MODERN ORGANIZATIONAL COMMUNICATION: THE INTRODUCTION OF COMMUNICATION TECHNOLOGY IN AN INSTITUTION OF HIGHER EDUCATION IN ISRAEL - A CASE STUDY

Thesis submitted for the degree of

Doctor of Philosophy

at the University of Leicester

by

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January 2005

Abstract

"Modern Organizational Communication: The Introduction of Communication Technology in an Institution of Higher Education in Israel - A Case Study"

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Communication technology is fast becoming an integral part of higher education. Although its uses for instruction have been researched considerably, its effects on organizational communication have hitherto received little attention in the literature. Therefore, the purpose of this study was to research the effects of communication technology on organizational communication in higher education. A change in the senior management of an Israeli institution of higher education created a strategic decision to increase its usage of communication technology. This allowed research on communication technology to be conducted in the form of a case study using the research tools of interviews, observations and documentary analysis. The study discovered close to twenty different effects of communication technology on organizational communication, revealing that technology is a double-edge sword. On one hand, it was found that communication technology may improve organizational communication including even increasing informal communication, thereby enhancing problem solving. It was also discovered that communication technology has a marketing effect on students, i.e. students' perceptions of an institution of higher education are influenced by the existence of technology in that institution. However, on the other hand, it was also found that there were increased expectations of employees to perform better due to communication technology. When these expectations were not met, stakeholders were disappointed. This is especially true of students who due to this may not recommend the university, consequently reducing enrolment. Furthermore, the introduction of communication technology at the university resulted in personnel change, including both the firing and hiring of employees. This created an unstable situation, putting extra psychological pressure on existing employees.

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Glossary

Actional perspective: One of the earliest views of the communication process, known also as the transmissional perspective, which holds that communication is a linear, one-way flow of ideas and understanding information, focusing first and foremost on the transmission of information in the communication process.

All-channel network: One of the most frequent networks where everyone communicates to everyone else without any need for an intermediary factor, thereby providing the optimum in member participation.

Ambiguity: The existence of conflicting and multiple interpretations of an issue. An ambiguous message can be interpreted in many ways. No established scripts or symbols exist to guide behaviour. Meaning must be created and negotiated since individuals look to others for cues and feedback to help interpret the message.

Automatic Identification (Auto ID): A means of capturing data directly from the source, without the need to manually insert the data into the computer and thus turn the input process to an automatic one, such as a scanner that scans text and transfers the data into the computer. It is also known as source data capture or as Automatic Identification and Data Capture (AIDC).

Automatic Identification and Data Capture (AIDC): A means of capturing data directly from the source, without the need to manually

insert the data into the computer and thus turn the input process to an automatic one, such as a scanner that scans text and transfers the data into the computer. It is also known as source data capture or as automatic identification (Auto ID).

Boundary spanner (or cosmopolite): An individual who has a relatively high degree of communication with people outside the organization.

Bridge: An individual that connects two groups in a network but unlike the liaison belongs to both.

Chain network: One of the most frequent networks, which is typical of hierarchical organizations, especially in one-way downward communication, since information usually flows in it from a central figure down the chain of command.

Circle network: One of the most frequent networks where a person is only communicating with his or her immediate two organizational neighbours but not with other members of the organization.

Cliques: These are the people (normally five to twenty-five members) in the network who communicate more often with one another than with other members of the organization.

Communication: A social two-way process through which information (such as facts, ideas, feelings and values) is transferred by any means, whether interpersonal or mechanical, between at least two people: a sender and a receiver. Although the goal of sender is to have the receiver understand the message as it was sent - and indeed such effective

communication prevents misunderstandings - communication is what the receiver actually understands, not what was sent.

Communication technology: Any mechanical means, including computer-mediated communications, which are mainly used to support formal and informal organizational communication but being an integral part of information technology, are also used to support the formal information system.

Computer anxiety: A fear of computers, creating psychological resistance that may result in cognitive behaviour which limits the usefulness of such technology. Computer anxiety has also been referred to as technophobia.

Computer-assisted instruction (CAI): The use of information and communication technologies for instructional purposes.

Computer-based information system (CBIS): An information system that relies on computer hardware and software technology for processing and disseminating information.

Computer literacy: The use of technology as a tool for organization, communication, research and problem solving.

Computer-mediated communication (CMC): Two or more electronically connected computers that distribute some combination of text files, database files, audio, or video messages between people.

Conceptual filters: These are filters or screens, such as attitudes, beliefs and values, through which incoming messages are processed, thereby transforming the original intended message. These filters cannot be observed directly but they can be inferred by examining behaviours following a certain stimulus.

Cosmopolite (or boundary spanner): An individual who has a relatively high degree of communication with people outside the organization.

Critical approach: One of the modern approaches in analysing communication in organizations, which takes a radical frame of reference and concludes that the theorist's job is to transform organizations by the emancipation of oppressed social groups.

Cultural approach: One of the modern approaches in analysing communication in organizations, which regards organizations as cultures, deriving from the field of anthropology, where for years academics have researched the cultures of nations, tribes or different ethnic groups.

Data: A set of facts, which are meaningless until collected and organized into a form that people can understand, analyze and use.

Data-carrying capacity: The degree to which a medium is able to effectively and efficiently convey task-relevant data. Data-carrying capacity of a medium is relatively constant across organizations. For example, email will have similar data-carrying capacity in various organizational environments.

Diagonal communication: The flow of organizational communication that occurs between people at different levels of the organizational hierarchy and in different departments.

Discommunication: The lack of acknowledging a movement (such as a facial spasm) as a communication message, which is different than when a message is misunderstood, i.e. miscommunication.

Downward communication: The flow of organizational communication that concerns messages and information sent from senior management to other members of the organization.

Dual-capacity model: One of the models that predict the extent to which various communication media will be used in accomplishing organizational tasks. This model suggests that communication media are not merely 'rich' or 'lean,' but that any communication medium transmits two kinds of messages: 'data' and 'meaning' (through symbols).

Electronic propinquity: A concept that examines how technological closeness (by means such as the telephone, videoconference or Internet) influences people's communication patterns. Electronic propinquity examines the bandwidth of communication technologies as important factors in relationship development. The larger the bandwidth, the more communication cues available. All other factors being equal, channels that supply more cues are more likely to foster interpersonal attraction and relationship growth.

Evaluation and control: The process by which corporate activities and performance results are monitored and actual performance compared with desired performance.

Feedback: The ongoing responses, comprising of both verbal and non-verbal cues, such as body language, that the receivers provide senders in the communication process. The purpose of feedback is to verify whether the receiver did interpret the message as the sender intended.

Gatekeeper: An individual who occupies a position in the network that allows controlling messages through a communication channel.

Grapevine: The informal organizational communication system that coexists with the formal communication system, referring to any communication that occurs outside the prescribed formal channels, and is thereby not limited by the formal structure of the organization.

Horizontal communication: The flow of organizational communication across chains of commands. It is also known as lateral communication or cross-communication.

Information: The set of conclusions from the processed data in a way that is meaningful and useful.

Information and communication systems (ICS): A term which expresses that organizational communication and information systems are interconnected, which also adds the informal aspect of organizational communication to information systems, thereby implying that the fields

of organizational communication and information systems should be united into one.

Information and communication technologies (ICT): Computer-based technologies used to support information and communication.

Information literacy: The ability to locate, manage, critically evaluate, and use information for problem solving, research, decision making and continued professional development.

Information system (IS): A structured set of procedures for processing, storing and distributing information, designed in such a way as to best serve the goals of the organization.

Information technology (IT): The convergence of all types of computer equipment, certain electronic (audio and video) equipment, all types of software developed for the use with computers, telecommunications equipment and software, and other automation techniques.

Institutionalization: A stage in strategic change when attempts are made to stabilize the change in state. It is at this stage that the innovation is no longer considered new or novel since it has become accepted as part of the normal practice within the system.

Interactional perspective: One of the views of the communication process in which the receiver is no longer regarded as passive. On the contrary, this perspective suggests that it is the receiver who decides whether a stimulus should be regarded as communication by providing the sender with ongoing responses called feedback.

Isolate: An individual who is usually outside the interactions carried on in networks.

Knowledge work system (KWS): A computer-based information system, which assists in producing and integrating new knowledge in the organization.

Liaison: An individual that interpersonally connects two or more cliques in a network but unlike the bridge is not a member of any of them.

Logical resistance: A resistance to change that is based on differences of opinion regarding the facts, rational reasoning, logic or science. Logical resistance occurs due to short-run costs, such as the actual time and effort required to adapt to change, including new job duties that must be studied. Therefore, although a change may be advantageous for employees in the long run, these short-run costs must first be considered. Even when managers use their most logical arguments and persuasion skills to support a change, they frequently discover that employees remain unconvinced of the need for it.

Management information system (MIS): A computer-based information system at the management level of the organization that serves the functions of planning, controlling, and decision making by providing routine summary and exception reports.

Media richness model: One of the models that predict the extent to which various communication media will be used in accomplishing organizational tasks. In this model communication channels are ranked

according to their richness, where face-to-face scores the highest because it supplies the maximal information in communication transmission.

Miscommunication: The unsuccessful transference of a message, which results in the message being misunderstood.

Mission change: This includes changes in the goals of an organization, even completely changing the offered product or service.

Network: A pattern of communication interactions which exist between organizational members who frequently interact. These interactions include matters regarding work, social issues and even ideas on innovation.

Network analysis: A means of studying organizational communication, which provides a reservoir of information, although, like a snapshot, it is truly accurate only for the instance of time which it was constructed. The purpose of network analysis is to map out the flows that move among the network's linked components (e.g., individuals, work groups, organizations). These network linkages are maintained through the communication medium known as modes. Also, network analysis allows the examination of informal communication, revealing the informal network, which can be compared to the formal organizational structure.

Opinion leader (or star): An individual that is able to influence other members in a network more than do others. Members of a network can become opinion leaders through their formal position or as a result of acquired informal esteem.

Organizational communication: A social and professional two-way long-term process, influenced by the position in the organization of those participating in it, through which information (such as facts, ideas, feelings and values) is transferred by any means, whether interpersonal, mechanical or even objects that carry symbols, between at least two people: a sender and a receiver. Although the goal of sender is to have the receiver understand the message as it was sent - and indeed such effective communication prevents misunderstandings - communication is what the receiver actually understands, not what was sent.

Personnel change: This comprises firing and hiring employees.

Planned change: A purposeful effort to change existing policies and practices to incorporate (a) new behaviours, values, or goals, (b) new technological innovations, (c) structural changes in the communication or authority systems of an organization, or (d) personnel changes that comprise firing and hiring employees.

Propinquity: A fundamental concept that examines how nearness in physical space (known as proxemics) influences people's communication patterns.

Psychological perspective: One of the views of the communication process, which accentuates the cognitive structures of the people involved (the senders and receivers). Accordingly, the focus of the psychological perspective is more on individuals than on channels or the process of transmission. This means that when holding this perspective it believed that the important events in communication occur in the minds of the individual participants.

Psychological resistance: A resistance to change that is usually based on emotions, sentiments, and attitudes. Employees may fear the unknown, mistrust management's leadership, or feel that their security and self-esteem are threatened. Employees also fear that the change will result in an increased workload for them.

Resistance to change: Any employee behaviours designed to discredit, delay, or prevent the implementation of a work change. Employees resist change because it threatens their needs for security, social interaction, status, or esteem. The perceived threat stemming from a change may be real or imagined, intended or unintended, large or small. Regardless of its nature, employees will to protect themselves from the effects of change. Their actions may range complaints, foot-dragging, and passive resistance to absenteeism, sabotage, and work slowdowns.

Self-efficacy: A judgment of how well one can execute courses of action required to deal with prospective situations, which is determined by levels of anxiety in addition to enactive and vicarious experience. Enactive experience refers to actual experience.

Social information processing model: One of the models that predict the extent to which various communication media will be used in accomplishing organizational tasks. In this model it is suggested that social information can not only influence perceived media characteristics or perceived task requirements, but this communicative interaction can also directly effect attitudes toward the communications media and media use behaviour. For example, an individual's use of electronic mail will also be influenced by interaction with others in the organization.

Sociological resistance: A resistance to change as a result of a challenge to group interests, norms, and values. Since social values are influential forces in the environment, they must be carefully contemplated. Also, on a small-group level, there are work friendships and status relationships that may be upset by changes.

Source data capture: A means of capturing data directly from the source, without the need to manually insert the data into the computer and thus turn the input process to an automatic one, such as a scanner that scans text and transfers the data into the computer. It is also known as Automatic Identification and Data Capture (AIDC) or as automatic identification (Auto ID).

Star (or **opinion leader):** An individual that is able to influence other members in a network more than do others. Members of a network can become stars through their formal position or as a result of acquired informal esteem.

Strategy implementation: The process by which management translates strategies and policies into action through the development of programs, budgets, and procedures. This process might involve changes within the overall culture, structure, and/or management system of the entire organization.

Structural change: In it there are changes in the authorities and relationships in an organization.

Symbol-carrying capacity: Organizational media, such as communication technologies, have the ability to convey meanings. This includes two types of meanings: (1) organizational culture - media can convey the core values and assumptions that constitute the organization's culture; and (2) organizational status - a communication medium can achieve the status of a symbol apart from the actual transmitted message.

System: A group of interrelated components that work together to achieve a common objective.

Systems approach: One of the modern approaches in analysing communication in organizations, which operates from the metaphoric concept that an organization is like an organism. Systems theory has been used to examine how communication inputs are transformed into outputs through management functions such as planning, organizing and leading.

Technology: The overall materials, methods, tools, activities and processes that are used in producing products and services (including those that assist indirectly in their production).

Technological change: This includes changes in work processes and introducing new technologies and new work methods.

Technophobia: A fear of computers, creating psychological resistance that may result in cognitive behaviour which limits the usefulness of such technology. Technophobia has also been referred to as computer anxiety.

Transaction processing system (TPS): A computer-based information system, which performs and records the daily routine transactions, serving the organization's operational level.

Transactional perspective: One of the views of the communication process, which looks at the event itself occurring between two or more people. The relationship created in this communication is seen as a system apart from the individuals themselves. By viewing communication as transactional implies that all participants in the communication process are simultaneously sending and receiving messages and are working together to create and sustain the meanings that develop.

Transmissional perspective: One of the earliest views of the communication process, known also as the actional perspective, which holds that communication is a linear, one-way flow of ideas and understanding information, focusing first and foremost on the transmission of information in the communication process.

Upward communication: The flow of organizational communication from employees to managers.

Wheel network: One of the most frequent networks where the manager is the centre of the team through which all information passes and through which members also communicate between themselves.

Preface

It is curious that this preface is in the opening part of my thesis, since it is one of the last things that I wrote. Indeed, the undertaking of a doctoral thesis has been for me first of all a journey in the world of writing. I came to this task with a lot of confidence, only to humbly learn that it takes a great deal of effort to achieve the high quality of academic writing required on a doctoral level. This apprenticeship in writing has been somewhat like climbing a mountain: very difficult but what a view! It was demanding in that it required focus and continuous self-discipline over several years, but definitely worthwhile, since it has given me the opportunity to read the works of many esteemed researchers. I feel that this has not only enriched my knowledge but has also contributed to my writing skills.

Today, I find that even when I'm writing an email, I am constantly thinking whether everything is clear for the reader. In my mind's eye I hear Prof. Peter Ribbins, my supervisor, telling me - as he often did throughout this research project - to be 'reader friendly'. It was an expression I had not heard before. Of course, I was familiar with the computer term 'user friendly', but I was still surprised that it was transformed into an idiom used in a skill that has existed thousands of years before computers: written communication. This is ironic, since I wanted in my thesis to research the effects of technology on communication, and did not expect to receive an example of this in the first meeting with my thesis supervisor.

Coincidentally, it was another example that started the whole idea for this doctorate on modern organizational communication. Since 1992 I

have been lecturing on various subjects such as statistics, information systems and project management in several Israeli institutions of higher education. In the late 90s, one of the organizations I was lecturing in was undergoing a period of extreme change since its new senior management decided to introduce communication technology into the organization. During a break, I fell upon a conversation between two secretaries that sounded something like this:

'What are we going to do if they bring in computers?' asked one anxiously.

'I don't know. I really don't know.' answered the other in an even more nervous tone. 'I guess we'll have to learn or else!'

They quieted down as I came into the room but their words echoed in my mind. I had just enrolled to Leicester University and was looking for a subject for my doctorate. As a lecturer in higher education, with a graduate degree in scientific management and an undergraduate degree in industrial engineering specializing in information systems, I had thought it a wonderful opportunity to unite three of my fields of interest: education, management and communication technology. I therefore see this doctoral thesis as a door to the world of academic research and the beginning of my own personal quest for knowledge.

I thus hope that whoever in the future reads this thesis will come out, as I did, with an improved understanding of the complex phenomenon of modern organizational communication.

Communicatively yours,

Mordechai Friedman

Acknowledgements

Although only one person receives a Ph.D. degree, a doctoral research project is built on teamwork. Since so many people helped me in completing this endeavour, I would like to apologize in advance if by accident I forgot any of them.

First of all, I would like to offer my most heartfelt thank you to Prof. Peter Ribbins. You have been not only my thesis supervisor but my mentor as well. My hope is that I will be able to pass to my students even a little of what I have learned from you.

Secondly, I would also like to thank all the wonderful people at Leicester University for their continuous support. To Prof. Tony Bush, who was my initial supervisor for several months before accepting a role in Reading University, I would like to thank for our time together. I would also like to thank Dr. Marianne Coleman who was the first representative of Leicester University whom I met in Israel. You were one of the main reasons I enrolled to Leicester University. I would like to thank all those who gave us captivating lectures in the winter and summer schools. In addition to Dr. Marianne Coleman, Prof. Tony Bush and Prof. Peter Ribbins, the lecturers included Prof. Les Bell, Prof. Clive Dimmock, Dr. Neil Burton, Dr. Robert Smith, Dr. Marlene Morrison (as a lecturer, I am constantly using the tips you gave us on how to lecture), Dr. Hugh Busher, Dr. Dan Robertson and Dr. Martin Cortazzi.

I would like to thank Dr. Jack Lumby. Your comments during the oral presentation of the progress review in the summer of 2001 were more

useful than you ever know. Also deserving gratitude are Mr. Roy Kirk and his wonderful staff at the library. I am extremely appreciative of all the administrative support that I have received throughout my studies at the university. This included help from Dr. Mark Lofthouse (who is now, among other things, responsible for the Israeli program), from Ms. Julie Hardisty (thank you for everything), from Mrs. Pat Carter, from Mrs. Julie Thomson, from Ms. Sandra Di Paolo and also from Mrs. Joyce Palmer, who was Prof. Bush's secretary and left when he did to start her own business. Again, since there were so many that helped at Leicester University, I would like to apologize if I left any of you out.

Thirdly, I would also like to thank all the participants of the Israeli institution of higher education who collaborated in this research project, especially its manager (whose name I cannot give in order to ensure anonymity) for allowing me to research his organization. Without their cooperation this study would not have been possible.

Finally, on a personal note, I would like to thank my family. First, a very special thank you is due to my mother-in-law, Mrs. Etty Redler, who not only helped us daily but even came with us to Leicester to all the summer schools. Without your help, I would have never been able to accomplish this doctoral project. I would also like to thank my four children, Shlomo, Tehila, Nathaniel and Inbar, for having patience when dad was working on his doctorate. Finally, I would like to thank my one true love, my wife Noga. Not only have you given me time to write up the doctorate by taking care of our four kids, but you were also the second reader of my drafts. This degree would not have possible without your never-ending support.

Chapter 1 – Introduction

> *Andrea sent an urgent request to a professional colleague across the country for a copy of a diagram she needed for a presentation later that day. "I'll fax it to you," Derrick responded. Each time he tried, however, a message appeared telling him that the fax transmission did not go through. After calling Andrea to explain this perplexing problem, she checked her machine and found it had run out of paper. Only after fixing the receiver did she obtain the needed message.*
>
> (Newstrom and Davis, 1993, p. 94)

In the ever-present activity of communication that exists everywhere in social life, the goal should always be not to 'run out of paper'. As one manager interviewed by Lumby (2001) put it: 'the game plan is to communicate and then communicate some more and when you have done that to communicate some more' (p. 102). Indeed, on average, managers are engaged in some kind of communication for about 70% of their working time (Bennett, Durand and Betty, 1990; Irmsher, 1996). By other estimates, communication seizes up even 85% of a manager's time (Adams, Todd and Nelson, 1993).

Communication may take various forms including speaking, listening, reading, writing, smiling, frowning, studying pictures, diagrams or charts, and using numbers instead of words (Evans, 1987). It may be carried out in order to 'inform, explain, persuade, reprimand, encourage, thank, appraise, propose, consult, apologize or praise' (Riches, 1994, p. 247). All this may be accomplished using traditional communication methods such as face-to-face meetings, or it may involve more modern methods of communication such as emails, the Internet or videoconferencing (Miller, 1999). It was these technologies that gave this research its purpose.

OUTLINE PURPOSE OF THE RESEARCH

The outline purpose of the following research was to analyze the organizational dimension of communication technology in an institution of higher education in Israel. This institution is part of an international university that operates in Israel, where the author of this research has been working as a lecturer. A relatively recent change in senior management created a strategic decision to increase the usage of communication technology in this organization. This created a situation that allowed studying a complex phenomenon, which researchers agree has hitherto received little attention in the literature (Riches, 1994; Lumby, 2001; Khalid, Swift and Cullingford, 2002; Selwyn, 2003).

Therefore, on the basis of the focus given by the outline purpose of the research, several issues will be addressed in the rest of the introductory chapter of this thesis. Firstly, several definitions of communication will be broadly examined. Secondly, communication technology and its effects on communication will be briefly discussed. Thirdly, the institution of higher education on which this case study is based will be introduced, including its students, lecturers, management and staff. Fourthly, since at this stage there is an understanding of the institution and of the key concepts on which this thesis is based, the detailed purpose of this study will be presented, including its research questions. Finally, an overview of the remaining chapters of the entire thesis will be offered.

COMMUNICATION

Although definitions and theories on communication will be presented in the literature review chapter, it might be helpful at this point to classify the different types of communication, so as to have a deeper understanding of the focus of this study. Riches (1994) classifies communication into three different spheres:

1. **Interpersonal communication** - the behaviour of participants when communicating information, involving verbal, non-verbal and listening behaviour. Teaching has its roots in such communication.

2. **Organizational communication** – there is a constant sending and receiving of messages between all members of an organization, creating a network of communication experiences. Analyzing this network is of key importance in schools and colleges.

3. **Basic mechanical aspects of communication** - the use of technological devices to transmit and receive messages.

Since this classification differentiates between interpersonal communication and organizational communication, it would seem that this thesis is focusing on only the last two categories defined by Riches: organizational communication and the basic mechanical aspects of communication, i.e. communication technology. However, organizational communication includes an interpersonal dimension (Conrad, 1994). Therefore, the effects of communication technology on both organizational communication and interpersonal communication will be researched in the chosen institution of higher education.

COMMUNICATION TECHNOLOGY

A detailed theoretical basis on the subject of communication technology in the context of organizational communication will be established in the literature review chapter. However, in order to further explain the focus of the study, it is necessary to give a brief overview of the rapid changes in communication technology and their effects on all organizations, including educational ones.

New Communication Technologies

In the modern world of higher education, more and more universities are entering the field of communication technology. As Ryan et al. (2000) note:

> *The educational world is changing rapidly. We are seeing the use of the Internet and Communications and Information Technology (CIT) becoming an important part of the learning and teaching strategies of many universities.* (P. 7)

Miller (1999) lists a non-exhaustive summary of organizational communication technologies introduced to the workplace in recent years:

- **Electronic mail,** through which a user may create a written document at a PC and send it to other users. The sent messages may be answered, filed or discarded.

- **Voice mail** provides the possibility to use the telephone to leave and retrieve voice and voice-synthesized messages. These messages can then be edited, stored and even forwarded.

- **Facsimile (known mostly as fax)** enables the transmission of document images to another location by means of telephone and computer technology.

- **Audio and video conferencing** allows participants at different geographical locations to participate in a group's meeting. These conferences may include voice, image, and even graphic material. Another novel application of communication technology is 'video-as-data'. In this the video image is used to transmit information about the work objects themselves, rather than information about participants, creating a dynamic shared workspace, and simulating a shared physical environment (Whittaker, 1995).

- **Computer conferencing** allows participants at different geographical locations the possibility of synchronous (online) or asynchronous (offline) participation in a conference on a specified topic. Participants can address messages to an individual conference participant or to all participants. Usually these conferences include the ability to poll participants and to maintain a transcript of the proceedings.

- **Management information system (MIS)** is the use of a computer system to store and integrate information from throughout the organization that may be retrieved and used in the process of decision making.

- **Group decision support system (GDSS)** is the use of computer and communication technologies that are configured to maintain data

sources, boost information capacity, and supply decision-making structures not only for individuals but for groups as well.

- **Local area network (LAN) and wide area network (WAN)** are networks of PCs that are linked together. This may be either among specific local groups (usually LAN) or among many members of the organization at different dispersed geographical locations (usually WAN) and thus allowing computer applications.

- **Internet** is an intricate worldwide system of telecommunications linkages among various computer facilities.

- **World Wide Web (WWW)** is the complex application on the Internet that allows spread access to graphics, information and gateways to other sites.

In this research the effects of several of these communication technologies on the chosen institution will be presented in the findings chapter. Furthermore, the different ways they are employed relative to the more conventional organizational communication tools will be analyzed in detail in the discussion chapter. However, at this point, it is enough to understand that these new communication technologies offer a wide array of interaction and decision-making possibilities that are substantially different from traditional ways of communicating. Their effects on organizational communication in an Israeli institution of higher education are the key focus of this research.

INSTITUTIONAL CONTEXT

In this section, first of all the competition in the Israeli system of higher education will be discussed in general. Then, the chosen institution for this study will be introduced, including two conditions of access, of which one explains the motivation of senior management in allowing this research to be conducted. This presentation of the institution will also include the institution's international connection, degrees offered in Israel, students of the university, lecturers (both Israeli and English-speaking) and the institution's local management and staff.

Competition in Higher Education

> *A huge population of new learners – estimated at millions more students in the next decade – would expand the total market for education and entice new competitors.* (Ryan et al., 2000, p. 12)

In Israel, as all over the world, there is an explosive demand for higher education (Meltz, 2001). This can be demonstrated in the period of 1990 up to 2001, where there was a yearly average increase in Israel of 8.2% in students enrolling to undergraduate degrees alone (Horovitz, 2002). This demand is the main reason why new ways to earn a university qualifications are being offered to potential students. The students may choose between the traditional Israeli universities/colleges and the newer extensions of international institutions. These extensions, in addition to conventional forms of studying, also offer courses through videoconferencing, online courses using the Internet and international lecturers that come to teach in Israel (such as American and English lecturers).

During the time period of this research (end of 2001 up to mid 2002), there were over 20 extensions of universities and colleges operating in Israel, of which most were British and American, but there were also extensions from South Africa, Australia and Russia (Council for Higher Education in Israel, 2002). The chosen institution in this research, as one of these many international universities offering various similar programs to Israeli students, was faced with the increased competition in higher education. Since at times only a slight difference in competitors is enough for some not to survive (Friedman, 1996), the chosen institution was therefore forced, like other Israeli institutions of higher education, to upgrade its services in order to continue to enrol students. One of the ways a university can survive in the competitive world of higher education is by increasing its quality through the use of communication technology to enhance its organizational communication. Indeed, the management of the chosen institution mentioned this when giving access for this research.

Conditions of Access

There were several conditions of access in order to obtain approval for the research (which will be presented in full within a more comprehensive discussion of ethical issues in the methodology chapter). One of the conditions stipulated that the management would be given the results of the study. These results are of key interest to them since they may be used to improve communication within the organization. Another condition of access was that the researched institution would remain anonymous. Therefore, a pseudonym has been given to the institution, calling it 'Business University', and its identifying details were omitted.

