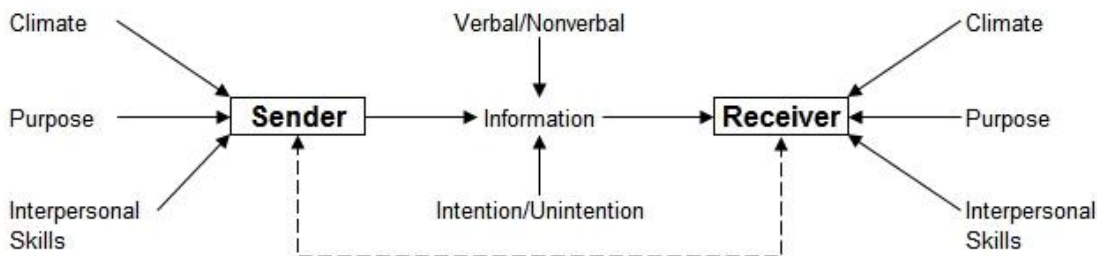


Fig. 1. Basic Communication Model

Apparently, the model presents seven important elements in communication process, namely, sender, receiver, message, purpose, climate, feedback and channel. Channel refers to the medium used in conveying information from a sender or transmitter to a receiver. In every organization, communication occurs constantly and is a vital process in every organization. People at work spend a great deal of time communicating with each other in meetings, over the phone, via e-mail, and face-to-face interaction, to name a few. Formal channels of communication include written documents, meeting, and teleconferences, while informal channels of communication are best thought of as grapevine. In all these elements, communication technologies facilitate ease and understanding in the dynamics of communication.

Different communication channels or technologies are different with regard to data capacity (the maximum amount of data that can be contained) and information richness (the ability of the medium to convey the meaning or evoke meaning in the receiver). Table 1 compares different communication technologies with regard to data capacity and information richness.

In any organization, communicating effectively is of utmost importance. Communicating effectively means being able to send a message across the organization that is easy to understand and accurate. When communication flows accurately and effectively, the organization will run smoothly. However, if there is a breakdown in the flow of communication, or the information is not accurate, the organization is likely to encounter problems on performance or human relations. Arguably, communicating effectively implies using appropriate communication technology.

Table 1. Information Richness and Data Capacity of Communication Technologies

Communication Mode	Information Richness	Data Capacity
Face to face discussion	Highest	Lowest
Telephone	High	Low
Electronic mail	Moderate	Moderate
Individualized letter	Moderate	Moderate
Personalized note or memo	Moderate	Moderate
Formal written report	Low	High
Flyer or bulletin	Low	High
Formal numeric report	Lowest	Highest

Source: Gerloff (in [Daft, Lengel, 1984](#))

In today's business, the company's complex organizational structures, effectiveness of internal communication, and communication flow, have become a challenge. By developing an effective communication technology system, the information can be shared and transmitted accurately that will foster a productivity-driven working environment.

2. Objectives of the Study

The main purpose of this research was to look into the effectiveness of using communication technology in the four industries in Bayan Lepas Industrial Zone, Penang, Malaysia. Specifically, the study sought answers to the following questions:

1. What communication technology was used frequently in the four industries (logistics, manufacturing, services, and trading) identified?
2. What communication technology was perceived to be effective in communicating at work when the respondents were grouped by (a) age, (b) type of industry, and (c) job function?

3. Methodology

Research Design. This research was descriptive-survey in nature. It described, assessed and compared the frequency of usage and perceived effectiveness of different communication technology. As defined in Learn.Org (2017):

Communications technology, also known as information technology, refers to all equipment and programs that are used to process and communicate information. Professionals in the communication technology field specialize in the development, installation, and service of these hardware and software systems. Individuals who enter this field develop an understanding in the conceptions, production, evaluation, and distribution of communication technology devices.

Respondents. The respondents covered were those from the following industries: logistics, manufacturing, services, and trading. A total of 55 employees holding managerial or supervisory positions as well as non-supervisory job classifications participated in this research. Most of them were from multinational companies (MNCs) located in Bayan Lepas Industrial Zone, Penang Island in the Northern Peninsular Malaysia. The actual sample size was 30 % of the target samples and is considered adequate in descriptive researches.