The Institution

Business University is an international university in an English speaking country focused on professional preparation with an emphasis on technology. It offers a wide range of majors from Business to Computer Information Systems. Students at Business University can spend a semester abroad, and foreign students from some 20 countries are currently studying at the home campus. There are also campuses in four other countries (Israel included) that allow students to earn Business University degrees without leaving their own countries. In each country, a local independent company, which pays Business University for the right to operate as its extension, runs each of these campuses. Students are also earning Business University degrees and taking courses through Business University On-line, the university's distance learning program, which allows students to take courses and earn credits from their own homes via the World Wide Web. These courses are available to students from any of the campuses, including Israel.

Business University in Israel

Since the middle of the 90s (a specific date was omitted in order to ensure the promised anonymity) Business University offers completion of undergraduate degrees in Israel through a contractual agreement with an Israeli company. Israeli students can earn Business University bachelor's degrees in Business or Professional Studies such as Software Development or Hotel-Restaurant Management. Classes are held at the Israeli campus of Business University in one central location with over a thousand students.

The Israeli Students

Over the last several years, there has been a shift in the population of students studying at Business University. In the beginning, the Israeli extension's main core of students was based on people substantially over 30 years old who were looking to complete a degree in order to advance financially in their workplace. These included mainly students of public-related institutions such as army officers, government employees and police officers. One of the key factors in determining wages in these institutions is an academic degree, which will grant its owner an immediate salary increase (Ritov, 2001).

However, the current core of students is of a younger age group of 20 to 29 years old, who are interested in the degree as a means of getting a job and not of advancing financially in an existing one. This is in accordance with existing trends in Israeli higher education. During the period of 1990 up to 2000, there was a 44% increase in undergraduate students of the age group 20 to 29 (Central Bureau of Statistics - The State of Israel, 2002). This increase in students has led to an increase in lecturers as well.

The Lecturers of Business University

There are two types of lecturers at Business University: Israeli lecturers and English-speaking lecturers from the mother institution. The Israeli lectures (of which the author of this thesis is a member) are freelance lecturers that are hired on a semester basis and hold a minimum of a graduate degree, as is required by Business University. The English-speaking lecturers from the mother institution are a necessity forced upon

Business University by the Israeli law. On February 1998, the 11th amendment to the Council for Higher Education Law was passed. It stipulated that in order to function in Israel, all extensions must get a license from the Council for Higher Education. One of the conditions of the license was that at least 30% of the studies are conducted by lecturers from the mother institution, either by face-to-face communication or through videoconferencing (Council for Higher Education in Israel, 2002).

In the past, the English-speaking lecturers from the mother institution would either stay in Israel for a semester or lecture through videoconferencing. However, since there is a high level of instability in Israel due to the security situation (Shalem, 2002), no English-speaking lecturers are coming to Israel as they used to in previous years. Therefore, communication technology is critical for Business University since it allows the English-speaking lecturers from the mother institution to lecture through videoconferencing. Without it, the management of the university would have a very difficult time in meeting the legal requirements that lecturers from the mother institution conduct a minimum of 30% of the studies.

Management and Staff

In this final section of the institutional context, the framework for presenting the management and staff of Business University is based on the Israeli company's management (as it was at the end of 2001 when research began). The management is divided into the following **six categories**:

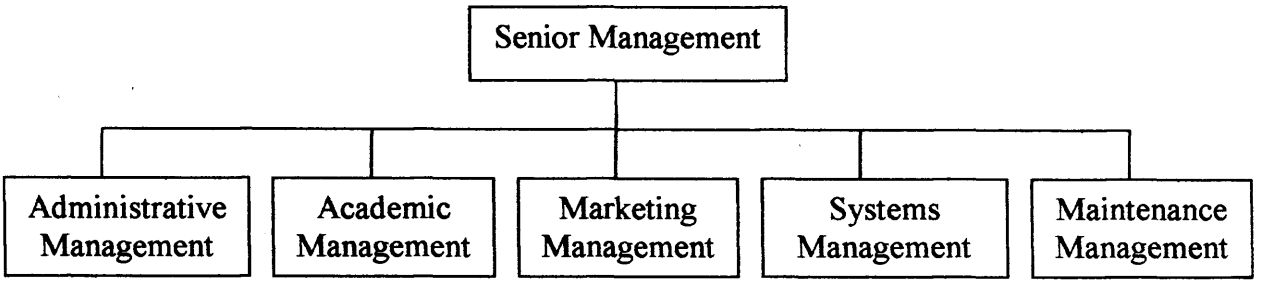


Figure 1.1: Business University's Six Categories of Management

Each of these categories will include the key persons in it, their responsibilities and the staff they manage.

The senior management is responsible for the strategic decisions regarding the direction of the Israeli extension of Business University. This includes the extent of use of communication technologies within the organization. Senior management is composed of the president of the company and the senior vice-president of operations and human resources, who are both relatively new managers at the university, i.e. the new regime. (Later, in the findings chapter, the recent history of Business University will be described, which will make clear what is meant by terms such as 'new regime' and 'old regime'.)

- **The president**, as the top manager of Business University, is essentially responsible for all aspects of its operations. He therefore regularly meets with the administrative, academic, marketing and maintenance management in order to be updated on current events regarding the university. He also holds a meeting with all the lecturers every semester where he informs them on strategic decisions and collects information from them at the end of this meeting through the questions and the demands they raise. In special cases that were not handled by lower levels of management, he even meets students. The

president has a secretary who is his 'right hand man'. She is responsible for almost all communications with the president, from leaving messages up to scheduling meetings with him.

Nevertheless, it may be said that although these internal duties are important, the president's critical functions are exterior to the organization. These include, for example, interacting with the Israeli Council of Higher Education, in order to ensure the continuous renewal of the license, without which Business University could not operate in Israel. The president is also in touch with the senior management of the mother institution, in order to make sure that they are satisfied, for they too could shut down the Israeli extension. Therefore, he is in constant communication with them, which is carried out not only by telephone, fax or email but, if necessary, by videoconferencing.

- **The senior vice-president of operations and human resources**, who at times fills in for the president (and is in continuous contact with him), performs some external functions, such as helping with the renewal of the license from the Israeli Council of Higher Education. However, his main focus is on the internal running of the company. His responsibilities include recruiting and firing employees; negotiating wages, including with lecturers; heading, with the academic management, students' discipline committees; receiving updates from the marketing department on student enrolment; purchasing equipment from a certain price level up; managing the finances with the company's accountants; and managing those directly under him.

Those under the senior vice-president's management are the dean, the administrative manager, the marketing manager, the academic manager, a junior vice-president, the head caretaker, two system managers of the IT department and two secretaries. (There are two librarians, who are also under his supervision, but not on a daily basis.) The two secretaries have a clear division of labour between them. One is responsible for his schedule (much like the president's secretary) and the other, who although she sometimes aids the first, is responsible for working with finances and accounting. The head caretaker, who is the manager of the maintenance department, reports directly to the junior vice-president. (His role will be elaborated in a few paragraphs, in the section on maintenance management.) The senior vice-president is responsible for overseeing the implementation of communication technologies at Business University, and is thereby the direct manager of the two system managers of the IT department, who are in charge of computerization at the university.

The administrative management is composed of the administrative manager, the deputy to the administrative manager, the finances manager and close to ten secretaries (including the personal secretary to the administrative manager), has various responsibilities that may be classified into four different categories:

- **Students' service**, which includes issues regarding the needs of the students such as a student's schedule each semester. There are three secretaries that perform this service. One is responsible for the career concentration in Business, another is for Software Development and the last is responsible for the remaining fields, (which are Travel and

Tourism; Hotel-Restaurant Management; and Public Relations and Media Communications).

- **Students' information** is responsible for the handling of all information and data regarding the students. This includes communicating students' grades not only to the students themselves, but also to the home office outside of Israel.
- **Lecturers' service**, which involves helping the lecturers perform their duties such photocopying requested materials, preparing transparencies or even simply supplying a lecturer with marker pens to write on the blackboard. There are two secretaries responsible for this.
- **Finances** which is responsible for both the salaries of the various employees (including the lecturers) and the receiving of payments from the students. In this they work in close contact with the senior vice-president's secretary.

The academic management is composed of the dean, the academic manager (who are both employed by the company running the Israeli extension of Business University) and academic coordinator, who was contracted directly by the mother institution. The academic coordinator is an Israeli who is responsible for assuring that the academic standards of the extension meet the standards of the mother institution. Since he is not an employee of the company running the Israeli extension, the local management cannot pressure him into lowering standards. This is the quality control that the mother institution imposes on any company wishing to open an extension of Business University. The division of authorities between the dean, the academic manager and the academic coordinator are as follows:

- **The dean** is responsible for student related problems, and thus is often approached by students on various issues. He is also a lecturer at the university and therefore has continuous contact with the students. It is important to note that his role is a representative one and, as such, he has no formal power over lecturers.
- **The academic coordinator**, in addition to his duties mentioned earlier, is responsible for the process of recruiting lecturers. This includes recommending candidates for lecturer positions at the university. Each candidate must not only have prior experience lecturing but also have at least a graduate degree in the relevant field he or she is applying to work in. However, the final decision regarding the acceptance of a lecturer to Business University rests within the hands of the home office, where there is one manager directly responsible for the Israeli extension.
- **The academic manager** is responsible for setting the academic standards of the extension demanded of the lecturers. This includes, for example, visiting classes in order to verify that the original syllabus from the mother institution is adhered to as is required by the 11th amendment to the Council for Higher Education Law. The fourth condition of this amendment stipulates that "all studies at the extension must be identical or only slightly different, from the studies conducted in the mother institution abroad" (Council for Higher Education in Israel, 2002). This means that if a lecturer decides to take the law into his or her own hands and develops a totally different course - even a substantially better one than that of the mother institution - the license of Business University could be revoked.

The dean, the academic manager and the academic coordinator have all worked at Business University before the period of the new regime, but

the academic manager was employed only as a lecturer and owes his job advancement to the new regime.

The marketing management is composed of the marketing manager, deputy-marketing manager, secretary, academic consultants and manager of the telemarketing department. The personnel of the telemarketing department include some students of Business University working part-time. Due to the nature of this part-time work, there have been great fluctuations in the overall marketing department. At times when student enrolment is at a peak (before the academic year, for example), the staff of this department could reach up to forty people. The only permanent people on the staff are the deputy-marketing manager, the telemarketing manager and, of course, the marketing manager.

The marketing manager is basically responsible for all aspects regarding the enrolment of students. This includes a constant search in the higher education market for new potential students for Business University. These potential students may then be approached (usually through telemarketing) and then invited to a consultation at Business University itself. He is also responsible for training his staff and is aided in this greatly by his deputy, who gives the professional lectures herself to the marketing staff. The marketing manager holds the responsibility for any communication technology in order to assist his department, but requires the signature of the senior vice-president of operations in order to purchase expensive equipment. Finally, the marketing manager came to the organization after the new management was already there, and therefore is part of the changes the new regime created.

The systems management is a small department of only two system managers. Their responsibilities include any technical computer-related issues, ranging from network equipment failure to teaching the staff how to use the new communication technologies available to them. Both did not work at the university before the arrival of the new regime, since there were almost no technologies to care for, and are consequently also part of the changes the new regime created at the university.

The maintenance management is composed of a junior vice-president, the head caretaker and the four people he manages in the maintenance department. Although the junior vice-president's job is defined in a similar way to that of the senior vice-president, manpower, his job actually involves purchasing all the materials necessary for the maintenance of the university. The head caretaker's job is to ensure the smooth running of the place. This includes verifying that each lecturer has all the educational aids he or she needs, such as overhead transparency projector, video, PowerPoint projector or even marker pens for the blackboard (if the secretariat runs out of them). He - and not the system managers - is also responsible for operating the videoconference rooms. (If there are technical problems he then turns to them for help.) He and his staff are also responsible for the daily cleaning of the lecture rooms and corridors. Except for the junior vice-president, all of the personnel of the maintenance department have been there before the new regime.

DETAILED PURPOSE OF THE RESEARCH

At this point, since there is an understanding of the institution and the key concepts on which this thesis is based, it is possible to go beyond the outline purpose of the research. The outline purpose, as defined in general at the beginning of this chapter, was 'to analyze the organizational dimension of communication technology in an institution of higher education in Israel'. Although this purpose was satisfactory in focusing the introductory chapter, it is insufficient in supporting the whole of this doctoral thesis. To be satisfactory in helping to shape the rest of the research in this thesis, not only must a more detailed purpose be set forth, but also there is a need for research questions, which will be presented in the following section.

In order to understand the context of the purpose of this research, it is important to appreciate the key event that lead to it. This research originated from a relatively recent change in senior management of Business University, as the aforementioned president (and 'his people') came into office. This created a period of intense change in which this new regime tried to introduce a much more sophisticated approach to its processes of communication (drawing upon advanced information technology and associated methods). This created a unique situation that in turn allowed the undertaking of an essentially qualitative research of a complex phenomenon.

Qualitative research is certainly needed on this subject. In general, Khalid, Swift and Cullingford (2002) maintain that there have been few studies that have explored in depth the ways in which information technologies

affect the workers in various organizations, stressing that 'there has been a significant lack of qualitative studies' (p. 259). In an educational context, there has been a lack of books, and even references, which discuss communication (Riches, 1994). Not only this, but as Lumby (2001) stated:

> *Understanding of how the use of computerized systems is profoundly effecting communication is only just beginning to be grasped. There is and will be change. How far the change will represent an improvement in communication has yet to be researched.* (P. 106)

Therefore, since this study hopes to increase the empirical knowledge on modern organizational communication in higher education, **the detailed overall purpose of this research** is:

- To research the effects of communication technology on organizational communication in an institution of higher education in Israel over time [or before, during and after a period of major change], including as perceived and enacted by selected members.

The research will be presented in the form of a case study that may be thought of as a natural history in a series of three basic phases:

1. The old regime and its attitudes to communications and communication technology at Business University.
2. The new regime in its early days and its attempt to improve communication through the use of communication technology.
3. The current effects of communication technologies on organizational communication at the university, and thus the success of this attempt.

This natural history was central in the planning of the research questions, which are presented next.

Research Questions

In planning and creating the research questions, it was useful not only to take into account the three phases of this natural history, but aspects of enactment and perception were considered as well. The advantage of being able to research what actually occurred in a situation, its enactment, is that this allows producing data directly from its source, without any contaminated factors that intermediate between the researcher and the researched subject (Nachmias and Nachmias, 1997). However, it is not always possible to study what actually occurred. For example, it is impossible to go back in time to observe participants' actions. Consequently, it was not always possible to claim enactment in this thesis and in part it is limited to the perceptions of the participants.

Gibson and Hodgetts (1991) generally define perception as 'a person's view of reality' (p. 87). They also give several categories of perception including normative perception and selective perception. Normative perception involves interpreting reality and thereby deals with opinions and personal preferences (Gibson and Hodgetts, 1991). In selective perception, a person filters what is being seen and heard as to suit his or her own needs (Gibson and Hodgetts, 1991). These perceptions create distortions in memory, resulting in a situation that when participants are asked to report past behaviors, these distortions may meaningfully influence the data (Nachmias and Nachmias, 1997). Therefore, the research questions will also address issues of enactment and perception.

Furthermore, a substantial amount of time, due to continuous revisions, was put into developing the actual wording of the research questions, since 'defining the research questions is probably the most important step

to be taken in a research study' (Yin, 1994, p. 7). A valuable aid in this process was ensuring that the research questions would include descriptive questions, analytical questions and theoretical questions. A descriptive question portrays what happened at the university, while an analytical question examines why it happened. A theoretical question considers what can be generally learnt from this situation. Consequently, from the following **six key research questions**, the first four are descriptive ones, the fifth is an analytical one and the sixth is a theoretical one:

1. What were the past patterns of communication at the university before the change in senior management, including the attitudes of the former senior management towards communication technology, mainly as perceived by selected members?
2. What were the patterns of communication at the university immediately after the change in senior management and how did the new senior management attempt to introduce modern communication technology to the organization, mainly as perceived by selected members?
3. What are the current patterns of communication at the university, focusing on communication technology and its effects on organizational communication, as both enacted and perceived by selected members?
4. How successful is the communication technology system at the university, as both enacted and perceived by selected members?
5. Why did the communication technology system develop at the university to its current level of success or failure?
6. What possible relevance does this research have for other organizations of higher education?

Although these research questions are relatively detailed, they were created before the literature review was undertaken, and consequently they require additional development through the addition of subsidiary research questions. As Yin (1994) put it:

> *Budding investigators think that the purpose of a literature review is to determine the answers about what is known on a topic; in contrast, experienced investigators review previous research to develop sharper and more insightful questions about the topic.* (P. 9)

Therefore, in order to further refine these research questions, it was essential to examine what others have discovered on the relevant issues in the following second chapter of this study, the literature review. These issues will also be broadly presented next in an overview that includes the literature review as well as the rest of the chapters of the thesis.

OVERVIEW OF THE THESIS

The thesis is composed of the following remaining chapters:

- Chapter 2, the **literature review**, will focus on the following two major themes: organizational communication and communication technology. This includes conceptual literature, such as the various definitions of communication, and empirical literature, both international and specific to Israel. The literature review will end with an overview that includes a conceptual framework and the refined research questions, setting the stage for the methodology chapter.

- Chapter 3, the **methodology,** on the basis of the research questions, will present the planning of the undertaken qualitative research in the form of a case study. The methods of collecting data -

interviews, documentary analysis and observations - will be offered. Aspects of generalization will be discussed as well as the data analysis strategies used. Issues regarding reliability, validity, trustworthiness, triangulation, ethics and access will also be discussed in this chapter.

- Chapter 4, the **findings**, will give a description of the collected data on the effects of communication technology on organizational communication in the chosen institution of higher education for the case study. This data will then be linked to the issues outlined in the first four research questions. The findings will be presented in part as a natural history that includes the old regime's attitudes to communication technology, the new regime in its early days attempting to implement communication technology and the success of this attempt.

- In chapter 5, the **discussion**, in the context of the fifth research question, the findings on the effects of communication technology on organizational communication will be scrutinized in terms of what they mean. Then, they will be compared to the conceptual and empirical data in the literature review chapter.

- Chapter 6, **conclusions and recommendations**, in the light of the sixth research question, will attempt to theoretically contribute to modern organizational communication in higher education and its use of communication technology. Finally, new directions for further research will conclude the thesis.

Chapter 2 – Literature Review

INTRODUCTION

> *Scientific research is not an activity of isolated hermits who ignore others' findings. Rather, it is a collective effort of many researchers who share their results with one another and who pursue knowledge as a community.* (Neuman 1997, p. 89)

By reviewing the collective effort of the relevant literature, the following chapter will present the theoretical and empirical materials that shaped the educational research conducted in this thesis, thereby enabling its effective conclusion at all levels. In educational research, the literature review is considered as a preparatory stage to gathering data and serves to acquaint researchers with earlier related research, enabling them to continue in a tradition, to place their work in context and to learn from previous undertakings (Cohen and Manion, 1994). Learning from other researchers does not only reveal procedures, techniques and research designs worth replicating, but it also stimulates new ideas that allow the gaining of new insights (Neuman, 1997).

However, in order to achieve this learning from other researchers and the stimulation of new ideas, the literature review must be focused. Rudestam and Newton (1992) argue that a good literature review is selective and that the majority of source material read will not make it directly into the literature review. Therefore, the first issue that must be addressed in a literature review, according to Rudestam and Newton (1992), is to state the purpose of the research, so as to clarify the review's direction in building a coherent argument leading to the description of the research.

The purpose of this research was defined as 'to research the effects of **communication technology** on organizational **communication** in an institution of higher education in Israel over time [or before, during and after a period of major change], including as perceived and enacted by selected members'. Consequently, based on this focused purpose, the two distinct bodies of literature that were selected for this review are:

- Communication (including organizational communication), and
- Communication technology (including its organizational effects).

Each of these two sections will seek to include a comprehensive and critical analysis of the relevant international and Israeli literature, as well as an explanation of how each section has influenced and shaped this project conducted at Business University, including the theories that were adopted for this research.

The first section will thus examine theories in communication, so as to set out a firm theoretical basis for the whole of the thesis. Since the research will focus on communication at Business University, there is a deliberate concentration on organizational communication. Due to the lack of books and references that discuss communication in an educational context (Riches, 1994), it has been necessary to mainly resort to standard organizational communication texts and to interpret them in the context of higher education.

In the second section, the review of the various communication technology theories and previously published research will be presented. A comparison will be undertaken of key terms for this thesis such as information versus data, information systems versus organizational communication and the relationship between information technology and

communication technology. This will allow the introduction of a definition of communication technology created for this research at Business University. Once this definition is in place, four models of organizational communication media selection will be introduced. Subsequently, a discussion on the effects of communication technology on organizational communication will be performed. Implementing communication technology and the resulting organizational change will follow. The costs and benefits of communication technology will then be discussed. Since the decision to implement communication technology at Business University was a strategic one, this part will present a strategic model in the adoption of a new technology. After this, user resistance to communication technology will be introduced, categorized into three different kinds of resistance to change: logical, psychological and sociological. This will also include computer/information literacy and computer anxiety. The connection between organizational communication and resistance to communication technology will conclude this section of the literature review.

Finally, since one of the objectives of a literature review is 'to integrate and summarize what is known in an area' (Neuman, 1997, p. 89), an overview of the literature review will be offered, which will provide a fuller conclusion to chapter as a whole. This overview will first put forward the conceptual framework that was the theoretical and empirical basis for this study. This will then allow refining the research questions, leading to the report of the conducted research, which will be presented in the third chapter of the thesis, the methodology chapter.

COMMUNICATION

Since the purpose of this thesis was to research the effects of communication technology on organizational communication in an institute of higher education, this section will focus on the subject of organizational communication. However, since organizational communication is a specific case of the general term 'communication', and because 'communication provides a basis for understanding virtually every human process that takes place in an organization' (Steinberg, 1996, p. 98), this section will be divided into two parts. The first part of this section will concentrate on **communication,** thus laying the foundations for its second part on **organizational communication**.

In this initial part of the section, several different definitions of communication will be presented and reviewed, so as to synthesize a definition for this study. (This chosen definition will be compared in the discussion chapter to definitions of the various parties at Business University of communication, so as to refine the definition of communication further in this thesis.) Also, in this section, models of communication will be introduced including the linear actional view, the psychological perspective, the interactional model and the transactional model. Each of these models will be critically examined in order to show how they have influenced this research project at Business University.

The second part of this section - organizational communication - will take the form of a brief account of the history of organizational communication and a critical review of the definitions of organizational communication. This includes the introduction of the following formal types of organizational communication: upward communication,

downward communication, horizontal communication and diagonal communication. This will be followed by a discussion of some of the major contemporary theories/schools of thought in organizational communication. The approaches to organizational communication that were reviewed in order to choose one for this research are the critical approach, the cultural approach and the systems approach that includes network analysis. Finally, this section will conclude by introducing the most frequent informal networks: the 'wheel', the 'circle', the 'chain' and the 'all-channel'. (In the discussion chapter, these theoretical network models will be the basis of comparison with the existing communication network at Business University. Since the influences of communication technology on informal communication in higher education have hitherto received relatively little attention in the literature, this comparison will also include informal communication.)

Definitions of Communication

Although people communicate on a daily basis and Watzlawick, Beavin, and Jackson (1967) even suggest that people 'cannot not communicate' (p. 49), defining communication is not a straightforward task. In this study at Business University, the task was to define communication in the context of higher education. However, as Riches (1994) pointed out, there is a lack of books and even references which discuss communication in an educational context. For example, according to Lumby (2001) 'there is little research to date on how communication strategies in further education are formed and evolve, and how they are experienced in practice' (p. 114). Therefore, in this research, it has been necessary also to resort to standard organizational communication texts that will be interpreted in the context of higher education.

Communication and education are interconnected. According to Salomon (1996), education is not a concept by itself but is an act of communication that without it the process of education could not be performed. This does not mean that education and communication are identical but rather they are interdependent, since education is an essential process in creating the social foundation necessary for communication. Salomon (1996) argues that 'a lot, of course, depends on the way we define and understand the concept of communication' (p. 9). Therefore, not only is there no one clear and universally accepted definition of "communication" but, according to Lustig and Koester (1993), it is also difficult to define since it has been used for varied and often inconsistent purposes, resulting in disagreements about its "correct" meaning. For example, research by Dance (1970) has identified 15 conceptual components of the term. Hence, so as to develop a classification of communication for this research at Business University, several definitions of communication will be critically reviewed subsequently.

One definition offered by Rasberry and Lemoine (1986) is 'sorting, selecting, forming and transmitting symbols between people to create meaning' (p. 23). This definition primarily focuses on the one-way transmission of messages. It does concentrate on the fact that when people communicate they influence one another as suggested by the following definition:

> *The exchange and sharing of information, attitudes, ideas and emotions.* (Windahl, Signitzer and Olsen, 1992, p. 221)

Although, when compared to the first definition, this definition is somewhat more inclusive by proposing that the communication process is made up of various levels including even emotions, it does not discuss

the results of communication. Therefore, it would be useful to examine the definition proposed by Salomon (1996):

> *Communication, in its most general understanding, is the process through which information is transferred between human beings, meaning – the process through which human beings influence one another, creating a basis for social conventions and "a social reality" that guides them in the world.* (P. 9)

This definition is more complete in including not only the transmission of messages suggested in the first two definitions and the mutual experience implied by Windahl, Signitzer and Olsen, it also states the social results of these transmissions. Also, since social conventions and the guiding "social reality" are the foundations of education, Salomon is indicating the interconnection between communication and education, which is developed later in his book. Salomon (1996) argues that the process of education in a specific culture creates, through the use of communication, a foundation of knowledge, values and meanings that is used to give an agreed interpretation of new messages.

Salomon's definition has something in common with the previous three definitions. They are all implying that for an activity to be described as communication, successful transmission of the message must take place. However, they do not address the problems arising when the message is not transferred successfully and there is miscommunication. A more complete definition can be found in Newstrom and Davis (1993):

> ***Communication*** *is the transfer of information from one person to another person. It is a way of reaching others by transmitting ideas, facts, thoughts, feelings, and values. Its goal is to have the receiver understand the message as it was sent. When communication is effective, it provides a bridge of meaning between the two people so that they can each share what they feel and know. By using this bridge, both parties can safely*

> *cross the river of misunderstanding that sometimes separates people.* (P. 91)

This definition examines (even if in a somewhat poetic fashion) miscommunication and the misunderstandings it creates. In higher education institutes, such as Business University, miscommunication could result in low quality service to the customers (i.e. the students), damage to working relationship between management and employees or unsuccessful public relations, to name but a few examples. The definition by Newstrom and Davis also suggests, unlike the other definitions, that it is the attempt to transmit a message, which determines if something is considered communication – even if the meaning of the message is not delivered! They do not, however, suggest that an attempt can be made by one individual, a sender, without an individual at the other end, a receiver. After all, the word "communication" is derived from the root "community" that expresses the idea of people holding something in common and consequently, communication is not a solitary activity (Neher, 1997). Newstrom and Davis (1993) stress that:

> *Communication always involves at least two people - a sender and a receiver. One person alone cannot communicate...The relationship is not so obvious to managers who send out bulletins to employees. They tend to think that when their bulletins are sent, they have communicated; but transmission of the message is only a beginning. A manager may send a hundred bulletins, but there is no communication until each bulletin is received, read, and understood.* ***Communication is what the receiver understands****, not what the sender says.*
> (P. 91)

By understanding that communication is also what 'the receiver understands' the researchers exhibit the modern thinking on the subject of communication. According to Riches (1994), today there is movement from the linear model of communication (source-sender-message-

channel-receiver model) to the idea of communication as a mutual experience. Riches (1994) argues that the process of communication should be considered a two-way occurrence involving whole personalities to varying degrees. Based on this and by synthesizing the reviewed definitions, communication was defined for this study at Business University in the following way:

- Communication is a social two-way process through which information (such as facts, ideas, feelings and values) is transferred by any means, whether interpersonal or mechanical, between at least two people: a sender and a receiver. Although the goal of sender is to have the receiver understand the message as it was sent - and indeed such effective communication prevents misunderstandings - **communication is what the receiver actually understands**, not what was sent.