Data Collection. The questionnaire consisted of selective 12 questions where the first four questions examined how frequent the respondents used face-to-face interaction, electronics communications, written communications and telephone calls. Questions 5 to 12 were to evaluate the effectiveness of different types of communication technologies in their daily work.

3. Findings

Frequency of Communication Technology Use. When respondents were grouped by age, Figure 2 shows that the age group "below 30" (n = 29) mostly communicate face-to-face, via electronics and through telephone calls on a daily basis (aggregate of 53 %). Specifically, 31 % would *always* communicate face-to-face; twenty-nine percent would *always* communicate via electronics technology; 29 percent *always* preferred telephone calls and 11 percent would *always* use written communication technology.

Out of 26 respondents from the age group of “over 30”, 28 % would *always* use written communication technology, 26 % would *always* use face-to-face, 24 % would *always* prefer written communications, and 22 % would *always* utilize telephone calls.

On the whole, face-to-face and electronic communications technology were the most popular forms of communications regardless of the age of the respondents.

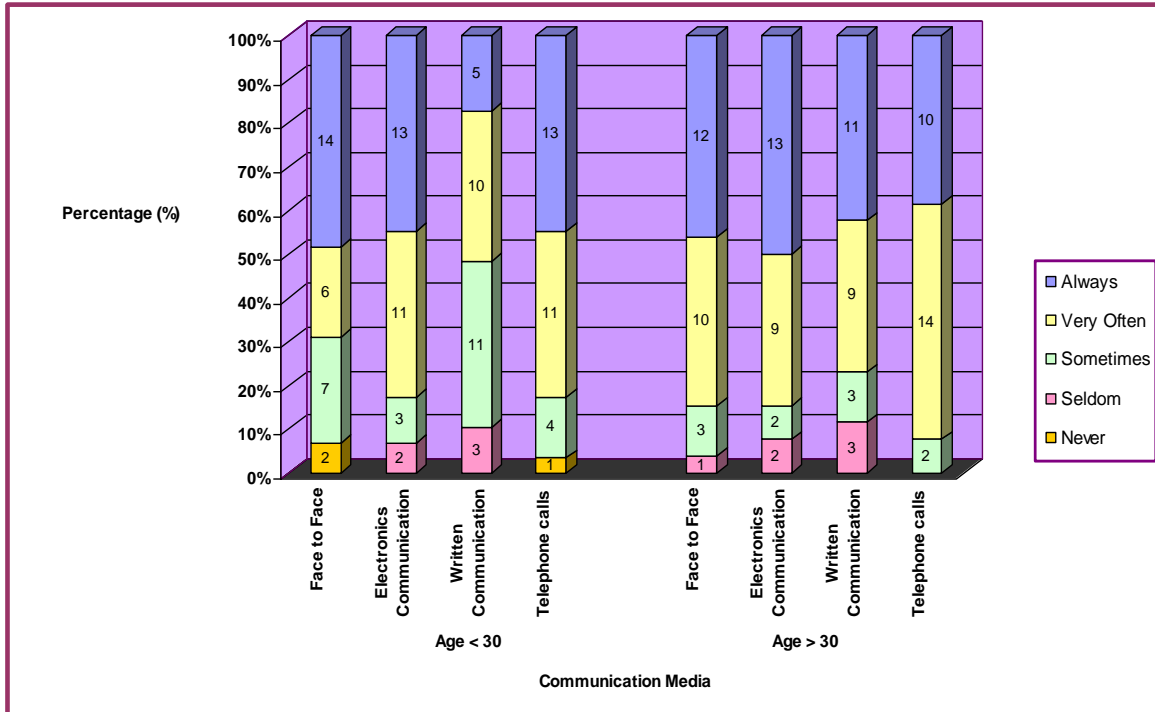


Fig. 2. Communication Technology Usage of Respondents by Age Group

In terms of the industry or sector, 30 (54.5 %) of them came from the manufacturing industry while 18 (32.8 %) were from services, 5 (9.1 %) from trading, and 2 (3.6 %) from logistics. Across all industries covered, face-to-face and electronics communication technology dominated the workplace as regards frequent usage. This scenario was more pronounced in the manufacturing sector than the rest of the industries covered in the study. Figure 3 presents the data.

As regards job function, Table 1 shows that in Research and Development (R&D), written communication and telephone calls dominated usage as mentioned by the respondents.

For Purchasing, electronic technology was the most preferred technology for communication, followed by face-to-face and the use of telephones.

For Finance, the use of telephones was *always* used, followed by electronic communication whereas for the Corporate/General Management functions, electronic technology and written communication became the most preferred mode of communications.

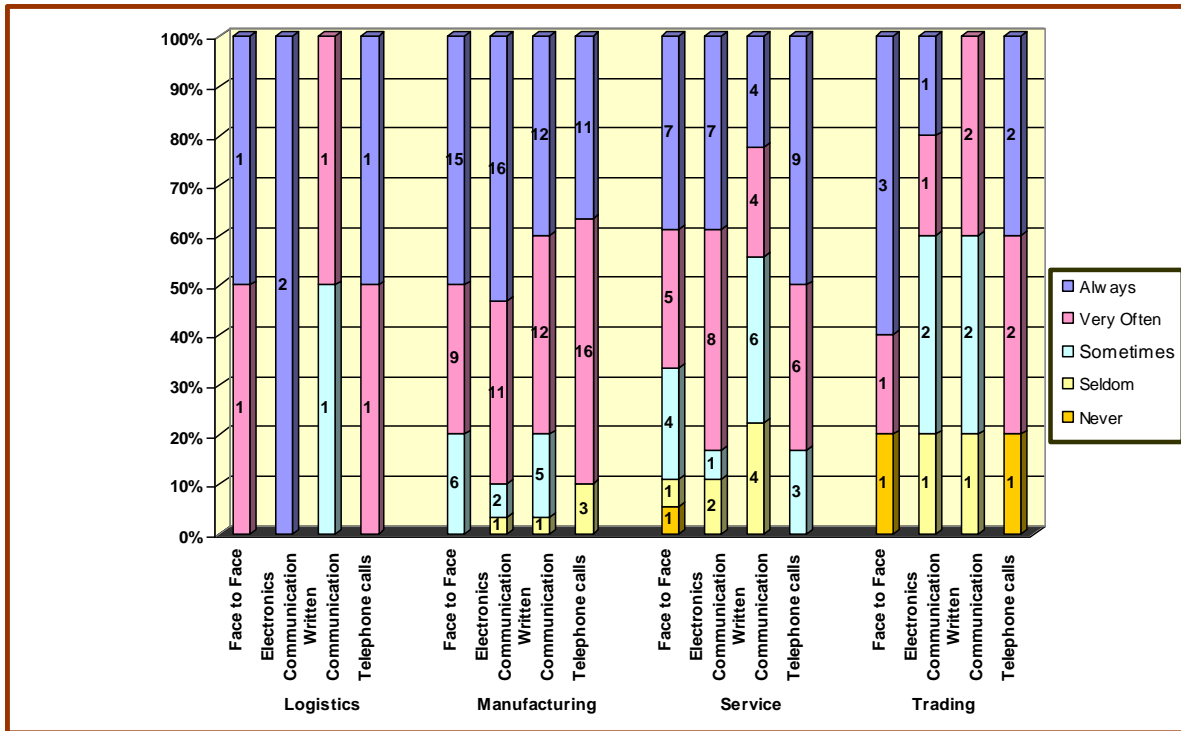


Fig. 3. Communication Technology Usage of Respondents by Industry

For Production/Manufacturing, face-to-face and electronic technology were preferred modes of communication whereas for the Sales and Marketing, face-to-face communication was the most prevalent communication mode in action.

For Quality Assurance, face-to-face communication was *always* used whereas for the information technology (IT) functions, electronic communication was *always* preferred.

For the Services, making telephone calls was the most prevalent communication mode, followed by face-to-face and electronic communications.

Overall, the findings suggest that various communication technologies and modes of communication were used in a range of job functions across the industries involved in the research.

Effectiveness of Communication

By Age. As shown in Figure 4, 26 out of 29 respondents (89.7 %) whose age is under 30 mentioned that “email” and “co-workers” are either “effective” or “extremely effective”. Meanwhile, only 23 (79.3 %) picked “manager”; 19 (65.5 %) chose “intranet” and 14 (48.3 %) picked “voice mail” as either “Effective” or “Extremely Effective”.