This definition stresses first of all the fact that communication is a social activity between people, no matter how it is carried out. Since the purpose of this study was 'to research the effects of communication technology on organizational communication', this definition is important in demonstrating that communication technology is only one amongst a number of channels that allow people to communicate. This further sharpened the understanding that the main focus of this research is not technology but rather people communicating in modern settings that include technology. Additionally, this definition, like the one offered by Newstrom and Davis (1993), emphasizes that communication is in the eye of the beholder (or receiver in this case). Although this also implies that currently there is a shift from the linear perception of communication to the idea of communication as a shared experience, it is done from a bird's view and there is need of a model that presents a deeper understanding of the communication process.

Models of Communication

In order to comprehend the shift in modern thinking from the linear model to the perception of communication as a mutual experience, the following models that represent the communication process will be reviewed: the linear actional model, the psychological perspective, the interactional model and the transactional model. A more comprehensive definition of communication and its effects on the conducted research at Business University will conclude this section leading to the next section, organizational communication.

Actional Perspective - According to Lustig and Koester (1993), some of the earliest views of the communication process were actional ones. The actional view (known also as the transmissional perspective) held that communication was a linear, one-way flow of ideas and understanding information. The focus of this view was first and foremost on the transmission of information in the communication process. For example, possibly the earliest model ever of this process is the one offered by the Greek teacher, Aristotle, who hypothesized a simple model for the communication process (Neher, 1997):

Speaker (Source) --- Message (Speech) --- Audience (Receivers)
(P. 42)

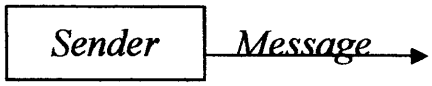
This simple communication model can be also found in the more modern writings of Riches (1994):

e.g. drama teacher rehearsal after school all the cast of the play

(P. 247)

Figure 2.1: Simple Communication Model

Since the focus of these models was on the transmission of information in the communication process some of these earliest actional models did not even include the receiver of the message (Lustig and Koester, 1993):



(P. 30)

Figure 2.2: An Actional View of Communication

Although later, according to Lustig and Koester (1993), actional models added the receiver at the end, these simple one-way linear models present some difficulties in the analysis of the communication process. First of all, argues Salomon (1996), communication can take place even when no one meant to transmit anything. In this, Salomon is insinuating that a lack of action could also send a message in an unintentional manner. Consequently, it was important to study at Business University not only what was transmitted to the various participants on communication technology but also what was not transmitted, since a lack of planned messages at the university is also a form of communication that could result in participants understanding exactly the opposite of what management intended.

Secondly, the linear model assumes that if a message was transmitted from the sender to the receiver communication took place (Salomon 1996). However, certain things that were said or presented and are not attributed to intended communication are therefore not communication. For example, if students do not attribute to a facial spasm by a lecturer any meaning of communication, then it did not hold any message for them, even if the lecturer was actually expressing discontent with the

students. This lack of acknowledging a movement as a communication message is defined by Schneller (1997) as discommunication, which is different than when a message is misunderstood, i.e. miscommunication.

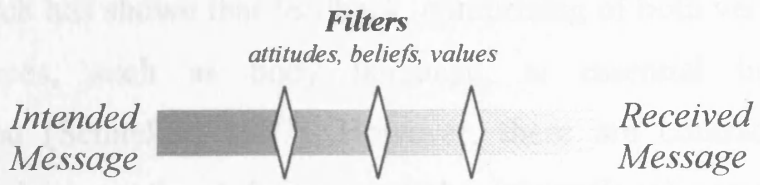
Thirdly, relationships between people are part of communication, even if none of them has any intention of transmitting anything (Salomon, 1996). These relationships are also affected by non-verbal communication signals that probably communicate more feelings and intentions than through all the verbal methods combined (Tortoriello, Blatt and DeWine 1978). According to Salomon (1996), there is a relationship of interdependence, since the communicational behaviour of one individual is both influenced by and influences the communicational behaviour of the other individual. Fourthly, the linear model assumes that the process of communication has a clear beginning (a message created by the sender) and a clear ending (a meaning interpreted by the receiver) which it does not have (Salomon, 1996), because human communication is not linear (Lehman-Wilzig, 1997). It also assumes a passive receiver that does not search for messages, does not select messages and does not attribute to these messages his or her meaning (Salomon, 1996).

Finally, the linear model describes an act of communication in empty space without any context (Salomon, 1996). However, communication is always within a certain context. For example, sentences said by a lecturer are in a certain context (a lesson), while this context is in a wider context (a university) that is even in a wider context (university's role in society) and so on. Therefore, in order to describe communication, Salomon (1996) recommends that it should be discussed in two complementary perspectives: the **psychological perspective**, which

includes what is used as communication and how meanings are produced, and the **social perspective**, which is used in social systems involving people.

Psychological Perspective - Neher (1997) compares the actional perspective, which focuses on the movement of a message through a channel, to the psychological perspective that accentuates the cognitive structures of the people involved (the senders and receivers). Accordingly, the focus of the psychological perspective is more on individuals than on channels or the process of transmission. This means that when holding this perspective it believed that the important events in communication occur in the minds of the individual participants. Therefore, in order to comprehend communication, an analysis must be undertaken of communicators' mental constructs such as beliefs, attitudes, values or psychological needs.

Neher (1997) also argues that the major aspects in communication are the **conceptual filters**, such as attitudes, beliefs and values, through which incoming messages are processed. These filters or screens cannot be observed directly but they can be inferred by examining behaviours following a certain stimulus. The conceptual filters transform the original intended message:



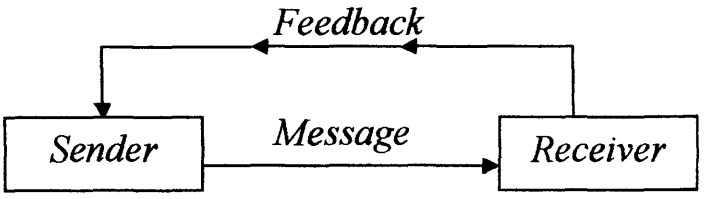
(Neher, 1997, p. 47)

Figure 2.3: Conceptual Filters in Communication

Therefore, Neher (1997) suggests that breakdowns in communication are

generated internally as incoming messages pass through the individual's conceptual filters.

Interactional Perspective - This perspective is based on the fact that the receiver is no longer regarded as passive (as assumed by the actional view of communication). On the contrary, according to Salomon (1996), the interactional perspective is dependant on the psychological perspective, which suggests that it is the receiver who decides whether a stimulus should be regarded as communication. Lustig and Koester (1993) state that the interactional perspective includes the receiver in the communication process as receivers provide senders with ongoing responses called feedback:



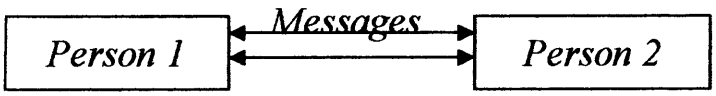
(Lustig and Koester, 1993, p. 30)

Figure 2.4: An Interactional View of Communication

Feedback is considered an essential part of the communication process (Schneller, 1997), and its purpose is to verify whether the receiver did interpret the message as the sender intended (Globerson and Carmi, 1988). Research has shown that feedback, comprising of both verbal and non-verbal cues, such as body language, is essential in class communication (Schneller, 1997). However, there are contradictions among researchers on the definitions of the interactional perspective. Some, such as Byers (1997), continue to perceive the interactional model as one person sending a message while the other receives and then they change roles. Others argue that the interactional perspective is much

wider in concept and could even be labelled, as proposed by Neher (1997), the "sociological" perspective, for many of the theorists supplying its theoretical basis are sociologists. According to Neher (1997), the psychological perspective emphasizes the individual while the interactional perspective emphasizes the group, social network, society, or culture.

Transactional Perspective - The former two perspectives, the psychological and the interactional, concentrated on persons involved in communication whether as individuals or as groups. The transactional view of communication looks at the event itself occurring between two or more people. The relationship created in this communication is seen as a system apart from the individuals themselves (Neher, 1997). By viewing communication as transactional, according to Lustig and Koester (1993), implies that all participants in the communication process are simultaneously sending and receiving messages and are working together to create and sustain the meanings that develop:



(Lustig and Koester, 1993, p. 29)

Figure 2.5: A Transactional View of Communication

Lustig and Koester (1993) argue that due to the limitations of the actional and interactional models, the transactional view was created and it is different from the other models in two ways:

a. The objective of communication is not only to influence or persuade others but could also be improving one's knowledge or negotiating shared meaning.

b. The transactional view acknowledges the fact that there are no such entities as pure senders or pure receivers, since in any one moment multiple messages are being transmitted simultaneously.

Since messages are constantly transmitted in reality Fisher (1978) regarded the transactional view as the practical perspective and related it to systems theory that will be discussed later in this chapter and is the theoretical basis for the research undertaken at Business University. Therefore, at this time it would be useful to consider a definition of communication that takes the transactional perspective. Lustig and Koester (1993) offer such a definition by characterizing communication as 'symbolic, interpretive, transactional, contextual process in which people create shared meanings' (p. 25). Although this includes a transactional perspective of communication, it is does not seem very comprehensive. However, as Lustig and Koester (1993) elaborate on the terms offered in their definition, it becomes much more so:

Communication is symbolic. Symbols, such as words, actions, or objects, are vital to the communication process because they represent the shared meanings that are communicated. Therefore, a message is composed of symbols that are used to create shared meanings. The concept of symbols helped to shape the research at Business University in pointing out that symbols are not only words or actions as discussed earlier in this chapter, but objects as well. It is important to bear in mind that a new computer on someone's desk, for example, is also sending a message. Therefore, this influenced the research into including aspects regarding objects as part of communication and also how others interpret them.

Communication is interpretive. In the communication process people must interpret the symbolic behaviours of others (the messages) and assign significance to some of those behaviours in order to create a meaningful account of the others' actions. Since messages do not even have to be consciously or purposefully created with the specific intention of communicating a set of meanings, it is possible that one person in a communication transaction will not necessarily interpret the messages in exactly the same way as the others do. This view that communication is interpretive is somewhat reminiscent of the conceptual filters offered by Neher (1997) in the psychological view of communication, although it does not describe how misinterpretations occur as the psychological view attempts to do.

Communication is contextual. All communications occur within a setting or situation called a context that imposes a "frame" or reference point around communication experiences. This allows people to interpret what specific actions could mean, what behaviours are to be expected, and how to act appropriately and effectively in a particular interaction. A context is the place where people meet, the social purpose for being together, and the nature of the relationship. Therefore, the context includes the physical, social, and interpersonal settings within which messages are exchanged. This is in accord with Salomon (1996), who stated that communication is always within a certain context. The context at Business University is a period of extreme change stemming from several directions including new management, modern communication technology and even changes in the Israeli higher education system (noted in the introduction chapter). All these simultaneous changes are a part of what made this study unique.

Communication is a process. Viewing communication as a process implies that communication is dynamic since processes are changing, moving, developing and involving. Communication events, which involve both past experiences and expectations about future interactions, are therefore always moving and changing. Communication events are also unique, since identical experiences can take on extremely different meanings during the different stages of the communication process. Consequently, the very same message may be interpreted quite differently when said at different stages of this process. Thus, at Business University, it was researched whether similar actions by the new and old regime were interpreted differently.

Communication involves shared meanings. As suggested by the interpretive and transactional nature of communication, correct meanings are not just "out there" to be found. Therefore, as people participate in the ordinary and everyday activities, which form the context for common interpretations, they invent or create meanings, including the meanings that were put at Business University on communication technologies.

Although this definition by Lustig and Koester (1993) is rather inclusive, helps to shape the research at the Business University and creates a theoretical foundation for further discussion on the subject of communication, it is not specifically focused on organizational communication. Thus, the next section will elaborate on the organizational aspects of the communication process.

ORGANIZATIONAL COMMUNICATION

Communication itself could be considered a long-standing area of academic research, but, as Neher (1997) maintains, organizational communication is a relatively new field of academic study and inquiry that grew out of business speech or business communication in the early 1950s. Its focus was initially on business, with emphasis on improving one's skills in performing specific business communication activities. However, in time, according to Neher (1997), the field of organizational communication has expanded beyond the primary practical concerns. It was recognized that this field is applicable to many modern organizations outside of the business world such as universities, governmental agencies, non-profit agencies or professional societies. Therefore, researchers have tried to develop generalizations about organizational communication that are relevant to different kinds of organizations (Neher, 1997). Since the focus of this study was the effects of communication technology on organizational communication in an institute of higher education, Business University, these generalizations will be viewed in the context of higher education.

In this section various definitions of organizational communication will be reviewed. Then, the importance of informal communication in organizations and to this research will be discussed. Next, the different types of organizational communication flows will be presented in context of the study at Business University: upward communication, downward communication, horizontal communication and diagonal communication. Finally, in the last part of this section on organizational communication, various modern approaches to organizational communication will be examined and the chosen approach, the systems

approach, will be discussed in the context of network analysis, including informal communication networks, and its importance to the undertaken research at Business University.

Definitions of Organizational Communication

Conrad (1994) defines organizational communication as 'a process through which people, acting together, create, sustain, and manage meanings through the use of verbal and nonverbal signs and symbols within a particular context' (p. 3). Although Conrad (1994) highlights in this definition the words 'people', 'acting together', 'meaning' and 'context', there is no emphasis on the word 'organization'. The dependence of organizations on communication cannot be overstressed, since 'communication has been called the lifeblood of an organization' (Steinberg, 1996, p. 98). Newstrom and Davis (1993) even argue that 'organizations cannot exist without communication' (p. 92).

Therefore, since the focus of this study is the effects of communication technology on organizational communication, it is vital to define communication within an organizational context. Such a definition may be found in Byers (1997) that conceives organizational communication as composed of behaviours and symbols that are 'generated either intentionally or unintentionally, occurring between and among people who assign meaning to them, within an organizational setting. Organizational communication allows us to explain what individuals in organizations do, how they do it, and what effect it may have on the receiver' (p. 4).

Although this definition is useful in stating that organizational

communication is method of explaining individuals' behaviours, it is, however, similar to some of the definitions of communication introduced earlier in this chapter. It only adds the organizational context to communication without describing or classifying the differences between the general term communication and the more specific term organizational communication. Thus, since the focus of this study at Business University is on organizational communication and not just on communication in general, it is necessary to further differentiate between the two related terms.

One key difference between communication in general and organizational communication is that organizational communication includes two dimensions of communication: formal communication and informal communication. According to Conrad (1994), people communicate at work due to fondness of one another and not just due to the task at hand. The difficulty in organizational communication, as opposed to communication in general, is that at work people are constantly trying to decide on the appropriate "mix" of these two dimensions (Conrad, 1994), and thus 'informal meetings are as important as formal ones' (Irmsher, 1996, online).

Informal Organizational Communication

The organizational importance of informal communication, which is a form of interpersonal communication (Palonen and Lehtinen, 2001), must not be overlooked, since it is complementary to an organization's formal communication (Miller and Bar-Haim, 1994). Gibson and Hodgetts (1991) even argue that if employees were limited to the formal

communication channels, the operations of many firms would cease in the absence of managers. Therefore, any research in the field of organizational communication, such as the one undertaken at Business University, must address informal communication, which is usually referred to as the grapevine.

The term 'grapevine' has used since the American Civil War, where telegraph lines were strung through trees and accordingly named 'vines', which frequently generated distorted messages, and as a result, any rumour was said to be from the grapevine (Newstrom and Davis, 1993). Currently, this term describes the informal organizational communication system that coexists with the formal communication system (Newstrom and Davis, 1993). Since the grapevine refers to any communication that occurs outside the prescribed formal channels (Gibson and Hodgetts, 1991), it is thereby not limited by the formal structure of the organization (Miller and Bar-Haim, 1994).

These communications outside prescribed formal channels, according to Gibson and Hodgetts (1991), help in getting the work done. An example of the degree to which informal information communication channels play an important role in the daily lives of organizations can be found in the research conducted by Akintunde and Selbar (1995). This case study focused on the pattern of communication between library staff at two Nigerian university libraries: Abubakar Tafawa Balewa University (ATBU) and Jos University (UNIJOS). It was discovered that although there were some differences in formal communication between the two libraries, the grapevine was an essential means of communication in both libraries and that it was consistently employed in the two, even if unconsciously.

The reason that informal communication is utilized, even unconsciously, stems from the fact that it satisfies employees' social and emotional needs that do not find an outlet in the formal channels (Miller and Bar-Haim, 1994). Hence, informal communication is considered an indication of organization health and 'it is controlled and fed mainly by the workers' (Gibson and Hodgetts, 1991, p. 240). However, Miller and Bar-Haim (1994) stress that the management of an organization can also initiate use of the grapevine so as to achieve several objectives. One of them is to expand messages that are passed in a formal concise manner and to adapt them to the needs and understandings of the employees in the organization. Another is to cultivate the social interactions in order to increase collaboration among the various role holders in the organization (Miller and Bar-Haim, 1994).

Since informal communication is significant from the perspectives of both management and employees, the research project at Business University took into account aspects of informal communication as well. This was done while keeping in mind Conrad's (1994) argument that in order for organizational communication to be effective employees must understand the relationship between effective communication and the operation of organizations, since the two mutually influence one another. Therefore, it was important to research not only how well each participant at Business University understands his or her formal role in the organization's operation, but also how each participant perceives his or her informal roles.

In additional, Conrad (1994) maintains that for effective organizational communication to exist, employees need to understand how to choose the most appropriate communication strategies in different

organizational situations. For example, if the organizational structure of a university is very hierarchical, then an employee may not be able to effectively communicate directly upward, formally or informally, to the top person of the university. This could be due to the mere fact that the top person is not willing to listen because that employee did not chose the 'proper' channel of communication and 'it takes two *willing* communicators to make full communication possible' (Riches, 1994, p. 252). Communication must flow clearly, according to Riches (1994), in order to facilitate effective organizational communication.

Communication Flows in Organizations

One way to characterize organizational communication is to consider how messages flow through the organizational system (Miller, 1999). According to Riches (1994), organizational communication flows within three major directions in the typical organization: downward, upward and horizontally. However, on top of these three flows there is a fourth less known flow, diagonal communication, on which relatively little research has been done (Gibson and Hodgetts, 1991). Since all these flows of organizational communication obviously exist at Business University, it was important to examine them in this section of the literature review. This would set the stage for the discussion chapter, regarding the effects the new communication technologies at Business University had on each one of these flows of organizational communication.

Riches (1994) maintains that usually the strongest flow of organizational communication is **downward communication**, which is crucial to the function of an organization since it concerns messages and information

sent from senior management to other members of the organization. Various studies demonstrate that the flow normally follows the formal lines of authority downward from position to position along the organizational chart (Newstrom and Davis, 1993; Riches, 1994; Miller, 1999). The organizational chart describes the organizational structure by defining the responsibility of each function and its connection to other functions in the organization (Keren, 1998), and consequently it allows seeing how elaborate the structure of the organization is.

Since communication is considered more difficult in elaborate organizational structures (Bush, 1997), the findings chapter will present several organizational charts of Business University at various points of time, which will allow examining downward communication. Although in downward communication management has the power begin the process of communication by sending messages on their downward journey, effective communication does not always take place since messages may not be received, arrive distorted or late (Riches, 1994). For effective communication to occur, according to Newstrom and Davis (1993), managers must not rely on electronic aids but must be sensitive to the needs of their employees.

Employees need to receive sufficient information from management, in order not to feel alienated from the organization (Gibson and Hodgetts, 1991). Although some managers believe 'that employees are not really interested in anything broader than their precise job, studies have repeatedly shown that this is not true' (Gibson and Hodgetts, 1991, p. 213). Since this study at Business University focused on the effects of communication technology on organizational communication, it was important to research how sensitive were Business University's

managers to the communication needs of their employees, including the need of employees to communicate upwards to management.

Riches (1994) argues that **upward communication**, which is the flowing of communication from employees to managers, 'depends on the trust and confidence felt by the former towards the latter. Effective upward flow is premised on the assumption that participation of staff is accepted within the organization' (pp. 253-254). Newstrom and Davis (1993) assert that upward communication is part of the two-way flow of information between managers and employees, and if poor upward communication exists, then managers may lose touch with the real needs of their employees, lacking sufficient information to make sound decisions. However, for organizations to function effectively, downward and upward communication are not enough, since there is need of the other two flows of communication, horizontal and diagonal communication.

Horizontal communication is known also as lateral communication or cross-communication, which is defined as 'communication across chains of commands' (Newstrom and Davis, 1993, p. 111). Riches (1994) suggests that horizontal communication is helpful as a coordination mechanism between departments and units that are on the same level, for people who are working for the same organizational purpose but are performing differentiated tasks. Riches (1994) furthers this in stating that 'poor horizontal communication can divide a team, whether it be a managerial team or any other type. Departmental rivalries and personality dashes and conflicts are often felt in the lateral flow of messages' (p. 254). Another reason for poor horizontal communication is due to the organizational structure itself. In an elaborate organizational

structure, communication is particularly difficult when cutting 'across functional units such as departments' (Bush, 1997, p. 57). However, this type of difficult interdepartmental communication does not only occur in horizontal communication but takes place in diagonal communication as well.

Diagonal communication is the fourth flow of communication that 'occurs between people at different levels of the organizational hierarchy and in different departments' (Gibson and Hodgetts, 1991, p. 228). Diagonal communication, like horizontal communication, improves the flow of information between departments and is consequently essential for interdepartmental coordination, especially in complex organizations (Gibson and Hodgetts, 1991). In such organizations, communication technologies have made diagonal communication easier, since they allow 'lower-level employees direct access to upper management' (Conrad, 1994, p. 148). Yet this may result in communication gaps, since it is possible for an employee to skip an organizational level in communicating, which might offend people who feel they should have been part of the communication (Gibson and Hodgetts, 1991).

Therefore, it was essential for this research project at Business University to analyze how communication technologies aided or damaged the interdepartmental communication between individuals at various levels, finding out the effects of these technologies on group and team activities across functional units. In order to achieve this, as well as to examine the effects of communication technology on downward and upward communication, it was necessary to adopt an approach for analyzing the communication patterns - both formal and informal - at Business University.

Contemporary Approaches in Communication Analysis

There are several major modern approaches to choose from in the analysis of communication in organizations. The contemporary approaches to organizational communication that were reviewed for this research are:

- The critical approach,
- The cultural approach, and
- The systems approach.

The critical approach was examined first. According to Miller (1999), critical theorists take a radical frame of reference and conclude that the theorist's job is to transform organizations by the emancipation of oppressed social groups. For example, Miller (1999) explains that in this approach 'communication technology is seen as a means for repressing workers through deskilling of jobs and control of information' (p. 291). Therefore, since this was not the key focus of the research, the critical approach was rejected for this study.

The cultural approach, as defined by Miller (1999), regards organizations as cultures, deriving from the field of anthropology, where for years academics have researched the cultures of nations, tribes or different ethnic groups. Miller (1999) adds that in this approach 'communication technology is seen as a symbolic manifestation of organizational culture and as medium through which cultural values are developed and communicated' (p. 291). By using the cultural approach to investigate an organization, according to Miller (1999), a researcher is looking for the qualities that make an organization "what it is." For example, what makes the University of Texas different from Texas AandM University?

Although, in the undertaken research, the question of what made Business University unique relative to other universities may be of some interest, this was not the main focus of the study.

In addition, according to Miller (1999), the cultural approach relies on methods of ethnography (meaning the "writing of culture") in the study of organizations. These methods are quite different from traditional social research techniques including the use of intense observation of the cultural group in developing an understanding of the values and assumptions at work. Miller (1999) even states that in this approach the writings of a study undertaken rarely take the traditional form that includes a literature review, methods or a discussion, but rather a tale is being told by the ethnographer explaining the organization in all its rich and varied detail. Therefore, since this thesis was to take the traditional form, the cultural approach was not chosen for this study at Business University.

The systems approach, as stated by Miller (1999), operates from the metaphoric concept that an organization is like an organism. Systems theory has been used to examine how communication inputs are transformed into outputs through management functions such as planning, organizing and leading (Riches, 1994). There were several main advantages in considering using the systems approach in this research. The first was that it is connected to the practical transactional perspective (Fisher, 1978). Earlier in this chapter, it was suggested that a definition of communication should include this perspective. Neher (1997) even argues that 'transactional communication can be seen as a positive goal to be sought by communicators' (p. 54).

The second advantage of the systems approach was that in this approach it is possible to use the research approach of case study. Miller (1999) argues that:

> *A case analytic approach suggests that the richest understanding of organizational systems can be obtained by closely observing specific organizations grappling with specific issues. By collecting a variety of data through observation, interviews, questionnaires, and archives, the analyst can come to a more finely grained understanding of how and why an organizational system develops and behaves as it does.* (P. 87)

The third advantage of the systems approach was that it also allows studying organizational communication as network analysis (Miller, 1999). 'Network analysis provides us with a reservoir of information, although, like a snapshot, it is truly accurate only for the instance of time which it was constructed' (Gibson and Hodgetts, 1991, p. 254). In order to understand the concept of network analysis, it is first of all necessary to understand the term 'network'. According to Gibson and Hodgetts (1991), a network is a pattern of communication interactions which exist between organizational members who frequently interact. These interactions include matters regarding work, social issues and even ideas on innovation (Miller, 1999). It is usually accepted that the most frequent networks are the 'wheel', the 'circle', the 'chain' and the 'all-channel' (Gibson and Hodgetts, 1991; Mullins, 1993; Miller and Bar-Haim, 1994):

- In the **wheel network** the manager is the centre of the team through which all information passes and through which members also communicate between themselves:

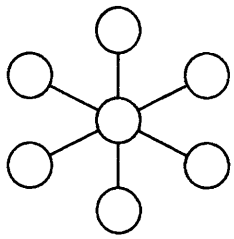


Figure 2.6: The Wheel Network

- In the **circle network** a person is only communicating with his or her immediate two organizational neighbours but not with other members of the organization:

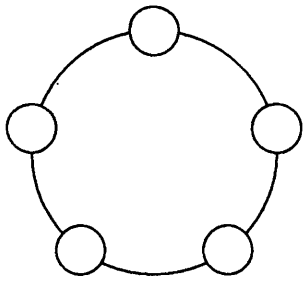


Figure 2.7: The Circle Network

- The **chain network** is typical of hierarchical organizations, especially in one-way downward communication, since information usually flows in it from a central figure down the chain of command:

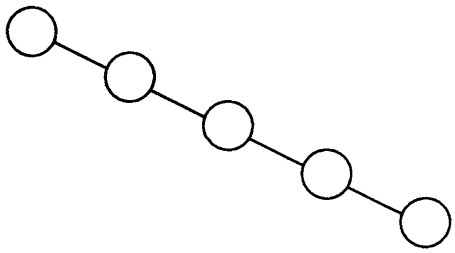


Figure 2.8: The Chain Network

- In the **all-channel network** everyone communicates to everyone else without any need for an intermediary factor, thereby providing the optimum in member participation:

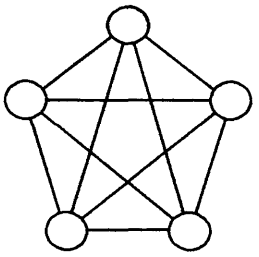


Figure 2.9: The All-Channel Network

Therefore, since organizational communication was a key focus of the research at Business University, mapping out which pattern of communication network exists at the university and comparing it to these theoretical network models would be useful for this research. To achieve this it would be essential to use network analysis whose purpose, as defined by Miller (1999), is to map out the flows that move among the network's linked components (e.g., individuals, work groups, organizations). These network linkages, according to Miller (1999), are maintained through the communication medium known as modes. Also, since network analysis allows the examination of informal communication, revealing the informal network, this can be compared to the formal organizational structure (Gibson and Hodgetts, 1991). In order to perform this comparison in the research project at Business University, it was necessary to establish what types of possible roles could exist in informal communication networks of the university.

Individuals within a given network hold various network roles, which define the ways in which individuals are connected to each other (Miller, 1999). Networks are made of cliques of people (normally five to twenty-five members) who communicate more often with one another than with other members of the organization (Conrad, 1994). There are several possible special roles for members in communication networks such as

liaisons, bridges, gatekeepers, isolates, opinion leaders and cosmopolites, which can be plotted using sociograms (Gibson and Hodgetts, 1991; Neher, 1997; Miller, 1999):

- A **liaison** is an individual who interpersonally connects two or more cliques but is not a member of any of them. Conrad (1994) gives the example of universities where a librarian often becomes a liaison, connecting two different departments such as medicine and psychology.

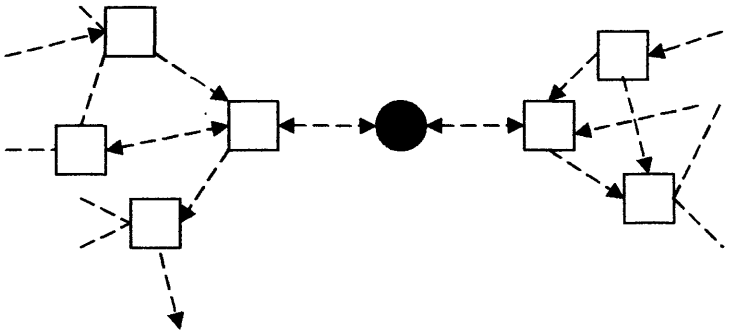


Figure 2.10: A Liaison

- A **bridge** is an individual who connects two groups in a network but unlike the liaison belongs to both. For instance, a head of department who is obviously a member of his or her own department but is also a member of a management team of department heads that meets on a regular basis (Neher, 1997).

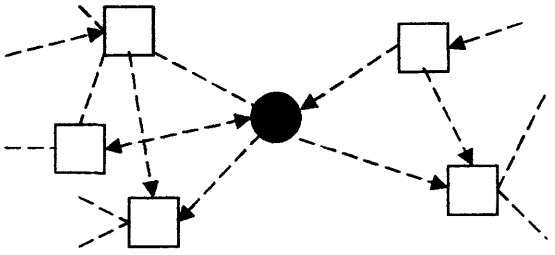


Figure 2.11: A Bridge

- A **gatekeeper** is an individual who occupies a position in the network that allows controlling messages through a communication channel. For example, secretaries are often gatekeepers, as Neher (1997) demonstrates in the following organizational chart with supplementary communication arrows:

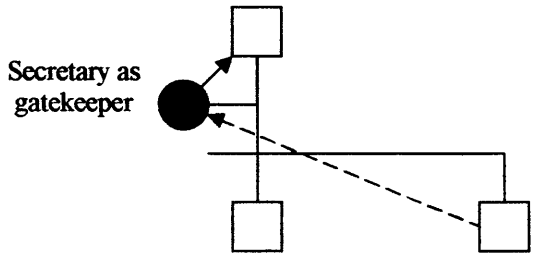


Figure 2.12: A Gatekeeper

- An **isolate** is an individual who is usually outside the interactions carried on in networks. Neher (1997) gives an example of a scientist working alone in a laboratory, operating most of the time as an isolate. 'Mike doesn't talk to anyone in the network, and he would be characterized as an isolate' (Miller, 1999, p. 85).

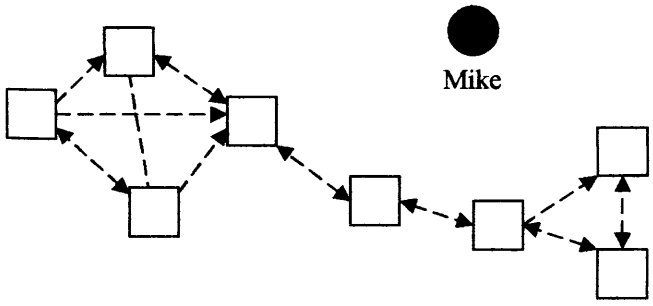


Figure 2.13: An Isolate

- An **opinion leader**, known sometimes as a **star**, is an individual who is able to influence other members in a network more than do others. Members of a network can become opinion leaders through their

formal position or as a result of acquired informal esteem (Neher, 1997).

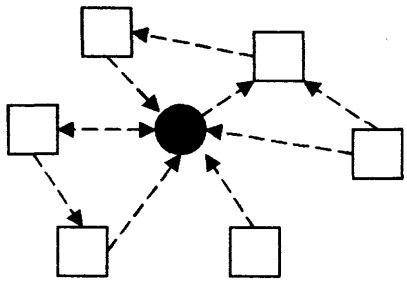


Figure 2.14: An Opinion Leader

- A **cosmopolite**, or **boundary spanner**, is an individual who has a relatively high degree of communication with people outside the organization. People in sales are an example of cosmopolites (Neher, 1997).

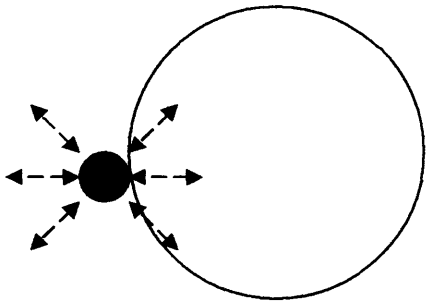


Figure 2.15: A Cosmopolite or Boundary Spanner

In addition to enabling a comparison between the informal network and its various roles to the formal organizational structure, the final advantage of adopting the systems approach was that in it, 'communication technology is seen as a way to link organizational subsystems and to link organization with environment. Special attention is paid to the impact of technologies on communication networks and on the unintended effects of technologies' (Miller, 1999, p. 291). Such unintended effects can be found just by the fact that the arrival of communication technologies has dramatically increased the number of possible network modes beyond just written and face-to-face modes

(Miller, 1999).

> *For example, your school probably now has electronic mail available in all residence halls and buildings—or perhaps even in all rooms.* (Miller, 1999, p.84)

To many, the introduction of electronic mail into a business organization is likely to have only little impact on internal organizational communication, however electronic mail has had a far-reaching impact on organizational power relations, knowledge and employee behaviour (Brigham and Corbett, 1997). The widespread use of email has created the electronic grapevine, which is the transmission of informal messages by the use of computers (Newstrom and Davis, 1993). Since the grapevine sustains informal communication networks (Conrad, 1994), changes in it to include electronic means are bound to affect the networks.

Thus, since the research at Business University was to be in the form of a case study, examining the changes in communication technologies and their effects on organizational communication, including its informal networks, the choice of the systems approach to this thesis was deemed appropriate. (See the methodology chapter for a detailed explanation on the exact ways the research was analyzed utilizing the systems approach.) However, although in this approach special attention is given to the impact of communication technology on various aspects of organizational communication, it does not contain a precise definition of the term 'communication technology'. Accordingly, such a definition will be sought in the next section of the literature review entitled communication technology.

COMMUNICATION TECHNOLOGY

> *Over the next 3 years... it is likely that a range of other possibilities will merge that will, without doubt, serve to further increase the importance of the 'C' in ICT.*
>
> (Clarke, 2002, p. 178)

The transformation of information technology (IT) into ICT ('C' for communication) has mirrored the growing importance and integration of communication technology into everyday life (Clarke, 2002). Unfortunately, this has also somewhat blurred the difference between communication technology and information technology. Since the purpose of the study at Business University was to research the effects of communication technology on organizational communication, it was now necessary to define in a precise manner the term 'communication technology' and its relations to other related subjects such as information systems (IS) and management information systems (MIS). This was essential in maintaining the research focus on communication technology and in avoiding drifting off to these other related subjects while conducting the research.

However, this task was found out to be quite confusing at first, since there are some contradictory definitions. For example, on the one hand, Miller (1999) lists the management information system (MIS) as part of the organizational communication technologies introduced to the workplace in recent years. On the other hand, according to Laudon and Laudon (1998), since a MIS is basically a computer-based information system (CBIS) aimed at managers, it is using communication technology itself. Furthermore, the concept of information technology (IT) can cause confusion, since different people give different meaning to it (Lay et al., 1993).

Since information technology is associated with computers, in some companies and universities, the information systems (IS) department - which is responsible for computers, networking and data management - is often called the IT department (Webopedia - The Online Encyclopedia for Computer Technology, 2002). Yet, although information technology and information systems are interrelated, they are not synonyms. Therefore, the following section will include key terms for this thesis such as information, data, technology, information systems, organizational communication and the relationship between information technology and communication technology. This will allow the production of a definition of communication technology, setting the stage for the section on the effects of communication technology.

Information and Data

In order to grasp the term **information**, which is a fundamental term in both IT and IS, first the term **data** must be understood. It is widely accepted that data are basically just a set of facts, which are meaningless until collected and organized into a form that people can understand, analyze and use (Certo, 1997; Laudon and Laudon, 1998; Neumann and Zviran, 2001). Information, consequently, is the set of conclusions from the processed data in a way that is meaningful and useful (Certo, 1997; Laudon and Laudon, 1998; Neumann and Zviran, 2001). This is an important distinction to make in the context of the research at Business University, since information is intertwined with communication

In the first section of the literature review (see page 33), after examining

various definitions, communication was defined for this study at Business University. Re-evaluating this definition now reveals that in it data was not clearly differentiated from information. Miller (1999), in context of the dual-capacity model (which will be presented later in the literature review), states that any communication medium conveys two kinds of messages: 'data' and 'meaning'. Data are task related facts sent through the media, and meaning is what was understood not only due to the data sent but due to the choice of media as well (Miller, 1999). Subsequently, it may be argued that in the context of communication, data is what was sent but information is what was actually understood. Therefore, any technology that just transmits data is useless for communication purposes, since what is needed in the two-way process of communication is a technology that transfers information.

Technology

In order to understand the term information technology, after its first component - information - has been examined, it is necessary to define its second component: **technology**. This term is also important, since it is a component in communication technology as well. Certo (1997) offers the following definition:

> *Technology consists of any type of equipment or process that organization members use in the performance of their work. This definition includes tools as old as a blacksmith's anvil and tools as new and innovative as virtual reality.* (P. 521)

Although, this definition gives an idea of what comprises technology, it is very general. Therefore, Samuel (1990), arguing that technology is an essential ingredient in any organization without which an organization cannot exist and function, defines it as:

> *Technology is the overall materials, methods, tools, activities and processes that are used in producing products and services, including those that assist indirectly in their production* (P. 126)

This definition is similar to the one offered by Certo in that it includes tools and processes, but it also addresses issues regarding direct and indirect creation of products and services. This is important, since information can be both the product/service and the support activity in some cases. For example, a university library's basic service is the information it is providing to its students and at the same time other information is needed to run the library, such as knowing the actual location of a book or journal, in which the required information can be found. Many libraries are accordingly offering new assisting technologies such as online databases of their card catalogue s and indexed material that are replacing the laborious search in card catalogue drawers or individual indexes (Lehman, Himstreet and Baty, 1996).

Information Technology

Thus, since both technology and information were defined, it is possible to review definitions of **information technology** so as to understand its relationship to communication technology. Certo (1997), based upon his definition of technology (see previous pages), proposed the following definition:

> *Information technology is technology that focuses on the use of information in the performance of work.* (P. 521)

Even though this definition of information technology is straightforward, containing both the terms, technology and information, it does not point

out the relationship of information technology to communication technology, which is needed for the research at Business University. As a result, another definition was considered:

> *IT represents the convergence of all types of computer equipment, certain electronic (audio and video) equipment, all types of software developed for the use with computers, telecommunications equipment and software, and other automation techniques.* (Lay et al., 1993, p. 12)

This is a more useful definition, since it implies that communication technology, such as telecommunications equipment and software, is an integral part of information technology. However, it does not define the term communication technology directly. For example, it is not clear whether certain electronic equipment such as audio and video is part of communication technology or not. Therefore, a definition of information technology that included a clearer description of communication technology was needed for the research at Business University. Such a definition is put forward by Laudon and Laudon (1998), who propose that information technology is composed of computer hardware, software, storage and communication technology.

Laudon and Laudon (1998) elaborate on each of these terms in their definition. They state that **computer hardware** is the physical equipment; **computer software** consists of the detailed pre-programmed instructions that control and coordinate the work of computer hardware; and **storage technology** is the physical media and software governing the storage and organization of data. Finally, Laudon and Laudon (1998) define **communication technology** as the:

> *Physical devices and software that link various computer hardware components and transfer data from one physical*

location to another. (P. 13)

In this, what Laudon and Laudon are basically claiming is that communication technology is just a component of information technology. Their definition may be visually translated in the following manner:

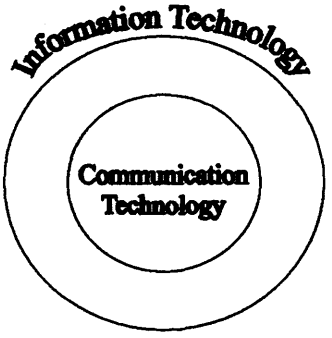


Figure 2.16: Communication Technology as Part of Information Technology

Understanding that communication technology is an element in information technology was useful for the research project at Business University in narrowing down the planned research before actual research was conducted. Since the focus was communication technology and not information technology, the research would not include an examination of aspects of computer hardware, software or storage. Consequently, it was not researched whether the participants at Business University use a printer by Canon or HP, work with Windows98 as opposed to Windows ME, or whether anyone at the university uses SQL in building a database.

However, examining Laudon and Laudon's definition of communication technology, which concentrates on devices, software and hardware components, illustrates that it is a very technical approach. It also stresses the transfer of data, and since communication centres on the transfer of information, adopting Laudon and Laudon's definition of

communication technology could still lead the research in a technical direction. Since the study was intended to be on the effects of communication technology on organizational communication and not on various communication technologies themselves, their definition could not be adopted. Therefore, keeping in mind Samuel's (1990) approach to the general term of technology as a means in assisting directly or indirectly in the production of products or services, it was essential to grasp what communication technology actually supported.

Since communication technology is a component of information technology (Laudon and Laudon, 1998), and since information technologies are essential foundations of information systems (Neumann and Zviran, 2001), it may be deduced that communication technology is supporting information systems. Thus, the following subsection of the literature review chapter will focus on information systems. Since the research conducted at Business University focused on the effects of communication technology on organizational communication, the relationship of information systems to these subjects will be made clear.

Information Systems

In order to define the term information systems, having already defined information (as the set of conclusions from the processed data in a way that is meaningful and useful), the term **system** must be addressed. Neumann and Zviran (2001) define it as 'a group of interrelated components that work together to achieve a common objective' (p. 13), stating that an organization itself is a system that is built from a collection of sub-systems, one of which is the information system.

Another sub-system is the one of organizational communication. The importance of this distinction in the context of research at Business University will soon be made clear; however, firstly, several definitions of information systems will be put forth. Laudon and Laudon (1998) define information systems as:

> *Interrelated components working together to collect, process, store, and disseminate information to support decision making, coordination, control, analysis, and visualization [of complex subjects] in an organization.* (P. 7)

Even though this is a very detailed definition, which addresses the systems aspect of interrelated components, it only implies that these components work together to achieve a common objective. Hence, a definition that states this is presented next:

> *An information system (IS) is a structured set of procedures for processing, storing and distributing information, designed in such a way as to best serve the goals of the organization.*
>
> (Lay et al., 1993, p. 184)

Although there are differences in the definitions, both suggest that an information system's role is to support the organization in the handling of information. In this sense, an information system also supports the organizational communication and, consequently, is intertwined with it. (This should come as no surprise as it was demonstrated earlier in this section that information and communication are interconnected.) Both Lay et al. (1993) and Laudon and Laudon (1998) also agree that an information system does not necessarily warrant the use the computer and can be manual, using paper and pencil technology.

> *For example, a secretary, who writes details of customer complaints on little cards and summarizes them every month for the boss, has an information system.*
>
> (Lay et al., 1993, p. 184)

However, 'in almost all cases information systems do, in practice, include the use of a computer these days' (Lay et al., 1993, p. 184), and consequently can even aid in the automation of processes (Laudon and Laudon, 1998). For example, **source data capture** (Laudon and Laudon, 1998) that is also referred to as **AIDC - Automatic Identification and Data Capture** (AIM – The Association for Automatic Identification and Data Capture Technologies, 2002) or as **Auto ID**, meaning automatic identification (Auto-ID Center, 2002). Source data capture allows capturing data directly from the source, without the need to manually insert the data into the computer and thus turn the input process to an automatic one, such as a scanner that scans text and transfers the data into the computer (Neumann and Zviran, 2001).

Auto ID covers several distinct groups of technologies and services, including bar code technologies, radio frequency identification (RFID) technologies, optical mark recognition (OMR) and card technologies (Auto-ID Center, 2002). According to AIM – The Association for Automatic Identification and Data Capture Technologies (2002), at their core, all source data capture technologies support the two common goals of (1) eliminating errors related to identification and/or data collection, and (2) accelerating the through-put process. Hence, it was important to examine how, if at all, source data capture technologies were used at Business University in eliminating errors and in accelerating the through-put process, thus improving the effectiveness of the system.

However, it is also agreed that an effective information system necessitates an appreciation of the organization (including users and procedures) and management (Laudon and Laudon, 1998; Neumann and

Zviran, 2001). This can be illustrated with the following figure (adapted from Laudon and Laudon, 1998, p. 11):

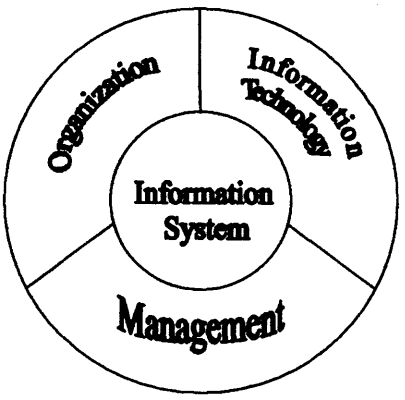


Figure 2.17: An Effective Information System

Figure 2.17 is useful in showing that an information system is in an interrelationship with information technology, the organization and management. Although it is not clear from Laudon and Laudon's text if this was done intentionally, but putting management at the bottom implies that it is the anchor supporting the other three. Management's support is needed since in many cases when technology is introduced, the organization itself to change. Lucas and Baroudi (1994) even go as far as suggesting that the 'design of information technology and the design of organizations are largely becoming the same task' (p. 9). Hence, once computers arrive, information systems must also include peopleware (Neumann and Zviran, 2001). Peopleware are those who work in the various computer and software professions (Orgad and Oz-Madar, 2000). As noted in chapter one, the arrival of the new regime not only created technological change, but also created changes in the organization in terms of personnel, which included adding the small department of systems management to support the new computer-based system.

Computer-based Information Systems

Laudon and Laudon (1998) define a **computer-based information system (CBIS)** as 'an information system that relies on computer hardware and software technology for processing and disseminating information' (p. 8). There are several kinds of CBIS, which are used at different levels of the organization (Neumann and Zviran, 2001). One example is TPS (transaction processing system), which performs and records the daily routine transactions, serving the organization's operational level (Laudon and Laudon, 1998). Another is KWS (knowledge work system), which assists in producing and integrating new knowledge in the organization (Laudon and Laudon, 1998). However, according to Lumby (2001), the one that has gotten disproportionate concentration on is MIS (management information system).

A management information system (MIS) is a part of the comprehensive information system, with its main function being providing the needed information for strategic management and decision-making purposes (Lay et al., 1993; Certo, 1997). Laudon and Laudon (1998) define a MIS as an 'information system at the management level of the organization that serves the functions of planning, controlling, and decision making by providing routine summary and exception reports' (p. G 8). Lumby (2001) maintains that the technological revolution coupled with external pressure for information may have displaced the strategic need for a holistic view of communication, and consequently MIS has received disproportionate attention.

For example, Laudon and Laudon's book is simply entitled

'Management Information Systems – New Approaches to Organization and Technology'. Not only this, but in their book, Laudon and Laudon (1998) state that their interest is in the formal organizational computer-based information system (CBIS). They acknowledge that informal systems such as the grapevine 'are essential for the life of an organization, but an analysis of their qualities are beyond the scope of this [their] text' (p. 8). In doing this they are avoiding 'the messy, uncertain, chaotic reality of communication between human beings' (Lumby, 2001, p. 113) and ignoring the importance of informal organizational communication in complementing the formal computer-based information system (CBIS).

> *The huge quantity and immediateness of information supplied by computerized information systems makes it difficult, at times, to distinguish between essential information to information of secondary importance. To make the distinction between the two, human communication is required to interpret the computerized information.*
>
> (Miller and Bar-Haim, 1994, p. 129)

Therefore, if a manager does not understand computerized information offered by the MIS, he or she may turn to someone else in the organization for help. This could be an informal conversation taken on a cup of coffee during a break or it could be an informal email sent to a colleague. Indeed, as mentioned earlier in the section on organizational communication in the literature review of this thesis, this widespread use of email to transmit informal messages has created the electronic grapevine (Newstrom and Davis, 1993). To pay no heed to the mutual influences between computer-based information system and informal organizational communication (as Laudon and Laudon, 1998, have done in their book on information systems) is to present only part of the picture regarding the effects information and communication

technologies have on an organization.

From IT to ICT

Since any technology is basically an essential tool in assisting an organization (Samuel, 1990, p. 126), information technology (IT) is also a tool intended to support the organization. Sayeed and Brightman (1994) 'distinguish between IT tools that support information processing and communications in organizations. *Information support* refers to computer-based applications to support structured and unstructured decision processes. *Communications support* refers to computer or telecommunication-based applications for communication purposes' (p. 378).

In this, Sayeed and Brightman are not contradicting Laudon and Laudon's (1998, p. 13) definition that communication technology is part of information technology. Their approach does, however, put more emphasis on the importance of communication technology within information technology. As a result of this growing importance, information technology (IT) was transformed into ICT (Clarke, 2002, p. 163). Intrapairot (2000), based on Sayeed and Brightman's definition, defines ICT in the following manner:

> *Information and communication technologies (ICT) are computer-based technologies used to support information and communication.* (p. 14)

Intrapairot (2000, p. 14) stresses that ICT is the most pervasive technology having effects such as easier, quicker and cheaper handling of information, improved efficiency in resource utilization and promoting more flexible and decentralized management structures.

Accordingly, since information and communication technologies permeate virtually every field (McKinney, 1996, p. 1), ICT has also had an international effect on education in general and on higher education specifically.

ICT and Education

The growing importance of communication technology in the world of education has not been instantaneous. Starr (1996) suggests that ICT has gone through three phases: (1) development of computer-assisted instruction (CAI) from the mid-50s to the early 80s, (2) the spread of personal computers, graphical user interfaces, and general applications software in the early 80s, and (3) the advent of multimedia, the volatile growth of the Internet and the World Wide Web, and the transformation of computing from an isolated activity into an ever-present part of the everyday work, school and home environment in the 90s.

Examining these three phases reveals that in the first two, the focus was that of information technology without communication technology. Only in the third phase with the arrival of communication technologies such as networked computers, the Internet and the World Wide Web, did the IT become ICT (Clarke, 2002). Therefore, since the process of integrating ICT into education has been a long one, this has given educational researchers time to study its influences on education, and in fact, this is what occurred.

> *A great deal of theoretical and empirical work has been done for several decades regarding the impact of ICT on educational processes.* (Mioduser et al., 2002, p. 405)

Since this thesis examined the effects of communication technology - which is part of ICT - on organizational communication, it would seem that it should have been relatively easy to find theoretical and empirical material to fill a literature review, including formal policy texts of educational institutions on issues concerning their planned use of ICT.

> *In these texts, however, most of the discussion centred on the use of ICT for formal learning through distance teaching and learning support rather their use in supporting the way the institutions as organisations carried out their work.*
>
> (Saunders, 1998, p. 178)

Reviewing various articles on ICT confirmed this. Research on ICT in both education and higher education has mainly focused on the instructional possibilities of ICT. For example, a nation-wide survey of a 1,000 colleges and universities in the United States, regarding instructional uses of ICT, revealed that it was in wide usage in higher education (Russell, 1995). However, in this study, there was no detailed focus on the organizational aspects of ICT in higher education. Reading a great deal of articles and books on ICT, hoping to find relevant material for this thesis, has often been disappointing.

To give but a small sample, various articles and books (Porter, 1997; Teare, Davies and Sanderlands, 1998; Ryan et al., 2000) included how ICT will be exploited in order to create virtual universities. Others have focused their research on the importance of the computer for student learning in colleges and universities (Kuh and Vesper, 2001). Further material included the challenges implementing technology standards for students in higher education (Larson, Dutt and Broyles, 2002). The quality of teaching and learning via videoconferencing as compared to the traditional classroom situation was researched (Knipe and Lee,

2002). There was even material on ICT for educational purposes in developing nations (Houston and Jackson, 2003).

These materials validate that there has been substantial research on ICT in an educational context. However, as Saunders (1998) asserts, there has been uneven development of ICT, focusing on its effects on instruction and not on organizational issues. This uneven balance on the focus of technology has caused Pelton (1991) to emphasize the need to avoid using information and communication technology for 'mindless megatraining' (p. 5). Unfortunately, this is also the case in Israeli education, where there does not seem to be a lot of research on communication technologies in the context of organizational communication, in school or in higher education.

ICT in Israeli Education

In mid 2001, hoping to obtain some ideas before the research at Business University began, a review was undertaken of the then recent published articles by the faculty of the School of Education at Bar-Ilan University, one of Israel's largest universities. It was hoped that some of these texts would include empirical findings on effects of communication technologies on organizational communication in Israeli institutions of higher education, which would later allow comparisons to be made to the research to be conducted at Business University. However, it was found that here too the focus of research was on the instructional possibilities of communication technology and not on its effects on the institutions of higher education.

In this context, one subject researched very thoroughly at Bar-Ilan University was interactive distance learning. Although some limited material was on ICT in distance learning at the higher education level (Katz, 1998; Katz, 2000), most of it was at the school level. Papers included ICT improving effectiveness and efficiency from the viewpoint of teachers (Offir, 1997; Offir and Lev, 1999; Appelberg et al., 2000; Offir, Lev and Lev, 2000). Other articles discussed how to evaluate the results of such a system (Offir, 2000; Offir, and Lev, 2000). Also, information and communication technology in assisting teaching, such as multimedia or computer software, was researched (Offir and Katz, 1995; Offir, Katz and Passig, 1995; Katz, 1996; Katz and Offir, 1997). Even the use of communication technology in the context of high school counsellors was discussed (Passig, 1997).

Furthermore, in 2003, after the research at Business University had already been carried out during October 2001 up to May 2002 (see methodology chapter), a new review of published articles by Bar-Ilan University was undertaken to update the literature review. It was again hoped that these newer publications would include empirical findings that would allow comparisons to be made to the research conducted at Business University. Unfortunately, although there was more material on higher education, their focus was still on the instructional possibilities of communication technology (Katz, 2001a; Katz, 2001b; Katz, 2002a; Katz, 2002b; Passig, 2003).

At Tel-Aviv University the situation is not much different. For example, in the School of Education there is the Science and Technology Education Center (SATEC). This centre, according to Haberman and Ginat (1999) aims to promote innovative research and development in

the service of the educational system with more than one hundred researchers and an annual research budget in excess of 10 million NIS. However, upon examining the six groups of the centre, it was found that the focus is as above on the instructional possibilities of technology. This included subjects such as 'Science in a Technological Society' (Mabat in Hebrew) for high schools in Israel, and developing a model for a professional learning community that uses Internet communications technologies, as well as a model for a virtual university (Haberman and Ginat, 1999).