For the group whose age is over 30, “manager” turned out to be the most “effective” or “extremely effective” as viewed by 24 out of 26 respondents (92.3 %). Another effective technology was the use of email (84.6 %) as well as the help of co-worker (76.9 %), intranet technology (69.2 %), and voice mail (46.2 %).

By Type of Industry. On the whole, Table 2 shows that a total of 49 out of 55 (89.1 %) respondents believed that the “manager” is either “effective” or “extremely effective” in the communication process at work. This was followed by “co-worker” (83.6 %), the use of electronic mails (80 %), intranet technology (78.2 %), and voice mail (47.3 %).

In the logistics industry, the use of intranet technology and support from co-workers were deemed “effective”. This followed by “manager”, electronic mail, and voice mail.

For the respondents who are in the manufacturing industry, those deemed “effective” were electronic mail (90 %), support from the manager (86.7 %), co-workers (83.3 %), intranet technology (76.7 %), and voice mail (46.7 %).

Table 1. Communication Technology Usage by Job Function

Job Function	Technology/Communication Mode	Never	Seldom	Sometimes	Very Often	Always
R&D (n = 9)	Face-to-Face	0	0	1	2	6
	Electronics Communication	0	0	0	4	5
	Written Communication	0	0	0	5	4
	Telephone calls	0	0	0	5	4
	Total:	0	0	1	16	19
Purchasing (n = 5)	Face-to-Face	0	0	1	1	3
	Electronics Communication	0	0	1	0	4
	Written Communication	0	0	2	1	2
	Telephone calls			1	1	3
	Total:	0	0	5	3	12
Finance (n = 6)	Face-to-Face	0	0	3	3	0
	Electronics Communication	0	0	0	4	2
	Written Communication	0	1	3	2	0
	Telephone calls	0	0	2	1	3
	Total:	0	1	8	10	5
General/ Corporate Management (n = 6)	Face-to-Face	0	1	1	2	2
	Electronics Communication	0	0	0	2	4
	Written Communication	0	0	0	2	4
	Telephone calls	0	0	0	3	3
	Total:	0	1	1	9	13
Production/ Manufacturing (n = 17)	Face-to-Face	1	0	1	7	8
	Electronics Communication	0	1	3	6	7
	Written Communication	0	3	5	4	5
	Telephone calls	1	0	2	10	4
	Total:	2	4	11	27	24
Sales & Marketing (n = 5)	Face-to-Face	0	0	0	1	4
	Electronics Communication	0	2	1	1	1
	Written Communication	0	1	2	2	0
	Telephone calls	0	0	0	3	2
	Total:	0	3	3	7	7
Quality Assurance (n = 2)	Face-to-Face	0	0	1	0	1
	Electronics Communication	0	0	0	2	0
	Written Communication	0	0	0	2	0
	Telephone calls	0	0	1	1	0
	Total:	0	0	2	5	1
IT (n = 2)	Face-to-Face	0	0	2	0	0
	Electronics Communication	0	0	0	0	2
	Written Communication	0	0	1	0	1
	Telephone calls	0		0	1	1
	Total:	0	0	3	1	4
Services (n = 3)	Face-to-Face	1	0	0	0	2
	Electronics Communication	0	1	0	1	1
	Written Communication	0	1	1	1	0
	Telephone calls	0	0	0	0	3
	Total:	1	2	1	2	6

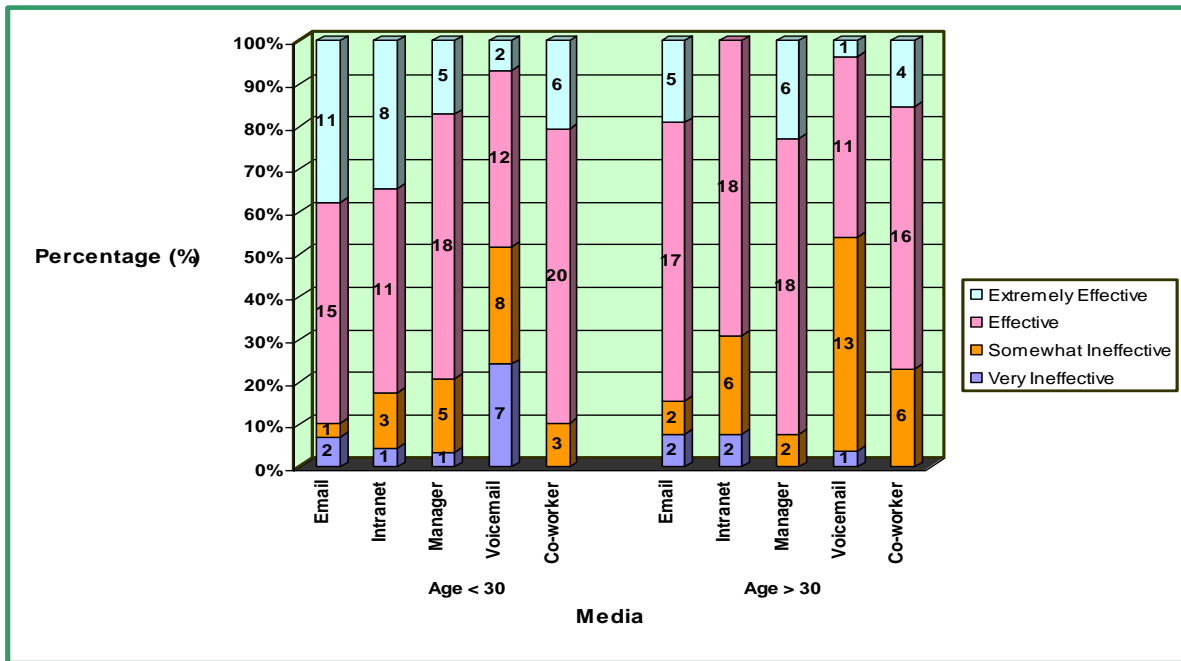


Fig. 4. Effectiveness of Communication Technology by Respondents' Age

Table 2. Effectiveness of Communication Technology/Mode by Type of Industry

Type of Industry	Communication Technology/Mode	Very Ineffective	Somewhat Ineffective	Effective	Extremely Effective
Logistics	Email	1	0	1	0
	Intranet	0	0	2	0
	Manager	0	1	1	0
	Voicemail	1	0	1	0
	Co-worker	0	0	2	0
Manufacturing	Email	2	1	19	8
	Intranet	2	5	19	4
	Manager	0	4	17	9
	Voicemail	3	13	13	1
	Co-worker	0	5	18	7
Service	Email	1	1	8	8
	Intranet	1	4	12	1
	Manager	1	0	14	3
	Voicemail	2	6	8	2
	Co-worker	0	2	13	3
Trading	Email	0	1	4	0
	Intranet	0	0	5	0
	Manager	0	0	5	0
	Voicemail	2	2	1	0
	Co-worker	0	2	3	0

In the service industry, communication was viewed to be effective with the roles played by the managers (94.4 %), followed by the use of electronic mail (88.8 %), support from co-workers (72.2 %), the use of intranet technology, and voice mail (55.6 %). “Effective” communication viewed by respondents working in the trading industry were: the use of intranet and support from the manager, followed by electronic mail, support from co-workers, and the use of voice mail.

By Company Size. From the total of 55 respondents, Figure 5 shows that 6 (10.9 %) were from companies where the employees were less than 50; 10 (18.2 %) were from a company size of 51-150; 10 (18.2 %) from those with 151-500 employees; and 29 (52.7 %) were from companies with more than 500 employees.

As shown in Figure 5, 83.3 % of those who worked in companies with a size of less than those “manager” as either “effective” or “extremely effective” facilitator of communication while 66.7 % chose electronic mail, intranet technology, and co-workers as either “effective” or “extremely effective” communication technologies or channel of communication. More than one-third (33.3 %) mentioned voice mail as “effective”.

In companies with a size of 51-150, electronic mail is the most effective communication technology followed by “manager” and “co-worker”, voice mail, and intranet.