However that may be, with all the research in Israeli education on ICT and its effects on instruction in school or in higher education, there are still those who feel that more research should be done on the subject. For example, Donista-Schmidt and Levine (1997) maintain that there are relatively a small amount of researches in education on the difference in attitudes toward computer technology between teachers and students. However, this local and international trend in higher education, which focuses on the instructional uses of ICT, should not be surprising. After all is said and done, instruction is an academic institution's 'core business' (Saunders, 1998, p. 178).

Instruction, ICT and Communication

The result of instruction being an academic institution's core business is that too much attention has been given to ICT in the context of instruction, to the neglect of organizational communication. Saunders (1998) expressed this concern:

> *ICT policy awareness might exist within educational institutions as far as their 'core business' of education is*

> *concerned but it might not extend to the level of organisational communication.* (P. 178)

However, Kotler and Fox (1995) maintain that although instruction is usually the core business, there are other services an educational institution offers such as dining, advising, library, computer and other organizational services. To decide that instruction is the one that determines the quality of service is to establish in advance what the customer values. Yet ultimately, the customer is the ultimate judge of quality offered by an educational institution (Kotler and Fox, 1995). Consequently, Kotler and Fox (1995) assert that those responsible for quality should seek out what customers value the most by using various methods such as a complaint and suggestion system.

> *Good complaint and suggestion systems will provide much valuable information for improving the institution's performance.* (Kotler and Fox, 1995, p. 45)

Moreover, to know what a customer perceives as valuable there is need of organizational communication. Not only this, but according to Kotler and Fox (1995) communication technology can create innovative feedback systems:

> *Many higher education institutions now provide electronic-mail access for faculty, staff, and students. By providing an electronic "mailbox" and publicizing its existence ("Have a suggestion? E-mail to SUGGEST"), the school could make it even easier for people to make suggestions. On-line terminals in campus libraries and other locations can be used by those who don't have computer E-mail accounts.* (P. 48)

Therefore, to ignore the effects of communication technology on issues other than instruction is something an educational institution cannot afford to do. The uneven development of ICT in educational institutions, whereby the focus on ICT is mainly for instructional purposes (Saunders,

1998), must be evened out. Of course, educational institutions should continue to research and improve their core business, instruction, but they also need to know how to enhance other services that may be just as important to their customers. To achieve this they will have to give greater attention to the effects of technology on organizational communication. Nevertheless, this uneven development of ICT in education has been very useful to the research project at Business University in not only justifying it, but also in focusing it further.

Since considerable research has been done on the effects of information and communication technologies on the instructional aspects of a university, it was decided that the research project would not focus them. Hence, although videoconferencing and distance learning via the World Wide Web exist in the Business University (as was reported in the introduction chapter of this thesis), they were not intentionally researched. Differences, such as geographic and cultural ones (Pelton, 1991) between the English speaking lecturers and the Israeli students during a videoconference, were not to be the main focus of this research. The focus was to be the effects of communication technology on organizational communication. However, since it is impossible for the planning of the research to start before having a focus (Robson, 1993), the term 'communication technology' needed further development before the research could begin.

What is Communication Technology?

Although communication technology was defined earlier in this section of the literature review the distinction between it and information

technology was still not clear enough for the research to begin. Both Laudon and Laudon (1998) and Sayeed and Brightman (1994) agreed that communication technology is part of IT, but Sayeed and Brightman (1994) made a distinction between IT tools that support information processing to those that support communications:

> ***Information support*** *refers to computer-based applications to support structured and unstructured decision processes.* ***Communications support*** *refers to computer or telecommunication-based applications for communication purposes.* (P. 378)

Although this definition is clear, illustrating why IT became ICT, it is too clear-cut. Sayeed and Brightman's approach to information technology may be visually translated in the following manner:

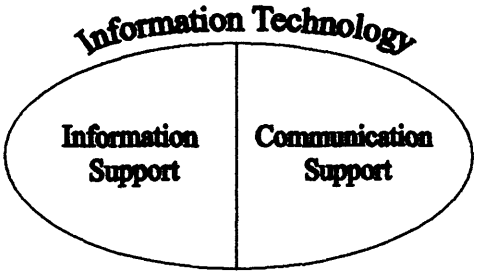


Figure 2.18: Information and Communication Support in IT

This approach, though, is overlooking that information and communication are intertwined (as was demonstrated by several definitions of communication in the first section of the literature review). For example, if a lecturer in an institute of higher education enters an Internet site in order to read new materials on a subject of interest, it may be argued that the lecturer is in asynchronous communication with whoever wrote the site. However, isn't this lecturer actually using a telecommunication-based application for information support? Furthermore, if hand notes are written down while on the site and then

summarized in handwriting on a paper, which every week is photocopied for the students, isn't this an information system according to Lay et al. (1993)?

Lay et al. would probably agree that this is an information system, although they would argue that it is only partially a computer-based information system (CBIS), since large parts of it are manual. Still, in this hypothetical answer lies the thread that could bind everything together: computers. Examining all the definitions of IT, and even that of ICT, reveals that in all of them the word computer is present. Few would argue that the central change in communication technology is not the computer. The importance of computers in communication can be seen in Israel, since in Hebrew the word '**tik**shoret' (communication) was united with the word 'mich**shoov**' (computerization) to create one word '**tikshoov**'; meaning computerized communication (Miller and Bar-Haim, 1994, p. 128). A similar attempt for such a union in English would in result in something like this: **comput**erized + commun**ication** = '**computication**',

Computer-mediated Communication (CMC)

Communication technology has undergone a computerized revolution (Miller and Bar-Haim, 1994). Developments in computerized communication technologies have allowed innovative communication possibilities to be introduced (Oren, Miodusar and Lahav, 1997). Some of the leading communication technologies 'are electronic mail, voice mail, facsimile (fax) machines, digital information services, teleconferencing, dataconferencing, videoconferencing, electronic data

interchange and groupware' (Laudon and Laudon, 1998, p. 320). The pace of these innovations has been a rapid one (Lehman, Himstreet and Baty, 1996). So fast as to prompt Neher (1997) to state that the constant change in computer technologies may cause even his own book's generalizations on communication technology (in the context of organizational communication) to become obsolete. Although this may be true, generalizations in the form of definitions of computer-mediated communication (CMC) were needed in order to focus this study.

> *The definition of computer-mediated communication (CMC) technology is two or more electronically connected computers that distribute some combination of text files, database files, audio, or video messages between people.* (Meyer, 2000, p. 7)

This definition is a comprehensive one that does not only contain computers but stresses that they are electronically connected as well. Lehman, Himstreet and Baty (1996) interchangeably refer to computerized communication as electronic communications. They give several obvious examples of computerized communication such as email, voice mail and videoconference (similar to those presented in the previously by Laudon and Laudon, 1999), and add an overlooked one: cellular telephones (Lehman, Himstreet and Baty, 1996). This was important in the context of Business University, as a result of their insight the effects of cellular phones on organizational communication would be researched as well.

Therefore, it can be argued that this definition has helped the research at Business University find its focus: to research how the introduction of electronic communications has influenced the university's communications. However, this definition by Meyer (2000) is also not clear on the differences between computerized communication

technology and other closely related subjects that have been the focus of this section of the literature review. For example, another definition of information systems, not presented earlier, is the following:

> *All written and electronic forms of sharing information, processing data, and communicating ideas are* ***information systems****. They include internal written communications (reports, bulletins, and memos) as well as electronic communication devices (computers, electronic mail, and teleconferences).* (Rachman et al., 1997, p. 196)

Comparing this to Meyer's definition of computer-mediated communication (CMC), it could be concluded that CMC is part of information systems, which would throw the research at Business University on a parallel track. Additionally, this definition of information systems is similar to the definitions of information systems by Lay et al. (1993) and Laudon and Laudon (1998), presented earlier in this chapter, in that it also states that an information system may include both manual means and computer-based devices. However, upon carefully reviewing this definition, it can be seen that although it contains several communication-related terms, and even the word 'ideas' is included, it mentions nothing on informal communication. This is somewhat reminiscent of Laudon and Laudon's (1998) consciously ignoring the informal system in their book. It is imperative to remember that:

> *Electronic tools have not eliminated the need for basic communications skills. If anything, these electronic tools, like all new tools and techniques, create new obstacles or barriers to communication that must be overcome.*
>
> (Lehman, Himstreet and Baty, 1996, p. 108)

Therefore, this research at Business University needed to define communication technology in order to compare and contrast it once and for all with information systems (IS), information technology (IT),

information and communication technologies (ICT) and also computer-mediated communication (CMC). This will allow presenting a definition of communication technology, which gave the 'final touches' in focusing and planning the research before it was conducted at Business University.

Developing a Definition of Communication Technology

In order to develop a definition of communication technology for the research project at Business University, first of all, a clear difference between communication technology and computer-mediated communication (CMC) needed to be established. It was therefore proposed that CMC is part of communication technology in the following fashion:

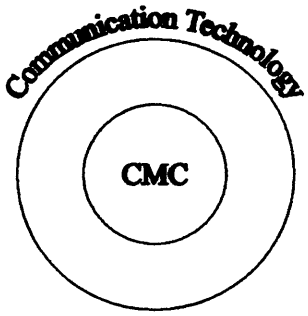


Figure 2.19: CMC as Part of Communication Technology

This diagram shows that communication technology does not have to be computer-mediated. For example, a telephone is an old-fashioned form of communication technology that is not always modern and computer-mediated. It is questionable whether even the fax machine, which is listed by various researchers as a modern communication technology (Laudon and Laudon, 1998; Miller, 1999), may be looked at as a modern technology. After all, Bain patented its principles in 1843, which is 33 years before Bell ever heard the first words transmitted on a telephone

(Evans, 1987). Furthermore, the fax machine existed at Business University prior to the change in senior management, and would not be considered a new technology at the university. However, if a fax is sent not through the fax machine, which involves just putting a piece of paper and dialling a number, but through a software application, then this fax is computer-mediated communication.

These distinctions were important to make in that they influenced the project at Business University to research all aspects of communication technology, whether old-fashioned or modern and computer-mediated. This would allow comparing the extent of use of the traditional communication technologies at the university such as a telephone, fax, memo or letter with modern communication technologies such as voicemail, cellular phone or email. Yet, since the purpose of the research was to study the effects of communication technology on organizational communication, it was necessary to understand this technology's relationship with organizational communication.

One of the sub-systems in any organization, as stated earlier in this section, is organizational communication. It is even a vital sub-system since 'organizations cannot exist without communication' (Newstrom and Davis, 1993, p. 92). A system is 'a group of interrelated components that work together to achieve a common objective' (Neumann and Zviran, 2001, p. 13). Organizational communication's objective is to help an organization achieve its goals by providing essentials such as coordination and basic management functions: planning, organizing, directing, and controlling (Newstrom and Davis, 1993). Without organizational communication 'cooperation also becomes impossible, because people cannot communicate their needs and feelings to others'

(Newstrom and Davis, 1993, p. 92).

Since another sub-system is the information system (Neumann and Zviran, 2001), an analogy was thus made between an information system and organizational communication. It was stated previously that an information system is in an interrelationship with information technology, the organization and management (see page 70). Consequently, organizational communication may be analogously seen in an interrelationship with communication technology, the organization and management. This can be illustrated with the following figure:

Figure 2.20: The Interrelationships of Organizational Communication

Figure 2.20 is useful in showing that organizational communication is a sub-system, which supports the organization and is supported in turn by communication technology. It also stresses that management (since it is at the bottom part) is supporting all three. This was true in the case of Business University as the new senior management introduced new technology, thereby committing the university itself to organizational change (such as adding the system management department). Yet, although the main difference between this diagram and the one on page 70 is that organizational communication includes aspects of informal communication, while information systems are formal, their

interrelationship is still not clear.

Consequently, in order to crystallize the differences and relationships among organizational communication, communication technology, information systems and information technology, the following diagram was created:

Figure 2.21: Organizational Communication and Information Systems

The organization here was put at the top, in order to emphasize that everything in an organization should support in achieving its goals. Management was placed under it, since management is also a supporting activity that sometimes does not decide on the long-term objectives of an organization. Rather, the owners hire management, with the understanding that it is the management's responsibility to realize these goals. For example, a board of directors could revise management's achievements in the last year and decide to replace the current management. Nevertheless, management was put at the top, since it has a central effect on organizational communication and information systems, just by allocating funds to technology, as was the case at Business University.

In the diagram there is an overlap (in light grey) between organizational communication and the information system. This is to show that the system of organizational communication cannot be separated from the information system, since communication is intertwined with information. Organizational communication and information systems complete one another. For example, organizational communication, through the use of informal communication, can aid in understanding a report generated by the information system. Information systems sustain organizational communication, just by allowing a written message to be stored on a diary or on a computer for lengthy periods of time, before it is passed on to the intended receiver. Therefore, in this study at Business University, it was important to research the extent of the interconnection between organizational communication and information systems, in the context of the technological change at the university.

Communication and information technologies were put at the bottom, since the first supports mainly organizational communication and the latter supports mostly the information system. Looking at this diagram may show one reason why information technology, when compared to communication technology, received relatively so much more attention until recently. Since empirical research has focused on information systems, it naturally centred on information technology as a means of supporting information systems. Although the field of organizational research has existed for some time, only in approximately the last decade and a half (as the literature review demonstrated) did advances in communication technologies enter organizations and substantially affect organizational communication. This current growing importance of communication technology has, according to Clarke (2002), put the 'C' into 'IT', creating the term 'ICT' (information and communication

technologies).

Superficially, the diagram seems to be in accord with Intrapairot's (2000) definition of ICT - a definition based on Sayeed and Brightman's (1994) approach (see page 73). However, their approach is ignoring that communication and information are intertwined. Therefore, in order to both demonstrate this and to show the interconnection between communication technology and information technology - which created the term ICT - the overlap of the two in the diagram was created (and marked in dark grey). This overlap was put directly under the overlap between organizational communication and the information system, since it illustrates the fact that communication technology could also support the information system and not just organizational communication.

In the same manner, the overlap shows that information technology could aid in organizational communication, even of the informal kind. For example, a manager uses a computer program to write down an employee's birthday. When the day comes, the manager is alerted and thus greets the employee in the morning with a 'happy birthday'. Technology helped here in informal communication. This overlap between communication technology and information technology was also specifically important in the context of Business University. Since it accentuates that there is no clear line in-between communication technology and information technology, several aspects of information technology could not (and must not) be ignored when conducting the research itself on communication technology.

Proposed Definition of Communication Technology

Based on the diagram and its explanations, the following definition was proposed for the research at Business University:

- Communication technology is any mechanical means, including computer-mediated communications, which are mainly used to support formal and informal organizational communication but, being an integral part of information technology, are also used to support the formal information system.

This definition, at the outset, emphasizes that communication technology is 'any mechanical means', and so, a telephone would be considered a form of communication technology, albeit a traditional one. It also shows that computer-mediated communication is a component of communication technology, and thus, an email is also a form of communication technology, although a more modern one. This definition accentuates that the primary role of communication technology is to sustain organizational communication, including informal ones. In this even the electronic grapevine is addressed. This definition's concluding part makes clear communication technology relationship with information technology and supporting function to formal information systems. The effects that this technology creates are the focus of the subsequent section of the literature review: organizational effects of communication technology.

ORGANIZATIONAL EFFECTS OF COMMUNICATION TECHNOLOGY

Technological innovation within higher education is currently proceeding at an unprecedented pace.

(Scott and Robinson, 1996, p. 131)

Thus, communication technology has numerous effects on an institution of higher education. For example, communication technologies may necessitate a new organizational structure. However, since the purpose of this research was to research the effects of communication technology on organizational communication, there is a deliberate concentration on how technology affects communication, whether directly or indirectly. Therefore, the research at Business University will not focus on the effects of communication technology on the new organizational structure, but rather on how communication technology affected in this way indirectly organizational communication by influencing the organizational structure.

Accordingly, in order to further focus this section on the effects of communication technology on organizational communication, four models of organizational communication media selection will be introduced: the media richness model, the theory of electronic propinquity, the social information processing model and the dual-capacity model. Subsequently, a discussion on several effects of communication technology on organizational communication will be performed. Implementing communication technology and the resulting organizational change will follow this, including subjects such as vision and planned change. The costs and benefits of communication technology will then be discussed. Since the decision to implement

communication technology at Business University was a strategic one, this part will present a strategic model in the adoption of a new technology. After this, user resistance to communication technology will be introduced, categorized into three different kinds of resistance to change: logical, psychological and sociological. This will also include computer/information literacy and computer anxiety. Finally, the connection between organizational communication and resistance to communication technology will conclude this section of the literature review.

Media Selection

There are several models that 'predict the extent to which various communication media will be used in accomplishing organizational tasks' (Miller, 1999, p. 280). Reviewing these models which focus on how people, including managers, chose communication channels is an important preliminary step in understanding the effects of communication technology on organizational communication. The first model developed by researchers was **the media richness model** (Daft and Lengel, 1984; Daft and Lengel, 1986; Rice and Shook, 1990; Russ, Daft, and Lengel, 1990; Trevino et al., 1990). These researchers concentrated on the creating 'a framework for understanding the choices organizational members make about communication media use' (Miller, 1999, p. 280). The communication choices were first explained by ambiguity, which 'refers to the existence of conflicting and multiple interpretations of an issue' (Miller, 1999, p. 280). As Trevino, Lengel and Daft (1987) suggest:

> *Like a Rorschach inkblot, an ambiguous message can be interpreted in many ways. No established scripts or symbols*

> *exist to guide behavior. Meaning must be created and negotiated as individuals look to others for cues and feedback to help interpret the message.* (P. 557)

In order to rank communication channels on the basis of ambiguity, Robbins (1993, p. 337) offers the following hierarchy of channel richness:

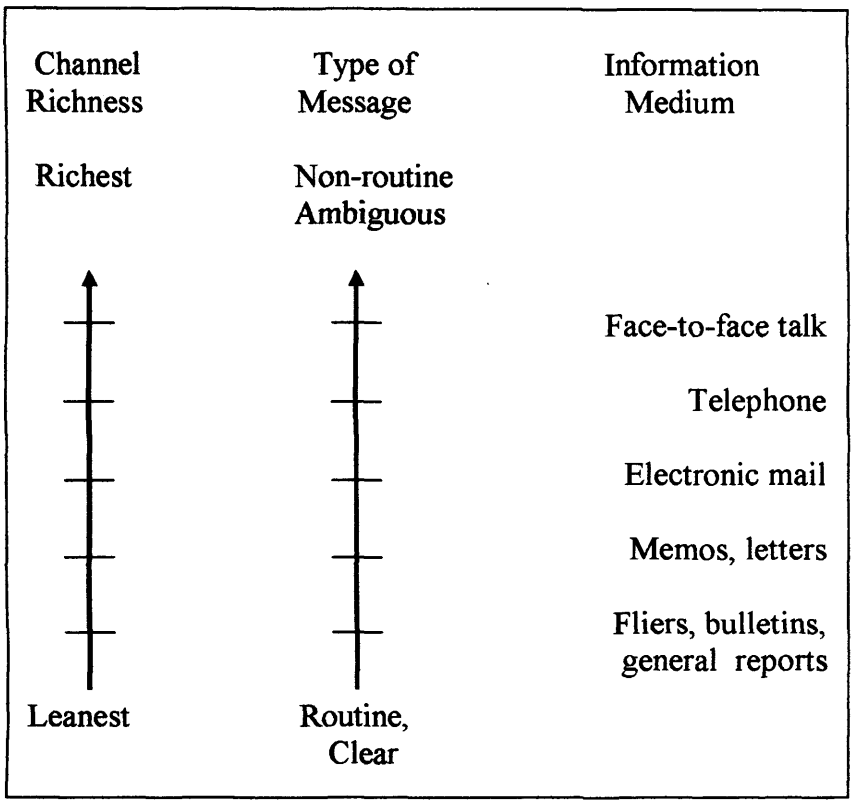


Figure 2.22: Hierarchy of Channel Richness

Robbins (1993) explains that face-to-face scores the highest because it supplies the maximal information in a communication transmission:

> *That is, it offers multiple information cues (words, posture, facial expressions, gestures, intonations), immediate feedback (both verbal and nonverbal), and the personal touch of "being there." Impersonal written media such as bulletins and general reports rate lowest in richness. The choice of one channel over another depends on whether the message is routine or nonroutine. The former types of messages tend to be straightforward and have a minimum of ambiguity. The latter are likely to be complicated and have the potential for*

> *misunderstanding. Managers can communicate routine messages efficiently through channels that are lower in richness. However, they can communicate nonroutine messages effectively only by selecting rich channels.* (P. 337)

Also, researches have shown that face-to-face channels are preferred over other communication channels in conflict management and resolution (Hartnett, 1983; Newman, 1983). Therefore, it is not surprising, according to Robbins (1993), that more and more senior managers have been using meetings to assist communications and regularly leave their executive offices to manage by walking around, 'relying on richer channels of communication to transmit the more ambiguous messages they need to convey' (p. 337).

Hence, the research at Business University will also examine how managers and selected members opt to communicate in various situations and whether they also feel that rich channels are recommended in conflict management and resolution. However, communication technology may not be so far behind traditional methods in term of its richness. 'Computer-mediated communication (CMC) offers a good example of how channels affect the way in which people interact. At first, theorists predicted that CMC would be less personal than face-to-face communication. With no nonverbal cues, it seemed that CMC couldn't match the rich interaction that happens in person, or even over the phone' (Adler and Towne, 1996, p. 11). Although in some cases there is no alternative to face-to-face, computerized communication is creating complex, fast, reliable channels of communication that allow personal communication that in some aspects can replace face-to-face (Miller and Bar-Haim, 1994). In addition, several studies have demonstrated that computerized communication can be as profound and

intricate as personal contact is (Walther and Burgoon, 1992; Walther, 1993).

Therefore, according to Wilkinson and Sherman (1991), humanity is becoming a networked society that will become accustomed to employing telecommunications-based communication with the same ease as face-to-face communication is used today. Neumann (1997) argues that communication technologies, such as an email, often enable easier communication 'with someone across the office, across town, across the country, or even across an ocean, than it may be to communication with a neighbor face-to-face' (p. 347). Thus, the research at Business University will study the extent of email use and does it truly enable easier communication. However, it is debated that the media richness model may not provide a full explanation of the use of communication technology and there were even studies that have not found support for this model (Fulk, Steinfield, Schmitz, and Power, 1987; El-Shinnawy and Markus, 1997). Therefore, other models and theories were created including the theory of electronic propinquity, the social information processing model and the dual-capacity model.

Theory of Electronic Propinquity

Neumann (1997) defines propinquity as a fundamental concept that examines how nearness in physical space (known as proxemics) influences people's communication patterns.

> *In other words, your proxemic relationship to other people has a strong influence on who you will meet, how often you will engage in communication with specific people, who you will form friendships and coalitions with, even which of your*

neighbors you will become friends with.

(Neumann, 1997, p. 347)

Therefore, according to Newcomb (1956), in its extreme form, the proposition of propinquity may be interpreted as follows: 'other things equal, people are most likely to be attracted to those in closest contact with them' (p. 575). Therefore, the study at Business University will also examine communication due to physical closeness. Neumann (1997) adapts this concept to communication technology:

> *With increased electronic communication our closest communication partners are no longer our neighbors or office mates, rather, they are those people on the other end of the telephone, videoconference, or Internet. The factor of physical closeness is replaced with technological closeness. But it would be shortsighted to assert that relationships and friendships develop in the same manner via e-mail and face-to-face communication. Electronic propinquity examines the bandwidth of communication technologies as important factors in relationship development. The larger the bandwidth, the more communication cues available. All other factors being equal, channels that supply more cues are more likely to foster interpersonal attraction and relationship growth.* (P. 347)

These differences in cues affect communications and in so doing, influence the relationships between participants. For example, in communication channels where there is greater nonverbal capacity, participants have generally more favourable perceptions of each other (Kiesler, Siegel, and McGuire, 1984; Kiesler, Zubrow, Moses, and Geller, 1985). Thus, the research at Business University will should investigate not only physical closeness but technological closeness as well, to see whether in communication channels where there is greater nonverbal capacity such favourable perceptions exist.

These perceptions occurred in a field study undertaken by France,

Anderson and Gardner (2001). However, it revealed that communications technology can in fact exaggerate status constraints (France, Anderson and Gardner, 2001). It appears that in audio conferences, the lack of non-verbal cues with the participants' knowledge of the group's status hierarchy and the tendency to compare oneself unfavourably to those of higher status makes it more difficult for lower status individuals to contribute verbally to discussions than in face-to-face interactions (France, Anderson and Gardner, 2001). Therefore, since relationships are influenced between participants, certain researchers argue that in implementing organizational communication technologies looking at the social environment of the organization is essential (Fulk, Steinfield, Schmitz and Power, 1987; Fulk, Schmitz and Steinfield, 1990).

The Social Information Processing Model

Miller (1999) suggests that social information can not only influence perceived media characteristics or perceived task requirements, but this communicative interaction can also directly effect attitudes toward the communications media and media use behaviour. In order to compare this model to the media richness model, Miller (1999) gives the example of an organization that has just introduced an electronic mail system, to be used for internal organizational communication:

> *A media richness approach would suggest that this communication channel will be used whenever it provides a proper "match" for the ambiguity of the communicative task. However, a social information processing approach suggests that an individual's use of electronic mail will also be influenced by interaction with others in the organization.*
>
> (P. 283)

In this Miller (1999) argues that the perceptions of the various members regarding communication technology will influence the other members' actual use of the technology. Therefore, it is necessary to examine how selected members perceive communication technology at Business University, in order to also understand how they might influence other members' perception of the system at the university. According to Miller (1999), the social approach sees the use of a communication technology as a complex function including: (1) the objective characteristics of the task and media, (2) past experience and knowledge, (3) individual differences, and (4) social information. However, this model is not that different from the media richness model for 'the model shows the objective characteristics of task and media (i.e., task ambiguity and media richness) as influencing media use, it can be seen as an extension of the media richness theory' (Miller, 1999, p. 283). Another model based on the media richness theory (and could be an alternative to it) is the dual-capacity approach.

The Dual-Capacity Model

Sitkin, Sutcliffe and Barrios-Choplin (1992) suggest that communication media are not merely 'rich' or 'lean,' but that any communication medium transmits two kinds of messages: 'data' and 'meaning' (through symbols).

Data-carrying capacity is defined as the degree to which a medium is able to effectively and efficiently convey task-relevant data; (Sitkin et al., 1992). Data-carrying capacity is parallel to media richness and Sitkin et al. (1992) stress that the data-carrying capacity of a medium is

relatively constant across organizations. For example, email will have similar data-carrying capacity in various organizational environments.

Symbol-carrying capacity suggests that organizational media, such as communication technologies, have the ability to convey meaning (Sitkin et al., 1992). According to Miller (1999) this includes two types of meanings:

1. Organizational culture. Media can convey the core values and assumptions that constitute the organization's culture. For example, if an organization values a "personal touch," a formal letter will not grant a sender with the possibility to personalize a message in accordance with the company's culture.

2. Organizational status. A communication medium can achieve the status of a symbol apart from the actual transmitted message. 'For example, a presentation made via power point can carry symbolic messages about the innovativeness, preparedness or technological sophistication of the presenter' (Miller, 1999, p. 285). Accordingly, this symbolic use of technology must be researched at Business University.