Findings also showed that in companies with 151-500 employees, having supportive “co-workers” (9 out of 10 chose either “effective” or “extremely effective”), use of electronic mails (8 out of 10 chose either “effective” or “extremely effective”), and intranet technology (8 out of 10 chose either “effective” or “extremely effective”), having supportive “managers” (7 out of 10 chose either “effective” or “extremely effective”), and voice mail (3 out of 10 chose either “effective” or “extremely effective”)

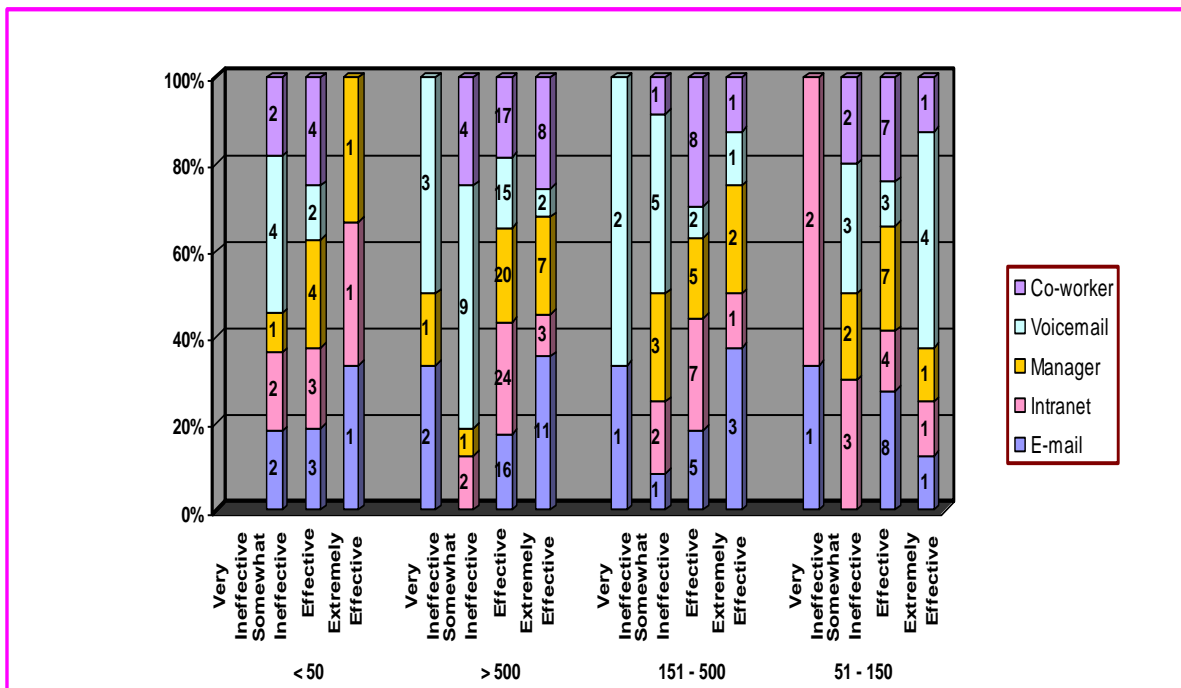


Fig. 5. Effectiveness of Communication Technology by Company Size

In large companies (more than 500 employees), a similar scenario was observed where the manager was seen as playing important roles in the communication process. The use of electronic mails and intranet technology (aggregate percentage of 93.1 % viewed the first three communication technologies and communication modes as either “effective” or “extremely effective”) also had significant impact in communication. Moreover, it was shown that 86.2 % of the respondents viewed “co-worker” and voice mail (58.6 %) as either “effective” or “extremely effective”.

5. Conclusion and Recommendations

The four industries covered in the research utilized a mix of communication technologies and communication modes in order to manage the communication flow in the workplace. In particular, electronic communications were of special attention owing to the roles of information and

communication technologies (ICTs) in contemporary management of organizations. Managers and co-workers were also viewed as critical in maintaining an atmosphere of effective communication.

Despite the mixed-mode scenario of communication technologies and communication modes, the respondents tended to prefer to use face-to-face and electronic communications more frequently compared to written communications and telephones. The findings also showed that electronic mails, co-workers and managers were much more effective compared to the use of intranet and voice mail.

It is suggested that companies should conduct training programs and workshops to strengthen the use of communication technologies and improve communication modes across the industries covered in the research. They also need to upgrade communication technologies at work to make them more attuned to organizational and employee needs.

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