Therefore, Miller (1999) suggests that the choice of communication channel is dependent on both the data-carrying capacity and the symbol-carrying capacity of the chosen medium:

> *For example, a manager who needs to remind subordinates about an upcoming meeting is faced with a relatively unambiguous task. Media richness theory would predict that media choice will be based on the data-carrying capacity of*

> *media and that the manager will choose a lean medium such as a memo. However, the organizational culture in question might include a strong value for daily interpersonal contact. Thus, face-to-face communication has strong symbolic value, and our manager might decide to stop by the offices of subordinates to remind them about the meeting.* (P. 285)

This argument that the choice of communication channel is dependent on both the data-carrying capacity and the symbol-carrying capacity can also be inferred from the following comments on email:

> *Electronic mail is said to give cheap, immediate communications, at once leveling barriers and reaching straight to the desk of the recipient. You don't risk missing a message because of a busy signal or a slow post office. Yet I find e-mail to be often undependable and annoying to access; it's usually impersonal and boring. A handwritten letter is arguably cheaper, more reliable, and far more expressive. In some instances, it can even be faster.* (Stoll, 1995, p. 17)

Consequently, in the context of the dual-capacity model, the research at the Business University on the effects of communication technology on organizational communication will also examine whether an email is indeed impersonal (as symbol-carrying capacity suggest) and if as a result there is still substantial use of a letter as a more personal means of communication.

The Effects of Communication Technology on Communication

In order to further develop the conceptual framework for this study at Business University (which will be fully presented at the overview section at the end of this chapter), a useful framework for discussing the possible effects communication technologies have on organizational communication is offered by Miller (1999). She argues that these

technologies are different from the more traditional organizational communication options in the following six ways:

1. **Speed** - allowing message transmission that is faster (such as email) than transmission by traditional communication media (mail). The research will consequently present the findings on the extent of use of email versus mail delivery in the chosen institute.

2. **Distance** - allowing communication among geographically dispersed participants. For example, video conferencing (which exists in the chosen institute of higher education) allows the participation in meetings that formerly would have required a great deal of travel.

3. **Asynchronous communication** occurs between individuals at different points in time. For example, email communication can be carried out even if the participants are never on their computers at the same time. The research will also present the findings on the extent of asynchronous communication in this institute.

4. **Addressing messages** - although the new technologies allow communication to an unknown group of people with the same interests (Culnan and Marcus, 1987), there is a danger that managers may send messages to their employees without verifying that communication actually took place. (This will also be researched in the thesis.) As stated earlier, communication occurs not when a message is sent but when it is received, read and understood (Newstrom and Davis, 1993).

5. **New memory, storage, and retrieval features** - there are new ways

in which communication technology has allowed the handling of information, such as students' grades. This will be also addressed in the thesis.

6. **Cues** - according to Miller (1999) many new technologies differ in terms of the cues, such as nonverbal communication, that are available in the communication process. The effects of the lack of traditional cues in modern communication systems will be analyzed in this research.

Although Miller's framework is useful for discussing the possible effects communication technologies have on organizational communication, it is not exhaustive. Therefore, another framework by O'Connell (1988) is presented below. She proposes six hypotheses concerning the effects of communication technology on communication in order to best prepare for the outcomes of these effects:

Hypothesis 1: **Decrease in face-to-face communication.**

O'Connell (1988) suggests that due to the growing use of communication technologies, face-to-face communication will decrease, which will result in, due to the reduction of opportunities for random, spontaneous information sharing, meaning will be derived ever more from text and symbols. Furthermore, face-to-face communication will decrease just due to the fact that handling email messages consumes a lot of time in a day (Kashten, 2002). In higher education, according to Lavi (1998), this will result in lack of interactions among students in universities using technology, sitting by themselves isolated from one another, concentrating on their activities. It was thus important to see whether this

was indeed the case at Business University, with a decrease in formal and informal communication.

Hypothesis 2: **'Short-circuits' in informal messages.**

O'Connell (1988) states that the escalating use of communication technologies will result in more informal messages of the hierarchy to 'short-circuit', thereby problem solving, based on informal communication, may yield poor decisions created out of deficient data. However, research has found out that in organizations that are introducing modern communication technologies there is an overall increase in the amount of communication (Kraemer, 1982; Rice and Case, 1983). After all, communication technology's effects 'will depend on the ways in which it [communication technology] is used' (Miller, 1999, p. 286). For example, Schwartz (1999, p. 599) suggests that a proper integration of email can improve the quality of communication. In addition, according to Gibson and Hodgetts (1991), electronic brainstorming can be used to supplement the brainstorming process that occurs in face-to-face meetings and consequently improve decision making.

Hypothesis 3: **Impaired decision-making**.

O'Connell (1988) argues that as the use communication technologies increases, decision-making will be damaged, due to ambiguity in interpreting information, rather than improved. Therefore, according to O'Connell (1988), 'the quality of decisions could be decrease with the lack of organizational values and context ... New and improved decision-making skills will be needed' (pp. 480-481). However, although

this does seem logical that in modern communication technologies the lack of organizational values and context, transmitted by nonverbal cues in traditional communication, will be damaged as socio-emotional content decreases in these new technologies, certain researches contradict this. In one research it was discovered, for example, that in electronic mail messages socio-emotional content was comparatively frequent (Rice and Love, 1987). As a result, the research at Business University must examine whether there is use of socio-emotional content by electronic email.

Hypothesis 4: **A loss of trust.**

O'Connell (1988) claims that as electronic communication replaces traditional face-to-face communication, the informal every day contact, that aids in developing trust between people, will decrease. The loss of trust is a major problem that if left unattended, can have long-term negative outcomes on an organization. Greengard (1997) has reported that technology has resulted in the emergence of electronic eyes and ears, allowing managers to monitor employees, including searching in the employees' files and reading their personal emails. Hence, the study at Business University should examine whether management uses technology for such purposes.

Hypothesis 5: **Less patience and tolerance.**

O'Connell (1988) argues that the increased use of computer technologies will result in there being 'less patience and tolerance for individual styles of communicating' (p. 481). This could result in decrease in creativity, since communication technologies do not offer the same interaction

capabilities of brainstorming in a meeting face-to-face. Gibson and Hodgetts (1991) agree that using the technique of brainstorming is very useful for generating new ideas but they also state that brainstorming 'can also be expensive to bring everyone together for a 60- to 90-minute brainstorming session. This is why some firms are turning to electronic brainstorming' (p. 165). According to Gibson and Hodgetts (1991), not only do communication technologies allow everyone to meet in an electronic brainstorming session without leaving the work place, but also due to the lack of cues in these sessions people are more blunt, direct, critical, and analytical than in face-to-face meetings. This results in improved creativity, since groups do not 'passively agree to a particular solution. Instead, there is often vigorous disagreement followed by detailed explanations regarding why the proposed solution will not work' (Gibson and Hodgetts, 1991, p. 165).

Hypothesis 6: **Increased expectations of employees.**

In her last hypothesis O'Connell (1988) maintains that as the use of communication technologies increases and as 'we become accustomed to the speed and accuracy of the computer, we may expect employees to have the same qualities and produce in a similar manner' (p. 481). Therefore, it would be interesting to find out whether there are increased expectations of the employees at Business University due to the introduction of communication technologies. Moreover, from this entire framework it can be concluded that the overall effect of implementing communication technology may be substantial organizational change.

Implementing Communication Technology and the Resulting Organizational Change

Successful initiation and implementation of organizational change, such as the introduction of communication technology at Business University, is highly dependent on senior management, who must show commitment or lead by example in the change process (Ellsworth, 2000b).

> *The importance of technology and innovation must be emphasized by people at the very top of the corporation. If they aren't interested in these topics, neither are managers below them.* (Wheelen and Hunger, 1995, p. 340)

One way to emphasize the importance of communication technology is to include it in the vision of an institution, since, for example, principals earn staff respect by articulating a clear vision for their educational institution (Vann, 1994). A vision, as defined by Tichy (1989), is a clear long-range impression of what should be realized. Although this definition does emphasize the importance of the vision being clear, it does not address the fact that a vision needs to be challenging to be realised, as does the subsequent definition. '**Vision** represents a challenging portrait of what the organization and its members can be – a possible (and desirable) future' (Newstrom and Davis, 1993, p. 29). However, instilling a vision is not a simple task, as was discovered by a new president of a university (Newstrom and Davis, 1993).

> *He was chosen to lead the institution when the interview team was impressed with his master plan for transforming the university from a position of mediocrity to one of focused excellence. However, he incorrectly assumed that the positive reaction to his general vision would automatically translate into acceptance of his specific proposals. Here he met opposition from legislators, regents, faculty, students, and alumni.* (Newstrom and Davis, 1993, p. 280)

Consequently, it is important to research how the new senior management at Business University instilled the vision that included communication technology into the organization and if opposition to this novel vision did in fact take place due to this planned strategic technological change at the institution. Since strategic change may be initiated due to the emergence of a new top manager such as a CEO (Wheelen and Hunger, 1995) or a president of an institution of higher education, as was undeniably the case at Business University, it is first of all necessary to define the term 'organizational change'.

However, since 'change isn't new, and neither is its study' (Ellsworth, 2000b, online), in selecting from the vast literature on organizational change, there has been a deliberate concentration mainly on change that results from the introduction of a technological innovation, such as modern computerized communication technologies. Therefore, organizational change is defined as a construct which 'incorporates standardized and unstandardized strategies for purposefully altering the structure, behavior, technology, and climate of organizations' (Dunn and Swierczek, 1977, p. 136). Creamer and Creamer (1986) also indicate this purposeful nature and offer the following definition of planned change:

> *Planned change is a purposeful effort to change existing policies and practices to incorporate (a) new behaviors, values, or goals, (b) new technological innovations, or (c) structural changes in the communication or authority systems of an organization.* (P. 431)

Levy (2000) agrees with this view of change, since he too differentiates between the same interconnected areas of change:

1. **Mission change** that includes changes in the goals of an organization, even completely changing the offered product or service.

2. **Structural change** where there are changes in the authorities and relationships in an organization.
3. **Technological change** that includes changes in work processes and introducing new technologies and new work methods.

However, Levy (2000) adds a fourth area of change that Creamer and Creamer (1986) do not address:

4. **Personnel change** that comprises firing and hiring employees.

Therefore, it was important to study at Business University not only the first three, but to research the extent which new communication technologies resulted in the firing and hiring of new employees and the effects this had on organizational communication. Some of these changes were already apparent before the actual formal research was underway. As described in the introduction chapter (page 18), the two systems managers were hired with the arrival of the new regime and its insertion of communication technologies into the university. However, these were obvious changes and there was need to examine whether technology had a bigger effect, since the pace of technological advancements can be one of the much more common causes for dramatic changes in the entire core of an organization (Want, 1990). This is especially true the development of information and communication technologies, which are one of the most profound areas of organizational change (Parrish-Sprowl, 1997). This change caused by technology is positive according to Hanna (1998):

> *This new digital environment is further encouraging and enabling the creation of new and innovative organizational models of that are challenging traditional residential universities to change more quickly and dynamically.* (Online)

However, change cannot 'always be planned or controlled' (Laudon and Laudon, 1998, p. 384) and 'not all technological change is strategically beneficial' (Porter, 1985, p. 165). It is true that technologies may create new and innovative organizational models in higher education, since 'technologies can open up opportunities for these changes but cannot guarantee that positive changes will occur' (Cash et al., 1992, p. 476). Indeed, communication technologies have costs in addition to their benefits.

Costs and Benefits of Communication Technology

Although microcomputers can vastly enhance the efficiency communication in the school office, implementation should be carefully planned in advance, with meticulous attention to costs and benefits (Ellis, 1984). Community colleges are making efforts to keep up with the rapidly changing technology, but the costs are substantial (McKinney, 1996). For example, the cost of new communication technology introduced in an institution of higher education is not only the cost of new hardware and software. This new technology may demand the inconvenience of learning new practices and even may disrupt work. Therefore, as Cascio (1987) discusses, costs of change are not just economic one, since there are also social and psychological costs. He argues that although the economic benefit of change may be substantial, the social and psychological costs may greater still. He also claims that although psychological and social costs are not easily quantified, they must be incorporated in the decision-making process. Indeed, research has demonstrated that they these issues are not the focus of senior management.

Research conducted in the USA by Cash, McFarlan, McKenney, and Applegate (1992) indicated that six critical questions repeatedly emerged in senior management's minds regarding the costs and benefits of IT. These questions were essential in building a focus for researching senior management at Business University. According to Cash et al. (1992), four of these questions are in effect diagnostic in nature, whereas the remaining two are evidently action oriented:

1. *Is my firm being affected competitively either by omissions in IT work being done or by poor execution of this work? Am I missing bets that, if properly executed, would give me a competitive edge? Conversely, maybe I am not doing so well in IT, but I don't have to do well in IT in my industry to be a success.* (P. 8).

According to Cash et al. (1992) failure to do well in a competitively important area is a considerable problem, while failure to perform well in a non-strategic area is something that could be handled more calmly. For example, is the popular ERP (Enterprise Resource Planning) something that the organization really needs (Friedman, 2002)?

2. *Is my development portfolio effective? Am I spending the right amount of money, and is it focused at the appropriate applications?* (Cash et al., 1992, p. 8).

Cash et al. (1992) argue that raising the question of effectiveness is appropriate but an attempt to answer it should not be made by either industry surveys of competitors' expenditures or by rules of thumb on expenditure levels. Competitors may have different financial structures and rules of thumb a decade ago are practically useless in today's environment, where very different technology labour cost tradeoffs exist.

3. *Is my firm spending efficiently? Maybe I have the right expenditure level, but am I getting the productivity out of my*

hardware and staff resources that I should get?
(Cash et al., 1992, p. 8)

As international competition grows and a shortage is developing of professional employees, this is an extremely relevant question (Cash et al., 1992).

4. *Is my firm's IT activity sufficiently insulated against the risks of a major operational disaster?* (Cash et al., 1992 p. 8)

According to Cash et al. (1992), a general-purpose answer as to what an appropriate level of protection is does not exist. 'Rather, it varies by organization, relating to the current dependence on the smooth operation of existing systems. In general, however, firms are much more operationally dependent on IT's smooth performance than their general managers believe' (Cash et al., 1992, p. 9).

5. *Is the leadership of IT activity being exercised appropriately for the role it now plays in our organization and for the special challenges it now faces?* (Cash et al., 1992, p. 9)

Historically and well into the 90s, according to Cash et al. (1992), changing IT management was senior management's main tool in dealing with dissatisfying IT performance. One major reason for this is that it represents the quickest and seemingly easiest action for senior management to take when it is uneasy about departmental performance. Also, since the nature of the job and its requisite skills evolved over time, a set of leadership skills and perspectives at one time may not be adequate at another time. Additionally, in many cases the problem is increased due to a lack of suitable definite performance-measurement standards (metrics) and data for objectively assessing performance. The researchers believe the development and installation of these standards is absolutely essential.

6. *Are the IT resources appropriately placed in the firm?*
(Cash et al., 1992 p. 9)

Examples of such organizational issues that are of intense interest to senior management include where the IT resource should report, how development and hardware resources should be distributed within the company, what activities, if any, should be out-sourced, and the existence and potential role of an executive steering committee. These issues are easily actionable and are similar in breadth to decisions made by senior managers in other aspects of the firm's operations management (Cash et al., 1992). These issues might also require strategic management of communication technology.

Strategic Management of Communication Technology

Since the decision to introduce more modern communication technologies at the university was a strategic one on behalf of the new senior management, a theoretical model of the strategic process will be presented in the context of communication technology in higher education. Later, in the discussion chapter, a comparison will be made of this model to the actual strategic management process of implementing communication technology at Business University. However, before this can be undertaken, it is essential first to define the term strategic management. According to Pearce and Robinson (1991):

> *Strategic management is defined as the set of decisions and actions that result in the formulation and implementation of plans designed to achieve a company's objectives... A strategy is a company's "game plan." Although that plan does not precisely detail all future deployments (of people, finances, and material), it does provide a framework for managerial decisions.* (P. 3)

Although this definition is useful in that it explains that strategic management is a means to achieve an organization's objectives, it does not describe the process by which strategic management takes place. For Wheelen and Hunger (1995), 'the process of strategic management involves four basic elements: (1) **environmental scanning**, (2) **strategy formulation**, (3) **strategy implementation**, and (4) **evaluation and control**' (p. 7). This definition portrays the strategic change process clearly, but does so in a general fashion that is not directly connected to communication technology. Therefore, the following segment of this chapter will utilize this definition as a framework, while adapting each element within it in the context of communication technology in higher education.

1. Environmental Scanning

According to Wheelen and Hunger (1995), environmental scanning includes both **external analysis** as well as **internal analysis**. One of the external pressures to change is technology (Robbins and De Cenzo, 1998). Another is legislative action (Yee, 1998). Robbins and De Cenzo (1998) agree with this view, stating that 'government laws and regulations are a frequent impetus for change' (p. 268). Yee (1998) adds that 'in some instances, reform is not voluntary but mandated' (online). This was indeed the case in Israel with the 11th amendment to the Council for Higher Education Law being passed on February 1998, which drove all extensions in the direction of communication technologies (as explained in the introduction chapter on pages 11-12).

However, it is important to keep in mind that 'other obstacles may arise from the environment in which change is implemented' (Ellsworth,

2000b, online). These may include competition. For example, the president of Rio Salado College in Arizona, assessed that the college's declining student enrolments were created by increased competition from other recently opened colleges (Thor, Scarafiotti, and Helminski 1998). They may also include other factors. For instance, according to Medway (1989), in Australia, just as in other countries, there are economic, social and educational pressures that have led to increasing significance being placed on technology.

In addition, 'internal forces can also stimulate the need for change. These internal forces tend to originate primarily from the internal operations of the organization or from the impact of external changes' (Robbins and De Cenzo, 1998, p. 271). This is also true of institutions of higher education, which are constantly evaluating which option is the desirable one in terms of communication technology. These institutions are just now traversing the threshold between reasonable experimentation with and mainstream implementation of communication technologies (Green and Gilbert, 1995). Thus, it was necessary in the study at Business University to research how management conducted this environmental scanning, including how it performed external analysis and internal analysis, leading to the formulation of strategy regarding communication technology.

2. Strategy Formulation

'The first step in the formulation of strategy is a statement of mission, which leads to a determination of corporate objectives, strategies, and policies' (Wheelen and Hunger, 1995, p. 9). This strategy formulation of long-range plans for effective management is developed while taking

into account the aforementioned internal and external factors (Wheelen and Hunger, 1995). Although, as stated earlier, Pearce and Robinson (1991) maintain that a strategic plan provides a framework for managerial decisions, without precisely detailing all future deployments of people, finances and materials, Glenna and Melmed (1996) disagree with this view. They observed that for successful implementation of communication technology the technology plan must be a detailed one, considering aspects of funding, installation and integration of equipment, including the ongoing management of the technology. Therefore, Glenna and Melmed (1996) suggest that one of the key factors in successful implementation of communication technology is a detailed technology plan expressing a clear vision of the objectives of the technology integration.

Another factor to contemplate is that 'each institution has a number of decision-makers who can play a pivotal role in pushing technology plans forward or making them grind to a halt. Unless such people are brought into the technology planning process in an effective way, the process can be crippled. In some cases, however, these critical people don't want to participate in technology planning. They may be unfamiliar with or openly hostile to technology or to the hierarchical administrative structure in which they find themselves' (Huff, 2000, p. 637). Accordingly, at Business University it was valuable to establish which factors were considered in building a strategic implementation plan. However, although there are many factors that must be taken into consideration when implementing a technological system (Friedman, 2002), 'at some point one must commit to a plan, and act' (Ellsworth, 2000b, online), since strategy should be implemented.

3. Strategy Implementation

> ***Strategy implementation*** *is the process by which management translates strategies and policies into action through the development of programs, budgets, and procedures. This process might involve changes within the overall culture, structure, and/or management system of the entire organization.*
> (Wheelen and Hunger, 1995, p. 13)

Although this offers a comprehensive definition of strategy implementation, it does not differentiate between the different stages of implementation of a technology, which exist in the subsequent description that although is in the context of production is helpful:

> *Adoption of technology proceeds as follows:*
> *1. Initiation: The stage during which the adopting unit acquires information about the innovation and goes through an approval process for using the innovation.*
> *2. Adoption: Developing capabilities for using the innovation, such as training and/or hiring personnel, or physically acquiring the innovation.*
> *3. Implementation: Using the innovation in production for any complete software development projects.*
> (Carter et al., 2001, p. 278)

For a technology to pass the initiation state, it should not contradict the strategic plan. For example, expensive communication technologies would not be initiated at all in a university focused on short-term profit. Therefore, the research at Business University should investigate what were the factors that initiated the communication technology process at the university. Furthermore, the second stage of the process should be researched including how the new senior regime developed capabilities for using communication technology, such as training and/or hiring personnel, or physically acquiring the technology. The third stage of

implementation defined by Carter et al. (2001) should also obviously be studied at Business University, although in a manner relevant to communication technology.

However, the term implementation is used in various ways in the context of ICT. Implementation 'is sometimes used to mean technical implementation, namely ensuring that system development is completed and that the system functions adequately in a technical sense. At other times, it is used to refer to the human and social aspects of implementation, such as that the system is used frequently by organizational members or that it is considered valuable to them in their personal work activities or co-ordination with others' (Walsham, 1995, p. 210). Furthermore, Carter et al. (2001) do not differentiate between implementation and institutionalization. Consequently, the following definitions were chosen as to focus the research:

> *The* ***implementation*** *phase is concerned with the specific actions taken to put an idea or reform into practice in order to effect change. Characteristics of this phase involve complexity and often lots of sub-processes. The innovation generally interacts with its setting and the behavior of people within the setting.* (Williamson, 1999, p. 27)

> *It is generally recognized that* ***institutionalization*** *takes place when attempts are made to stabilize the change in state. It is at this stage that the innovation is no longer considered new or novel as it has become accepted as part of the normal practice within the system.* (Williamson, 1999, p. 27)

Researching not only implementation but institutionalization as well is essential for the research project at Business University, because for an innovation (such as communication technology) to succeed and to be sustained over time, it must be institutionalized (Miles and Louis, 1986).

However, to achieve institutionalization requires great efforts on behalf of a university, since 'change within higher education depends on changes in the actions of individual faculty members, administrators, and students - changes which constitute a network of personal interactive forces affecting the motion of an innovation toward institutionalization' (Martorana and Kuhns, 1975, p. 110). For example, in implementing and institutionalizing a web-based profiling system at University of Liverpool that would record the outcomes of learning in a variety of contexts, including academic and non-academic activities, a series of staff development activities were run for a total of 369 academic and academic-related staff within the University (Gray and Bullen, 2000). Presentations about the system were also made to major University committees (Gray and Bullen, 2000).

These efforts demonstrate that University of Liverpool understood that 'unless changes occur in individuals whose actions are crucial to the progress of an innovation, institutional change is highly unlikely' (Martorana and Kuhns, 1975, p. 110). The university has also shown that it comprehends that although there several factors integral in supporting the process of institutionalizing change or how enduring an innovation becomes, 'innovations cannot become lasting without a rather significant role from leaders' (Curry, 1992, online).

> *The direction and support of leaders are required for change to take place. And the term "leader" is not limited to the chief executive officer. The role and the function of leadership are different. The role is a formal designation vested in contractual arrangements; the function is an informal designation in which responsibilities or activities associated with leadership are shared among members of the organization. Consequently, "leader" might refer to a number of individuals participating in the change process.* (Curry, 1992, online)

Huff (2000) agrees with this stating that 'for a technology effort to be successful, key individuals within the academic community, faculty, senior officers and staff personnel, must understand the importance of an initiative and, to some extent, take ownership of it' (p. 636). Laudon and Laudon (1998) refer to these leaders or key individuals as change agents. According to Laudon and Laudon (1998), a change agent is 'the individual acting as the catalyst during the change process to ensure successful organizational adaptation to a new system or innovation' (p. 514). Change agents are critical for the implementation and institutionalization of a new technological system, and Fullan (1993) has hence argued that every person in an organization should be a change agent.

Nevertheless, although it is almost impossible for every person to be a change agent, the actual change agents must give support which 'is more than just answering user questions about how to use a system to perform a particular task or about the system's functionality. Support also consists of such tasks as providing for recovery and backup, disaster recovery, and PC maintenance' (Hoffer, George and Valacich, 2002, p. 599). Thus, it was important to study at Business University who the change agents were and to how successfully did they support communication technology. After all, 'a single innovation (like a new technology or teaching philosophy) that is foreign to the rest of the system may be rejected, like an incompatible organ transplant is rejected by a living system. Success depends on a coordinated "bundle" of innovations - generally affecting several groups of stakeholders - that results in a coherent system after implementation' (Ellsworth, 2000b, online). Since at Business University innovative communication technologies were introduced to the organization, it was necessary to evaluate their success.

4. Evaluation and control

> ***Evaluation and control*** *is the process by which corporate activities and performance results are monitored and actual performance compared with desired performance.*
> (Wheelen and Hunger, 1995, p. 15)

This situation of monitoring is truer of higher education that ever. Since time, effort, and money are very valuable resources for colleges and universities, management does not only have to meet administrative expectations with regard to student outcomes but technology programs are increasingly being asked to evaluate and justify high-dollar equipment purchases of communication technologies (Hall, 1996). Additionally, evaluation of the success of a strategic process, such as introducing communication technology at Business University, is 'an input for future decision making' (Pearce and Robinson, 1991, p. 3). However, according to Laudon and Laudon (1998), it is not always an easy task to measure the success of a system.

> *Individuals with a different decision-making styles or ways of approaching a problem may have totally different opinions about the same system. A system valued highly by an analytical, quantitatively oriented user may be totally dismissed by an intuitive thinker who is more concerned with feelings and overall impressions.* (Laudon and Laudon, 1998, p. 511)

Nonetheless, since the fourth key research question specifically addressed the extent of success of the communication technology system at Business University, as both enacted and perceived by selected members, a set of criteria was necessary for the research. Thus, although various different criteria have been developed, it is deemed by numerous researchers that the following measures of a system success are the most important (Laudon and Laudon, 1998):

1. *High level of system use.* Thus, it was necessary to observe the extent different participants use communication technology at Business University.

2. *User satisfaction with the system.* Hence, in this study it was essential to ask each selected member his or her opinion on the degree of success management had in introducing modern communication technology to the university.

3. *Favourable attitudes* of users about the system. Consequently, this too needed to be researched at Business University.

4. *Achieved objectives.* Accordingly, since 'a successful innovation is one that has achieved its goals--whatever those goals might be' (Curry, 1992, online), it was necessary to ask senior management how they planned the implementation of the introduced communication technologies in terms of reaching set goals.

5. *Financial payoff* to Business University, either by reducing costs or by increasing student enrolment. This was important to research since one of the main reasons for the success or failure of innovations in higher education is profitability (Levine, 1980) and 'high technology does not guarantee profitability' (Porter, 1985, p. 165).

However, although these five measures evaluate implementation success of a communication technology system, they do not explain the reasons for this level of success. One of the causes of implementation success or failure is user resistance to such a system (Laudon and Laudon, 1998).

User Resistance to Communication Technology

Although a new technology may be beneficial to an organization, it may not on its arrival be quickly and automatically accepted by all users (Miller, 1999). This is because the introduction of technological innovation into an organization, such as modern communication technology, 'is a change process' (Hoffer, George and Valacich, 2002, p. 45) and 'such change may be resisted because different users may be affected by the system in different ways' (Laudon and Laudon, 1998, p. 527). Marcus (1990) even suggests that modern communication technology will not be widely accepted until there is a 'critical mass' of individuals who use the technology.

> *We all know people who are still reticent to use a computer and who would be baffled if confronted with a fax machine.*
> (Miller 1999, p. 280)

Accordingly, an organization introducing modern communication technology, as Business University did, must be prepared for resistance that comes with such organizational change.

> ***Resistance to change*** *consists of any employee behaviors designed to discredit, delay, or prevent the implementation of a work change. Employees resist change because it threatens their needs for security, social interaction, status, or esteem. The perceived threat stemming from a change may be real or imagined, intended or unintended, large or small. Regardless of its nature, employees will to protect themselves from the effects of change. Their actions may range complaints, foot-dragging, and passive resistance to absenteeism, sabotage, and work slowdowns.* (Newstrom and Davis, 1993, p. 276)

Therefore, user resistance to technology results in the change process being pains-taking, slow and often unsuccessful (Yazici, 2002). For

example, in his research of the turning around of information systems at the Honeywell organization, Renier (1987) quoted Honeywell's president in stating that 'change comes very slowly' (p. 50). There are various reasons for resistance to a technological innovation, such as communication technology. 'Perhaps some stakeholders see the innovation as eroding their status. Possibly others would like to adopt the innovation, but lack the knowledge or skills to do so. Opposition may come from entrenched values and beliefs, or from lack of confidence that the system is capable of successful change' (Ellsworth, 2000b, online). According to Newstrom and Davis (1993) there are three different types of resistance to change that work in mixture to produce an employee's total attitude toward a change, such as a technological change:

- Logical resistance is based on differences of opinion regarding the facts, rational reasoning, logic or science. Logical resistance occurs due to short-run costs, such as the actual time and effort required to adapt to change, including new job duties that must be studied. Therefore, although a change may be advantageous for employees in the long run, these short-run costs must first be considered. 'Even when managers use their most logical arguments and persuasion skills to support a change, they frequently discover that employees remain unconvinced of the need for it' (Newstrom and Davis, 1993, p. 270).

- Sociological resistance is seen as a result of a challenge to group interests, norms, and values. Since social values are influential forces in the environment, they must be carefully contemplated. Also, on a small-group level, there are work friendships and status relationships that may be upset by changes. For example, consider a situation

where two employees, one older and one younger, got along well until communication technology was introduced and the relationship was damaged due to the younger employee having far superior knowledge in this technology. The older employee would feel that the younger one was undermining his or her status and would therefore resist any change.

- Psychological resistance is usually based on emotions, sentiments, and attitudes. Employees may fear the unknown, mistrust management's leadership, or feel that their security and self-esteem are threatened (Newstrom and Davis, 1993). Employees also fear that the change will result in an increased workload for them (Gibson and Hodgetts, 1991). Management must deal with these feelings, since they are very real to employees (Newstrom and Davis, 1993). It thus important to examine how management dealt with these feeling at Business University, especially with resistance to technological change.

Some psychological resistance to technology is due to computer anxiety, resulting in cognitive behaviour which 'limits the usefulness of the technology' (Brosnan, 1998, p. 224). Computer anxiety has also been referred to as technophobia (Parrish-Sprowl, 1997). It is argued that computer anxiety influences computer-based learning by affecting levels of self-efficacy (Brosnan, 1998). Self-efficacy is defined as a judgment of 'how well one can execute courses of action required to deal with prospective situations' (Bandura, 1982, p. 122). 'Self-efficacy is determined by levels of anxiety in addition to enactive and vicarious experience. Enactive experience refers to actual experience' (Brosnan, 1998, p. 225). 'The problem is that organizations are moving towards

increasing computerization, and technophobic employees need to learn to use the machines' (Parrish-Sprowl, 1997, p. 192). Indeed, according to Daum and Scheller (2000), computers are everywhere, since there are currently 'about 15 billion microchips are in use – 2.5 for every human being' (p. 9).

However, in the modern world knowing how to operate the computer, i.e. being computer literate, is not enough. 'There is increasing recognition that the end result of computer literacy is not knowing how to operate computers, but to use technology as a tool for organization, communication, research, and problem solving. This is an important shift in approach and emphasis' (Eisenberg and Johnson, 2002, online). This has expanded 'the definition of computer literacy to include information literacy as well' (Zeszotarski, 2000, online). Information literacy is defined as the 'ability to locate, manage, critically evaluate, and use information for problem solving, research, decision making, and continued professional development' (Orr, Appleton and Wallin, 2001, p. 457).

> *Yet, in recent years, reports have documented the "functional illiteracy" of many adults, who are unable to manage the information they need.* (Hubbard, 1987, online)

One of the reasons numerous people worldwide are still computer or information illiterate, which leads to computer anxiety, is lack of the necessary commitment to learning by senior managers (Hancock, 1993). This is especially vital in introducing an innovation to an organization, since such 'an early commitment to learning as a process, not as an end product, and the role information literacy plays in this process, will enable workers to see these changes as transitional, not traumatic'

(Hancock, 1993, online). Hence, it was necessary to research senior management's commitment to learning at Business University. Nevertheless, when considering bringing new technology to an organization, commitment to learning will not by itself bring about professional and organizational change (North, Strain and Abbott, 2000).

'Financial resources are critical to virtually all information technology efforts' (Huff, 2000, p. 638). This was already conveyed two decades ago in the research of Benderson (1985), as Roger Kershaw, the director of the Educational Testing Service Technology Research Group, expressed worries that attempts to integrate communications technologies into education will go the way of other failed innovations, if administrators are not willing to provide adequate resources for these technologies. His worries are also relevant today, as for example, the new president of Phoenix College discovered the necessity for capital in order to improve infrastructure (Pepicello and Hopkins, 1998).

Furthermore, the importance of financial resources is true not only for organizations, but in home use as well. For example, research on the influence of students having access to a home computer on their use and attitudes towards ICT in UK higher education revealed that having such access is advantageous for students both in terms of the actual use of ICT as well as in their orientation towards ICT in university (Selwyn, Marriott and Marriott, 2002). 'Moreover, there is little evidence that students lacking domestic access to ICT are compensating for this by making more use of computers whilst in college; suggesting that home computing may be exaggerating differences between students' (Selwyn, Marriott and Marriott, 2002, p. 45). As Selwyn, Marriott and Marriott

(2002) even stated that more research is needed in exploring how to minimize the disadvantages for those students without access to ICT, it was imperative for the study at Business University to investigate which students had home access to ICT. It is important to state that this examination of home access to communication technology was broadened to include all selected members of the university, since it enables a better understanding of the technological background and information literacy of that member.

Consequently, in order to understand the possible different resistances to change at Business University, the research must examine the level of computer literacy or information literacy in the institution and its relationship to computer anxiety. However, resistance to organizational change can also be beneficial. Newstrom and Davis (1993) suggest that 'resistance may encourage management to re-examine its change proposals, thus making sure they are appropriate' (p. 279). After all, 'change is a negotiated process, requiring that standards of reasonableness be met' (Curry, 1992, online).

> *To help meet those standards, the dissident voice must be heard; that is to say, it must be part of communication networks and decision-making processes associated with the development and implementation of innovation. The dissident voice offers a test of the premises upon which innovations are based, challenging standards implicit in beliefs about the kind of change necessary to improve an organization.*
>
> (Curry, 1992, online)

Since resistance to an innovation may help in identifying 'specific problem areas where a change is likely to cause difficulties' (Newstrom and Davis, 1993, p. 279), it could even improve organizational communication.

Communication and Resistance to Communication Technology

Modern organizational communication and resistance to communication technology are intertwined. Ellsworth (2000a) illustrates this using the following framework: (1) a change agent desires to communicate an innovation to an intended party using (2) a change process that creates a channel through the environment but (3) this environment also includes resistance that can distort the innovation's appearance in the eyes of the intended party. For instance, a manager may adopt Siegel's (1999) recommendation to use communication technology to improve downward communication by sending a weekly email message since it 'is a reassuring way to keep people informed of the latest developments' (p. 64). However, this use of technology may result in resistance if not communicated properly, since 'communication is essential in gaining support for change' (Newstrom and Davis, 1993, p. 286). For example, 'insufficient communication between IT people and users is considered as one of the main causes for user resistance' (Intrapairot, 2000, p. 64).

In this, it seems that the literature review has come full circle. In order to improve communication in organizations, there is need to introduce communication technology. However, the introduction of communication technology creates resistance to change. In obtaining support for this organizational change, it is necessary to improve communication.

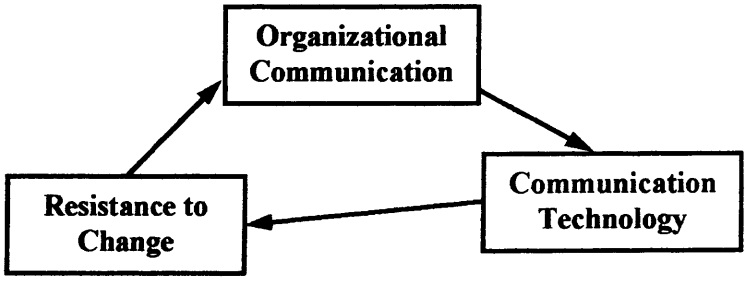


Figure 2.23: Communication and Resistance to Communication Technology

OVERVIEW

> *A [literature] review pulls together and synthesizes different results.* (Neuman, 1997, p. 89)

In order for the different results examined in the literature review to be synthesized into this research project, this overview will first include the conceptual framework that was instrumental in influencing the planning of the research at Business University. In this, it is important to note that this conceptual framework is not a summary of the literature review. Consequently, the conceptual framework will not simply summarize the two sections on communication and communication technology. Rather it draws the discussion as a whole, focusing in particular on how this review has informed and shaped the research project at Business University.

In addition, the overview will present how the research questions were refined due to the conceptual framework and in context of the literature review. To achieve this, it was necessary to link the research questions to the issues and professional terms revealed in the review, thereby improving these initial questions through the addition of several subsidiary research questions for each of the key research questions. Accordingly, for each of the six key research questions (which were not changed), a discussion based on the literature review – that will include referring the reader to the relevant pages in the literature review chapter – will result in the development of several new subsidiary research questions (which will be in Italics).

Conceptual Framework

According to Robson (1993), a conceptual framework covers the key features of a case study and their expected relationships. 'Developing a conceptual framework forces you to be explicit about what you think you are doing. It also helps you to be selective; to decide which are the important features; which relationships are likely to be of importance or meaning; and hence, what data you are going to collect and analyse' (Robson, 1993, pp. 150-151). In order to focus the data collection, the conceptual framework must first take into account the purpose of this research, which is 'to research the effects of communication technology on organizational communication in an institution of higher education in Israel over time [or before, during and after a period of major change], including as perceived and enacted by selected members'. This may be translated into a general diagram in the following manner:

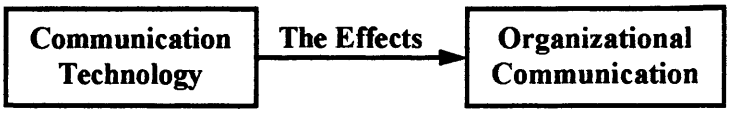


Figure 2.24: General Conceptual Framework

Based on this, the conceptual framework was divided (in a similar manner to the division of the entire literature review) into two sections: organizational communication and communication technology, including its organizational effects, especially on communication. As a result, in order to understand the term 'communication', the conceptual framework first of all relies on the following definition of communication developed specifically for this study at Business University by synthesizing the reviewed definitions (see page 33):

- Communication is a social two-way process through which

information (such as facts, ideas, feelings and values) is transferred by any means, whether interpersonal or mechanical, between at least two people: a sender and a receiver. Although the goal of sender is to have the receiver understand the message as it was sent - and indeed such effective communication prevents misunderstandings - **communication is what the receiver actually understands**, not what was sent.

Then, in order for the conceptual framework to address organizational communication, it includes:

- The formal and informal communication, including the grapevine (presented on pages 45-48),
- The communication flows of downward, upward, horizontal and diagonal communication (pages 48-52),
- The patterns of communication of the 'wheel', the 'circle', the 'chain' and the 'all-channel' (pages 54-57), and
- The members' roles of liaisons, bridges, gatekeepers, isolates, opinion leaders and cosmopolites (pages 57-59).

The second part of the conceptual framework is focused on communication technology and thus first of all is based on the following definition of communication technology, which was proposed for the research at Business University (see page 91):

- Communication technology is any mechanical means, including computer-mediated communications, which are mainly used to support formal and informal organizational communication but, being an integral part of information technology, are also used to support the formal information system.

Then, in order for the conceptual framework to address communication

technology, it is composed of:

- Users' perceptions of communication technology (page 99),
- Twelve effects of communication technology on organizational communication (pages 101-106),
- Six critical questions raised by senior management (pages 111-113),
- Senior management's commitment in implementing communication technology (pages 107-108, 126-127),
- Change agents support of communication technology (pages 119-120),
- Resistance to communication technology, including computer anxiety and information literacy (pages 123-128), and
- Five measures of a system's success (pages 121-122).

According to Robson (1993), there are a variety of ways to view the link between a conceptual framework and the research questions. One possibility is to create a conceptual framework that allows outlining the research questions (Robson, 1993). A second option is to initially develop the research questions and work back from that to the conceptual framework (Robson, 1993). 'It is, of course, possible to have a mixed strategy' (Robson, 1993, p. 153). A mixed strategy was indeed chosen for this research project at Business University. First, on the basis of the purpose of this research, six key research questions were formulated before the literature review was undertaken (see page 22). Then, the conceptual framework was synthesized from the literature review, which set the stage for an additional refinement of the research questions by adding subsidiary research questions in the context of the conceptual framework. These new subsidiary research questions were accordingly entitled 'Refined Research Questions'.

Refined Research Questions

The first key research question (emphasized) was:

1. **What were the past patterns of communication at the university before the change in senior management, including the attitudes of the former senior management towards communication technology, mainly as perceived by selected members?**

Since the first section of the literature review on communication focused on several definitions of communication, resulting in one being offered on page 33, the initial subsidiary research question deals with defining the term communication:

> *How do these members, especially the former senior management, define the term 'communication'?*

Since there was a discussion on formal and informal communication, including the grapevine (presented on pages 45-48), communication flows (pages 48-52) and various patterns of communication introduced (pages 54-57) as well as members' roles (pages 57-59), these questions were created:

> *How could this past network of communication be mapped out, including the formal and informal network, messages flow (downwards, upwards, horizontally or diagonally) and which type of network would best describe those patterns: the 'wheel', the 'circle', the 'chain' or the 'all-channel'? What were then the roles of members (such as liaisons, bridges, gatekeepers, isolates, opinion leaders or cosmopolites) in this communication network?*

Since it was discussed on page 99 that it is necessary to examine how selected members perceive communication technology at the university, in order to also understand how they might influence other members' perception of the system at the university, the following two questions

were formulated:

> *How did the then senior management perceive the use of communication technologies and its importance to organizational communication at Business University?*
>
> *How do selected others perceive the importance the former senior management put on communication technologies?*

On the basis of the relationship discussed on pages 125-128 between computer anxiety and information literacy, including lack of computers at home, the following was produced:

> *What was the level of computer/information literacy of selected members and did computer anxiety exist? Which one of them had a computer and other modern technologies at home?*

Since there are many possibilities in communication technology, the subsequent subsidiary research question was devised:

> *Which were the communication technologies that then existed at the university and how were they used?*

The second key research question (emphasized) was:

2. **What were the patterns of communication at the university immediately after the change in senior management and how did the new senior management attempt to introduce modern communication technology to the organization, mainly as perceived by selected members?**

Since the first section of the second key research question deals with the same issues as the first key research question, the following subsidiary research questions remained the same:

> *How do these members, especially the new senior management, define the term 'communication'?*

How could this past network of communication be mapped out, including the formal and informal network, messages flow (downwards, upwards, horizontally or diagonally) and which type of network would best describe those patterns: the 'wheel', the 'circle', the 'chain' or the 'all-channel'? What were then the roles of members (such as liaisons, bridges, gatekeepers, isolates, opinion leaders or cosmopolites) in this communication network?

What was the level of computer/information literacy of selected members and did computer anxiety exist? Which one of them had a computer and other modern technologies at home?

However, since the new senior management introduced communication technology to the university, there was a need for more subsidiary research questions. The first are in the context of some of the critical questions raised on pages 111-113:

How did the new senior management then perceive the use of communication technologies and its importance to organizational communication at Business University? Therefore, after the change, was there a strategic decision to increase the use of communication technology? If so, what resources were allocated due to this decision and thus which were the communication technologies that were then introduced to the university?

This is in the context of user resistance to communication technology (pages 123-125):

As a result of the introduction of modern communication technologies, what types of resistance, such as logical, psychological (which includes computer anxiety) or sociological, did the stakeholders therefore have to these changes?

This focuses on commitment of senior management in implementing communication technology (pages 107-108, 126-127):

To which extent did creating vision and commitment to learning exist

in this technological change process?

These addressed the implementation aspects in general without using the literature's models in order to allow later comparisons in the discussion chapter. It does however include change agents that were presented on pages 119-120:

What were the stages of the implementation process of communication technology at the university? Who were the change agents that helped in introducing the technological change and how did they support communication technology?

The third key research question (emphasized) was:

3. **What are the current patterns of communication at the university, focusing on communication technology and its effects on organizational communication, as both enacted and perceived by selected members?**

Since the first section of the third key research question deals with similar issues as the first and second key research question, the following subsidiary research questions remained nearly same:

How do these members, especially the new senior management, define the term 'communication'?

How could this network of communication be mapped out, including the formal and informal network, messages flow (downwards, upwards, horizontally or diagonally) and which type of network would best describe those patterns: the 'wheel', the 'circle', the 'chain' or the 'all-channel'? What are the roles of members (such as liaisons, bridges, gatekeepers, isolates, opinion leaders or cosmopolites) in this communication network?

How does the current senior management now perceive the use of communication technologies and its importance to organizational

communication at Business University?

How do selected others perceive the importance the current senior management puts on communication technologies?

What is the current level of computer/information literacy of selected members and does computer anxiety exist? Which one of them has a computer and other modern technologies at home?

Which are the communication technologies that exist at the university today?

Since the second deals with the effects of communication technology on organizational communication, some questions were added in the context of the literature review, including informal communication (pages 45-48), communication flows (pages 48-52), patterns of communication introduced (pages 54-57), and email effects (mainly pages 101-106). However, these questions are not the only possible effects and thus if other effects are revealed in the research at Business University they will not be ignored.

What are the specific effects of communication technology on formal and informal organizational communication network, including on downward, upward, horizontal and diagonal communication? Which structural change resulted from the introduction of communication technology? Which personnel change resulted from the introduction of communication technology? To what extent is email being used at the university?

This subsidiary question deals indirectly with aspects of institutionalization (pages 118-120):

Who are the persons currently responsible for communication technology in this institute of higher education and what type of dialogue do they have with the various users?

The fourth key research question (emphasized) was:

4. **How successful is the communication technology system at the university, as both enacted and perceived by selected members?**

On the basis of the five measures of a system success (pages 121-122) the following five subsidiary research questions were created:

Is there a high level of communication technology system use?
Are the various users satisfied with the communication technology system?
How favourable are the attitudes towards the communication technology system?
Did the communication technology system achieve its objectives?
Were there financial payoffs to the communication technology system such as reduced costs or increased student enrolment?

The fifth key research question (emphasized) was:

5. **Why did the communication technology system develop at the university to its current level of success or failure?**

This question was defined as an analytical one in the introduction chapter (page 22). In order to set the stage for the discussion chapter, it was divided into the same two areas of the literature review, which will allow comparing and contrasting the findings with the literature review. The first is communication:

Are there major differences in the definitions of the term 'communication' of selected members, especially of those by the new senior management when compared to those of the former senior management?

The second subsidiary research question concentrates on communication technology, including its implementation:

Are there major differences in the attitudes of selected members to modern communication technology, especially the attitudes of the

new senior management as compared to those of the former senior management?
Analyzing the implementation process of communication technology at Business University, what can be learnt? What did senior management do right and what did they do wrong in implementing technology?

The sixth key research question (emphasized) was:

6. **What possible relevance does this research have for other organizations of higher education?**

Since this question is the basis for the conclusions and recommendations chapter, it was separated into three subsidiary research questions. The first deals with generalization from a case study. (Note: the possibility to generalize from a case study will be discussed in the methodology chapter.)

Can a theoretical framework/model on the implementation of communication technology, based on the case study, be formulated?

The second subsidiary research question here is retrospective of the research at Business University:

In retrospect, what has this research contributed to the field of organizational communication?

Since any research should give 'recommendations for further research' (Rudestam and Newton, 1992, p. 121), the following was formulated:

What are promising new directions for further research created by this case study at Business University?

Although these literature-based changes added the new subsidiary research questions, they did not alter the focus of this research project.

On the contrary, since the key research questions remained untouched - merely interpreted in more clarity by linking them to the literature review through their subsidiary research questions - these amendments only augmented the focus of the research. Since the research questions drive the data collection process (Robson, 1993), this was an essential step in setting the stage for the next part of this thesis, the methodology chapter.

Chapter 3 – Methodology

INTRODUCTION

There is no single blueprint for planning research.
(Cohen, Manion and Morrison, 2000, p. 73)

In planning the research for the project at Business University it was soon discovered there are two possible conflicting general research traditions that might be relevant: the 'positivist'/'quantitative'/'scientific' paradigm and the 'naturalist'/'interpretivist'/'qualitative' paradigm. Therefore, the first section of this chapter will address in detail these two paradigms in order to choose an approach for this study. Then, case study research will be presented including reviewing several possible definitions and classifying six different types of case studies, of which one will be chosen for this research. The next sections of this chapter will focus on choosing the tools for the case study on the basis of their satisfying the research questions, including the sixth research question on generalization.

After a discussion on generalization in the context of case studies, the chosen case study methods, which are interviews, observations and documentary analysis, will be introduced. For each research tool, definitions will be offered, planned guidelines presented and the scope of collected data put forth. Subsequently, explanations will be given on how the data was analyzed within the framework of data reduction, data display, and conclusion drawing and verification. Finally, the chapter will conclude with ethical issues structured according to the four ethical values of respect for persons, respect for knowledge (which includes trustworthiness and triangulation), respect for democratic values, and respect for the quality of educational research.

RESEARCH PARADIGM

Custer (1996) states that, 'in its simplest form, research involves careful observation and clear reporting' (p. 4). However, there is no existing consensus on how to achieve this 'careful observation and clear reporting', since there are different research traditions, also called paradigms (Oosthuizen, 1995). A paradigm is 'a world view or conceptual model of research which a community of researchers in a particular discipline (in this case communication) adopts' (Oosthuizen, 1995, p. 2). In approaching this research project, there were basically two possible general paradigms to consider (Oakley, 2000): the 'positivist'/'quantitative'/'scientific' paradigm (hereafter the positivist) or the 'naturalist'/'interpretivist'/'qualitative' paradigm (hereafter the interpretivist). Yet, in examining these two possible paradigms, it was soon discovered that they are in conflict 'in different academic and practice fields' (Oakley, 2000, p. 24).

Since the purpose of this study was to research the effects of communication technology on organizational communication in an institution of higher education, it would appear that this research must involve a case study based on an institute of higher education, Business University. As such, the research approach must seem to be within the interpretivist paradigm. However, Brewer (2000) maintains that there is no necessary association between the case study approach to qualitative methods, since some case studies can be quantitative and highly statistical. Consequently, the positivist paradigm was still deemed as a potentially valid research approach for this project at Business University.

Understanding the Two Paradigms

In the positivist paradigm, there is a belief that valid knowledge can only be acquired through empirical evidence collected by an objective researcher (Oosthuizen, 1995). This approach aims to achieve 'objectivity, standard procedures and replicability' (Johnson, 1994, p. 7). As a result, when studying communication, there is emphasis in this paradigm on quantitative research methods, such as surveys and statistical analyses (Oosthuizen, 1995). Also, in the field of communication, researchers of this tradition accepted the linear model of communication as a mathematical model of communication (Oosthuizen, 1995). However, communication is a complex phenomenon (Lowery and De Fleur, 1988) that cannot be described linearly, and, according to Riches (1994), there is movement from the linear model of communication to the idea of communication as a mutual experience.

Anti-positivists, rejecting the viewpoint of the detached objective observer, argue that research itself is a mutual experience, since to understand individuals' behaviour requires sharing their frame of reference from the inside, not the outside (Cohen, Manion and Morrison, 2000). It was thus not surprising that another paradigm developed, the interpretivist paradigm, which has gained significant acceptance during the recent decades, predominantly during the 1970s and 1980s (Custer, 1996). It 'took the view that all human life is experienced and indeed constructed from a subjective point of view, and that social research should seek to elicit the 'meaning' of events and phenomena from the view of participants' (Johnson, 1994, p. 7). Since in the rapidly changing world of communication and communication technology, there is a shift towards qualitative research methods (Lemon, 1995), it was important to

compare the two paradigms, before choosing a paradigm for this thesis.

Paradigms' Comparison

Researchers within the positivist tradition, in their belief that they will be able to establish the truth, 'think they are studying the real world, which consists of things it is feasible to try to find out about' (Oakley, 2000, p. 25). On the other hand, researchers within the interpretivist paradigm 'dispute the idea that there is a single reality to be known, and regard the pursuit of 'hard data' as impractical and unachievable' (Oakley, 2000, p. 25). The researchers here are 'aware of the constantly shifting ground of human social interaction and identity, and doggedly hound to the apparently more modest goal of reproducing faithfully and democratically whatever it is they think they may have found' (Oakley, 2000, p. 25). Some of the methodological differences between the two research traditions can be summed up in the following table (adapted from Oakley, 2000):

Attribute	**Positivist paradigm**	**Interpretivist paradigm**
1. Research strategy	Structured	Unstructured
2. Implementation of method	Decided a priori	Decided in field setting
3. Researcher's stance	Outsider	Insider
4. Data type	Reports of attitudes and actions	Feelings, behaviours, thoughts as experienced or witnessed
5. Relationship between research and theory	Confirmation	Emergent

Table 3.1: Differences between the Paradigms

Preferred Paradigm

In order to choose a paradigm for this study, each of these five attributes was examined in the context of the research project at Business University:

1. The research strategy for this study was semi-structured, leaning more towards the structured than the unstructured.
2. Robson (1993) maintains that a researcher in a case study should be prepared to modify and revise the chosen method in either a one-off or in a continual process. In the study at Business University the implementation of method was mostly decided a priori, with some modifications due to problems encountered in the field setting.
3. Although the researcher was an insider, being a lecturer at Business University, the research was also conducted as if the researcher was an outsider, adopting the approach of strangeness. 'The attitude of strangeness means questioning and noticing ordinary details or looking at the ordinary through the eyes of a stranger' (Neuman, 1997, p. 354). In field research, according to Neuman (1997), the researcher is both an outsider (a stranger) and an insider, since 'the stranger sees events as specific social processes, whereas to an insider, they seem natural' (p. 355). In the research itself at Business University, taking an attitude of strangeness meant that even if certain information is known to the researcher as an insider, the research would still be conducted as if by an external researcher with no prior information.
4. The data type included both reports of attitudes and actions as well as feelings, behaviours, thoughts as witnessed during the study.
5. The relationship between research and theory is both that of confirming existing theories as well as the emergence of a new theory.

From this examination of these attributes that help in differentiating between the two paradigms, it can be seen that the approach of this research project is neither that of the positivist paradigm nor of the interpretivist paradigm. Rather, the approach of the study draws upon both traditions. This is not surprising since 'a growing body of social research takes a stand somewhere between the two schools of thought' (Johnson, 1994, p. 7). Rizo (1991) even argues that quantitative and qualitative methods are not completely different or competing approaches as

> *...it is simply a truism to state that these dichotomous, used stereotypes have dominated too long the comparative discussion between alternative educational research strategies. The complexity and subtlety of different approaches is reduced to simplistic and rigid polar positions.* (P. 10)

These days, many field-research studies do not take one of the two polar positions, rather they utilize a combination of several data-collection techniques that are both quantitative and qualitative (Pitout, 1995). In research design, a technique is chosen on the basis of merit and 'fitness for purpose' (Cohen, Manion and Morrison, 2000, p. 73). A case study itself may use multiple sources of data to examine a phenomenon, including documents, interviews, observations and even traditional survey questionnaires (Pitout, 1995). Therefore, in the following section, the case study approach will be presented in detail with the specific tools chosen for this research at Business University, not from a positivist or interpretivist approach, but from a fitness for purpose point of view.

CASE STUDY APPROACH

One advantage of the case study approach is that it allows 'a sharpened understanding of why the instance happened as it did, and what might be important to look at more extensively in future research' (Davey, 1991, online). Accordingly, it is first necessary to define what case study research is and to apply this in the context of Business University. Therefore, some definitions and types of case studies will be presented and scrutinized next, followed by the specific tools chosen based on this study's research questions.

Definitions of Case Studies

Yin (1994) offers a definition of a case study in two parts, of which the first covers a case study's scope:

> *1. A case study is an empirical inquiry that*
>
> - *investigates a contemporary phenomenon within its real-life context, especially when*
> - *the boundaries between phenomenon and context are not clearly evident.* (P. 13)

According to Yin (1994), this definition stresses that the case study approach is chosen when a researcher intentionally plans to cover contextual conditions. However, Yin (1994, p. 13) argues that since phenomenon and context cannot always be differentiated in real-life situations, a whole set of other technical characteristics, such as data analysis strategies, must enter the second part of his definition:

> *2. The case study inquiry*
>
> - *copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result*

- *relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result*
- *benefits from the prior development of theoretical propositions to guide data collection and analysis.* (P. 13)

In this, Yin (1994) is clarifying that 'the case study as a research strategy comprises an all-encompassing method — with the logic of design incorporating specific approaches to data collection and to data analysis' (p. 13). Although this definition is useful in understanding the case study as a research strategy, it is not specific to education as the following definition offered by Bassey (1999):

An educational case study is an empirical enquiry which is:

- *conducted within a localized boundary of space and time (i.e. a singularity);*
- *into interesting aspects of an educational activity, or programme, or institution, or system;*
- *mainly in its natural context and within an ethic of respect for persons;*
- *in order to inform the judgements and decisions of practitioners or policy-makers;*
- *or of theoreticians who are working to these ends;*
- *in such a way that sufficient data are collected for the researcher to be able*
  (a) to explore significant features of the case,
  (b) to create plausible interpretations of what is found,
  (c) to test for the trustworthiness of these interpretations,
  (d) to construct a worthwhile argument or story,
  (e) to relate the argument or story to any relevant research in the literature,
  (f) to convey convincingly to an audience this argument or story,
  (g) to provide an audit trail by which other researchers may validate or challenge the findings, or construct alternative arguments. (P. 58)

This definition is similar to Yin's in that it too considers issues such as boundaries and data collection, yet it is also different in several respects

that are important for the research project at Business University. Firstly, it addresses ethical issues such as respect for persons, which were a major factor when undertaking the research itself (as will be elaborated on in the last section on ethics of this methodology chapter). Secondly, it stresses that educational case studies are carried out to 'inform the judgements and decisions of practitioners or policy-makers; or of theoreticians', which is an objective that does not exist in Yin's definition. Thirdly, while Bassey's definition of a case study focuses a researcher in relating 'the argument or story to any relevant research in the literature', Yin's definition directs a researcher into developing, prior to the research itself, 'theoretical propositions to guide data collection and analysis'.

Although, the literature review was important in shaping this study at Business University, it was decided not to formulate theoretical propositions, since the researched subject of the effects of communication technology on organizational communication has hitherto received little attention in the literature. There was simply not enough information in the literature to create such propositions with confidence, and hence the idea presented by Bassey of only relating the collected materials to the relevant literature, is more suitable for the research at Business University. In addition, to further focus this study, it was necessary to understand which type of case study is the one at Business University.

Types of Case Studies

In order to classify the case study at Business University, the following six different possible types of case studies were examined:

1. Illustrative case studies, according to Davey (1991), are descriptive, utilizing one or two instances to demonstrate what a situation is like, whose main problem is with the selection of typical cases. Since this thesis is focused on reporting a unique occurrence, and not a typical one, it cannot be regarded as an illustrative case study.

2. Exploratory case studies are reduced case studies, which are undertaken before the implementation of a large-scale investigation (Davey, 1991). Since the research project at Business University was not the prelude to a large-scale investigation, it cannot be considered an exploratory case study.

3. Critical instance case studies assess one or a few sites in order to either investigate a unique situation, with little or no interest in generalizability, or to test a highly generalized or universal assertion by examining one instance (Davey, 1991). However, since the study at Business University is interested in generalizability but does not intend to test a highly generalized or universal assertion, it cannot be looked upon as a critical instance case study.

4. Cumulative case studies collect information from several sites (Davey, 1991). However, because the study at Business University involves only one site, it cannot be deemed as a cumulative case study.

5. Program implementation case studies help determine whether implementation is in compliance with its purpose and are also beneficial when concern exists regarding implementation problems as in these case studies, 'generalization is wanted and the evaluation questions must be carefully negotiated with the customer' (Davey, 1991, online). At first

glance, it would thus seem that the research at Business University is that of a program implementation case study. However, the study at Business University is not focused on whether the implementation of communication technology is in compliance with its intended purpose, but rather on the effects of this technology on organizational communication. Furthermore, the evaluation questions were not negotiated with the senior management of Business University, which are in a sense the customers of this research. Therefore, this research cannot be viewed as a program implementation case study.

6. Program effects case studies can determine the influence of programs and provide inference about causes of success or failure, and, like the program implementation case study, usually require generalization (Davey, 1991). Since the purpose of this research was to study the effects of modern communication technology on organizational communication at Business University, this thesis could be considered as reporting on a program effects case study. The reasons for success or failure are one of the main reasons senior management agreed to give access to this research as will be discussed in detail further on in this chapter in the section on ethics. Furthermore, since the inquiry at the university is a program effects case study, any tools for this research must be chosen for their contribution in revealing not only the effects of communication technology but also in their providing inferences about the causes of success or failure of this technology.

Choosing the Case Study Tools

In order to collect data, a case study may use multiple qualitative and quantitative tools such as documents, interviews, observations and survey

questionnaires (Pitout, 1995). Therefore, in the following section, several possible research tools are examined in the context of the six key research questions. For the first five key research questions, the subsidiary research questions will not be presented, since they are not essential in choosing the research tools. Furthermore, the key research questions were divided into the following four parts in considering which research tools to select in addressing them:

a. The first two key research questions deal with past events, and thus were joined together in considering possible research tools.
b. The next two key research questions address various issues regarding the present, and consequently were also joined together in considering possible research tools.
c. The fifth key research question deals with analytical issues and is thus not relevant for the methodological discussion at this time.
d. The sixth key research question and its subsidiary research questions are presented. Since they concentrate on the subject of generalization, a relevant discussion on this subject follows within the framework of the case study approach and the research project at Business University.

Tools for Researching the Past

The following two key research questions influenced the choice of research tools for the study at Business University:

1. **What were the past patterns of communication at the university before the change in senior management, including the attitudes of the former senior management towards communication technology, mainly as perceived by selected members?**

2. **What were the patterns of communication at the university immediately after the change in senior management and how did**

the new senior management attempt to introduce modern communication technology to the organization, mainly as perceived by selected members?

Examining these research questions illustrates that they deal with communication at Business University in various times in the past, and are accordingly focused on perceptions and not enactment. Thus, although observing behaviour is obviously a useful research technique (Robson, 1993), an observation of any kind is not possible in researching the past of this case study. Therefore, the two main research tools to consider are the survey questionnaire and the interview. Either of these can be supplemented by analyzing any found documents (if indeed it is feasible to retrieve any relevant documents from the university).

The survey questionnaire has several advantages in addressing these two key research questions. Not only does it offer the descriptive but can also go into the interpretive, 'providing explanations of what is described, essentially to get at casual relationships' (Robson, 1993, p. 127), which are an important focus of this study at Business University. However, in a survey it is difficult to secure a high degree of involvement with the participants, even when the survey is carried out face-to-face and not by post (Robson, 1993). Since a high degree of participant involvement is essential for this research at Business University and since 'questionnaires are often filled in hurriedly' (Cohen and Manion, 1994, p. 283), a survey approach is problematic and interviews must be considered.

Interviews, additionally to being 'prone to subjectivity and bias on the part of the interviewer' (Cohen and Manion, 1994, p. 272), have a main disadvantage - especially for the solo researcher - since 'interviewing is time-consuming' (Robson, 1993, p. 229). Interviews require careful

preparation in arranging, confirming and rescheduling if necessary the meetings, they demand that notes be written up and the analysis of the interview data itself necessitates a substantial amount of time (Robson, 1993). Nevertheless, in tackling the first two key research questions, interviews have several advantages that make them attractive for the research at Business University.

Interviews are advantageous in offering 'the possibility of modifying one's line of enquiry, following up interesting responses and investigating underlying motives in a way that postal and other self-administered questionnaires cannot' (Robson, 1993, p. 229). They 'may serve as the principal means of gathering information having direct bearing on the research objectives' (Cohen and Manion, 1994, p. 272), and as a result, they were chosen as the main research tools for collecting information regarding the first two key research questions. This choice of interviews as the central research technique had an immediate effect on the chosen tools for the next two key research questions, which is the effect discussed in the following section.

Tools for Researching the Present

In choosing the research tools to examine the effects of communication technology on the current organizational communication system, it was decided to continue with interviewing. This would allow comparing the answers of the members that currently work at Business University to those that used to be involved with the university. Furthermore, since some of the members involved with Business University in the past still work there, interviewing them on both the past and the present would provide the research with a holistic approach. In addition, since

documents had a higher probability of being accessible, documentary analysis was deemed relevant for this research.

However, since triangulation is using two or more methods of data collection in studying human behaviour (Cohen and Manion, 1994), and because it was still not certain that the documents found would be relevant, then a complementary data source was needed in order to enable triangulation. (A more detail discussion of triangulation will be offered in the last section of this methodology chapter on ethics.) The two possible ones were again the survey questionnaire or some form of observation. In order to choose and adopt the necessary research tool from these two possibilities, the following two key research questions need to be reviewed:

3. **What are the current patterns of communication at the university, focusing on communication technology and its effects on organizational communication, as both enacted and perceived by selected members?**

4. **How successful is the communication technology system at the university, as both enacted and perceived by selected members?**

Scrutinizing these two research questions demonstrates that their focus is on organizational communication at Business University in the present, and the effects and effectiveness of the technological communication system. However, unlike the first two key research questions that are concentrated on perceptions, these include elements of enactment as well. Since a survey is a study of perceptions such as 'attitudes, values, beliefs and motives' (Robson, 1993, p. 128), the survey strategy is again not adopted for this study at Business University. In order to claim enactment events must be witnessed and consequently the research tool of observation must be considered.

According to Robson (1993), 'a major advantage of observation as a technique is its directness. You do not ask people about their views, feeling or attitudes; you watch what they do and listen to what they say' (p. 191). Observations also allow studying phenomena such as people or organizations in their natural settings (Pitout, 1995). Nevertheless, there are disadvantages to this method of data collection. An observation is time-consuming, might influence the observed behaviour 'and, moreover, whether one takes on a very detached or very involved role as an observer, or something in between, there are related methodological and ethical problems' (Robson, 1993, p. 192).

However, since observations are useful as complementary tools to information obtained by other techniques (Robson, 1993), such as the chosen interviews and documentary analysis, they were selected as a supplementary research technique for the study at Business University. This choice of observations as the final research technique completed the chosen tools for this research project at Business University, which are **interviews, observations** and **documentary analysis**. These tools and how they were used in this study will be described in detail, including methodological and ethical problems, after the following section on generalization.

Generalization in a Case Study

This research's aim to go beyond the descriptive and into the theoretical is demonstrated by the sixth key research question and its subsidiary research questions:

6. What possible relevance does this research have for other organizations of higher education?
   Can a theoretical framework/model on the implementation of communication technology, based on the case study, be formulated?
   In retrospect, what has this research contributed to the field of organizational communication?
   What are promising new directions for further research created by this case study at Business University?

In order to develop this 'theoretical framework/model', generalization of the findings beyond the case study is necessary. Cohen and Manion (1994) describe this aspect of the case study as observing and analyzing the diverse phenomena that comprise the life cycle of an individual unit, such as a school, with a view to creating generalizations about the wider population to which that unit belongs. Yet, a common criticism of the case study approach is that it provides 'little basis for scientific generalization. "How can you generalize from a single case?" is a frequently heard question' (Yin, 1994, p. 10). Some researchers maintain that although the case study enables high levels of understanding due to intensive involvement and interaction with people, institutions and situations, it does not have the advantage of generalization (Custer, 1996; Pitout, 1995).

According to Nisbet and Watt (1984), it may not be possible to generalize using the case study approach 'except by an intuitive judgment that 'this case' is similar to 'that case' ... the observer in a case study has to be selective but his selectivity is not normally open to the checks which can be applied in rigorously systematic inquiries such as large-scale surveys - it tends to be personal and subjective' (p. 77). However, Brewer (2000) argues that it is not automatic that a case study concentrates on the particular at the expense of the general, stating that

> *Generalizability of the findings is possible with a case study, although attention needs to be given to the grounds on which generalizations are made.* (P. 76)

According to Yin (1994), generalizing in a case study built on the grounds of statistical generalization is 'a fatal flaw' (p. 31). Statistical generalization is based on 'samples of populations and typically claims that there is an r per cent or v per cent chance that what was found in the sample will also be found throughout the population' (Bassey, 1999, p. 12). However, cases are not 'samples of populations' and nor should they be chosen as such (Yin, 1994). 'Rather, individual case studies are to be selected as a laboratory investigator selects the topic of a new experiment' (Yin, 1994, p. 31). Therefore, Yin (1994) concludes that the method of generalization in a case study should be that of analytic generalization.

In analytic generalization 'a previously developed theory is used as a template with which to compare the empirical results of the case study' (Yin, 1994, p. 31). Yet, in the literature review chapter of this thesis, it was shown that the subject of the effects of communication technology on organizational communication has hitherto received little attention in previous researches in higher education. Consequently, a full theory was not created in the literature review that allows comparisons with the findings of the research at Business University. Therefore, analytic generalization can only be partially used in this research project - where there is a sufficient theoretical basis - and there is need for another complementary method of generalization. Such a method was found in Bassey (1999), which he named 'fuzzy generalizations' (p. 52).

> *A fuzzy generalization carries an element of uncertainty. It reports that something has happened in one place and that it may also happen elsewhere. There is a possibility but no surety. There is an invitation to 'try it and see if the same*

happens for you'. (Bassey, 1999, p. 52)

For example, Bassey (1999) takes the sentence 'Do *y* instead of *x* and your pupils will learn more', and criticizes it as having 'a certainty and absoluteness which we know is never the case' (p. 51). This sentence is in the form of scientific generalization, with which 'there are no exceptions – and indeed in science if any are found then the statement is abandoned or revised to accommodate the new evidence' (Bassey, 1999, p. 52). Therefore, Bassey (1999) changes the sentence into 'Do *y* instead of *x* and your pupils *may* learn more' (p. 51). This fuzzy generalization adds built-in uncertainty that recognizes the likelihood of there being exceptions to this general statement and 'seems an appropriate concept for research in areas like education where human complexity is paramount' (Bassey, 1999, p. 52).

This form of generalization has the advantage for the research project at Business University of allowing fuzzy general statements to be made on communication, which is a complex phenomenon (Lowery and De Fleur, 1988). It also enables the research on the subject of the effects of communication technology on organizational communication to be come cumulative, since fuzzy generalizations enable this by allowing other researchers to replicate the study and, when finding difficulties, to amend the fuzzy generalizations (Bassey, 1999). The first subsidiary question of the sixth key research question stated 'Can a theoretical framework/model on the implementation of communication technology, based on the case study, be formulated?' Since fuzzy generalizations would also allow achieving this, consequently, they were selected as the main method of generalization. Nevertheless, in order to generalize in the case study, data must first be collected using the chosen tools of interviews, observations

and documentary analysis. These tools are discussed in detail in the following sections of this chapter, starting with interviews.

INTERVIEWS

According to Seidman (1991) interviewing 'is a powerful way to gain insight into educational issues through understanding the experience of the individuals whose lives constitute education' (p. 7). Since it is considered one of the most important and essential sources of information in a case study (Yin, 1994), and Nisbet and Watt (1984) even argue that the interview is 'the basic research instrument' (p.82) in case study research, it is first of all useful to understand what is meant by 'an interview'.

Definitions of interviews

One definition of an interview is offered by Johnson (1994):

> *Any interview is a social encounter between two people, but any social encounter is not an interview. Interviews have a particular focus and purpose. They are initiated by the interviewer, with a view to gathering certain information from the person interviewed.* (P. 43)

This definition suggests that interviews are a social encounter with a purpose but this does not address the fact that there are other aspects of interviewing such as preparing the interview before meeting the interviewee and working it up afterwards. Powney and Watts (1987) present a rather more complete definition:

> *We see research interviews as conversational encounters to a purpose. We have chosen to see that purpose extending in time well before - and certainly well after the actual encounter, so that the interview session itself is seen as only one facet of the*

> *whole process of interviewing. Other aspects consist of planning, organisation, recording, transcribing, analysis and reporting.* (P. vii)

Although this definition does take a broader view regarding interviews it is not broad enough to encompass the many categorizations of types of interviews. Therefore, it was necessary to distinguish between three types of interviews (Johnson, 1994):

- Structured interviews
- Semi-structured interviews
- Specialized interviews

In **structured interviews** the interview schedule is usually composed of pre-determined questions, which are usually closed questions, offering a range of possible answers (Johnson, 1994). In this type, the interviewer is left with little freedom to make any modifications, and consequently this interview is referred to as a closed situation (Cohen and Manion, 1994). Since open questions, which are questions 'to which respondents may reply in their own words, are difficult to record in a structured interview' (Johnson, 1994, p. 45), and since they are necessary for the research project at Business University, the structured interview could not be adopted for this study.

In **semi-structured interviews**, unlike the structured, certain questions may be open while others are closed, therefore allowing a more flexible style of collecting the equivalent information from several people, while placing 'less emphasis on a standardized approach' (Johnson, 1994, p. 45). This type of an interview can therefore include unstandardized probing, which encourages 'the respondent to reply without 'leading' them in a particular direction (Johnson, 1994, p. 47). Although probing

requires 'critical awareness', which is being able to build a rapport while remaining detached and analytical during the interview itself (Measor, 1985), it is essential for this study in uncovering the underlying causes of the effects of communication technology on organizational communication. Hence, since the semi-structured interview enables both probing when necessary and the collection of equivalent information from a number of participants by asking them similar comparable questions, it was chosen as the method of building the interview schedules for the research at Business University.

However, there was still a need in some cases to ask respondents specific questions that are relevant only to them and consequently, a complementary type of interview was required: **specialized interviews**. These, which are known also as unstructured interviews, are individually tailored for specific individuals with the objective of obtaining complementary data and not equivalent information from different participants (Johnson, 1994). Thus, creating the questions in the interview schedules for the research at Business University was a mixture of the semi-structured interview approach, with the same questions being asked of different respondents, and also the specialized interview approach, since specific questions were asked for particular role-holders. The way in which this was done is described in the following subsection.

Building the Interview Schedules

In order to create the interview schedules for this research project at Business University, it was first of all necessary to decide on the major themes in the schedules, which would allow the planned comparisons across participants of the semi-structured interview approach. Since the

purpose of this research was 'to research the effects of **communication technology** on **organizational communication** ... over time [or before, during and after a period of change]...' each schedule must include themes of communication and communication technology including its effects such as organizational change. (Since the literature review was also built on these two themes, collecting information this way would enable a more systematic comparison between the findings and the literature later in this thesis.) Adding general information themes, such as demographic characteristics, created the basic structure for each interview.

Then, in order to develop these themes further into the complete interview schedules, it was necessary to decide whom to interview, and thus how to adapt the questions to that specific individual or type of participant. Moreover, since the purpose of this research was to research a phenomenon '**over time** [or before, during and after a period of change]', it was important to choose participants from the relevant time periods. In order to achieve this, as well as to create the wording of the schedules themselves, the four key research questions that deal with the different time periods and their subsidiary research questions were reviewed in detail.

For example, by reviewing the first key research question and its subsidiary research questions, it came to be understood that the former senior management needed to be interviewed and thus a specific interview schedule was created for them. This schedule combined the four themes of general, communication, communication technology and organizational change with the first key research question and its subsidiary research questions, in order to create the finished interview schedule for the former senior management. It contains questions that address the subject raised

by the first key research question of discovering the past patterns of communication in the organization before the change in senior management. This interview schedule also includes the subjects brought up by the subsidiary research questions such as defining communication, describing the network patterns or listing the communication technologies that then existed at the university (see Appendix A - Interview Schedule for the Old Regime).

In the same way, key research questions two to four and their subsidiary research questions were reviewed in context of the four themes of general, communication, communication technology and organizational change. It was decided that interview schedules needed to be developed for the following ten groups or individuals:

1. New Regime
2. Middle management: Administrative
3. Middle management: Academic
4. Middle management: Marketing
5. Librarians
6. Secretaries
7. System managers
8. Lecturers
9. Head caretaker
10. Students

Since the first nine are employees of the university and subsequently have several things in common, a general interview schedule was built for them, which would allow making comparisons across participants (see Appendix B - General Interview Schedule). Nevertheless, since there are also differences in the information sought from these participants, it was necessary to create specific questions to be asked immediately after the

equivalent questions in the general interview schedule (that are found in Appendix C - Specific Questions). As for the students, because they are a unique group, a specific interview schedule was created for them (see Appendix D - Students' Interview Schedule).

In order to test these interview schedules, one pilot was carried out for the students and two pilots were undertaken for the current employees of Business University. These two were also considered the pilots for the former senior management due to the similarities of the schedules and not wishing to 'spend' a pilot on the already limited number of old regime senior managers. However, the changes in the interview schedules were extremely minor after the three pilots. For example, in the general interview schedule, merely three changes were made such as the word 'conventional' changed to 'traditional'. In the students' interview schedule, only two questions were shortened, since it was discovered in the pilot that they included subjects relevant for the employees and not the students. Accordingly, since the changes caused by the pilots were small and due to the fact that the schedules were not to be fully structured but semi-structured, it was decided to use all the information collected in the pilots for the research project at Business University. The pilots were also essential in testing the interview guidelines.

Interview Guidelines

Before the actual interviewing took place, interview guidelines were created, divided into four sections: (1) before, (2) during, (3) immediately after, and (4) sometime after the interview.

Before the Interview - Firstly, each meeting was coordinated at a time convenient to the participant. Secondly, all the necessary equipment was

brought to the interview including pens in several colours (since the interview would be written in a blue pen with comments made afterwards in a red pen), paper and the appropriate interview schedule.

During the Interview - At the beginning of each interview, the date, and the time the interview started would be written down. The pages of each interview were numbered and the name of each participant was added at the top of every page. During the interview abbreviations were used when possible. For example, instead of "telephone" usually "tel." was used. These were extremely useful, since tape recording of the interviews was not allowed by senior management. Additionally, short notes were written during the interview, usually marked with (*) and leaving space between rows that would allow inserting comments and elaborating after the interview. These notes included impressions, nonverbal communication cues of the participant or anything that came to mind. At the end of an interview, the time it ended would be written down.

Immediately after the Interview - Firstly, a quiet place would be looked for to sit and write immediately about the conducted interview. It was important that no further interviews would be undertaken, in days where more than one was planned, until the writings of the comments after the interview would be finished. This was to ensure that there is minimal data loss, which inevitably occurs when transcribing (Cohen, Manion and Morrison, 2000). A spatial map, which 'locates people, equipment, and the like in terms of geographical physical space to show where activities occur' (Neuman, 1997, p. 366), would be made of the place where the interview took place. Then, the interview would be revised using a red pen to add comments where necessary and where (*) were marked earlier. Although this revision would sometimes result in expanding the notes,

reconstructing some sentences or even just correcting spelling mistakes, its main purpose was to create a transcription of the interview that represents 'the whole interview' (Powney and Watts, 1987, p. 148). This was done to turn the notes taken in the field into intelligible write-ups (Robson, 1993). Finally, comments at the end of the interview would be written in a green pen, which included feelings about the interview such as whether the interviewed person seemed truthful or anything that came to mind, including ideas for the writing of the thesis.

Sometime after the Interview - The interview would be reread and new ideas that came to mind were written down using a black pen in the comments' section. The date of these ideas would also be recorded. These rereading of the interviews proved to be invaluable as a preparatory stage for the analysis of the interviews. In addition, it was planned that each transcript of an interview (without the comments) would be checked out with the participants, as recommended by Lincoln and Guba (1985). Although several participants collaborated and consequently changes were maid to their transcripts such as adding material or deleting a sentence, most of the participants refused to read what they've said, stating phrases like 'I trust you'. (This will be discussed in the last section of the methodology chapter on ethics.)

Conducted Interviews

Using these guidelines, overall **45 interviews** were carried out during the end of October 2001 up to the beginning of May 2002 in the following order:

Table 3.2: Order of the Interviews

1. Pilot - Secretary	October 2001
2. Pilot - Academic Manager	October 2001
3. System Manager	January 2002
4. Head Caretaker	January 2002
5. Pilot - Student	February 2002
6. Academic Coordinator	February 2002
7. Student	February 2002
8. Librarian	February 2002
9. Secretary	February 2002
10. Senior Manager Old regime - Vice President	March 2002
11-14. Students	March 2002
15. System Manager	March 2002
16-22. Students	March 2002
23. Senior Manager New Regime – Vice President	March 2002
24. Lecturer	March 2002
25. Student	March 2002
26. Librarian	March 2002
27. Student	March 2002
28. Senior Manager New regime - President	April 2002
29. Lecturer	April 2002
30. Deputy to the Administrative Manager	April 2002
31. Student	April 2002
32. Lecturer	April 2002
33. Marketing Manager	April 2002
34. Deputy Marketing Manager	April 2002
35. Marketing Employee	April 2002
36. Marketing Employee	April 2002
37. Lecturer	April 2002
38. Old and New Regime – Dean	April 2002
39. Secretary	April 2002
40. Secretary	April 2002
41. Re-interview System Manager	April 2002
42. Senior Manager Old regime	April 2002
43. Lecturer	April 2002
44. Re-interview Senior Manager New regime - President	May 2002
45. Administrative Manager	May 2002

An example of a transcript of a conducted interview, based on the planned guidelines, can be seen in Appendix E – Sample Interview Transcript. However, although interviews were a central tool in collecting the data for the research project at Business University, they can only research the perceptions of participants and not actual enactment, which is also

required by the research questions. Therefore, observations were a necessary tool for this research project at Business University.

OBSERVATIONS

Observations may be used as a primary method of data collection on the researched subject or as a supplementary source of data, providing complementary information that may qualify or help interpret other techniques, such as interviewing (Johnson, 1994; Robson, 1993). 'If a case study is about, for instance, a new technology, observations of the technology at work are invaluable aids to any further understanding of the limits or problems with the technology' (Yin, 1994, p. 87). Since this study at Business University focused on technology and its effects on communication, it was first of all necessary to define what types of possible observations exist in order to select those essential for this research.

Definitions of observations

According to Robson (1993), observations can be carried out in experiments or in the field. These observations in the field are known as **direct observations** (Yin, 1994; Robson, 1993), and were the type chosen for the research at Business University. However, there are various kinds of direct observations. Cohen, Manion and Morrison (2000) differentiate between three basic types:

- **Highly structured observations** where it is known what is looked for in advance. For example, 'a specific list of activities is looked for and checked off when they occur, while everything else is ignored' (Kane, 1985, p. 53).

- **Semi-structured observations** 'will have an agenda of issues but will gather data to illuminate these issues in a far less pre-determined or systematic manner' (Cohen, Manion and Morrison, 2000, p. 305).
- **Unstructured observations** where it is far less clear what is looked for and 'the observer can be 'free', that is the observer simply writes what happens' (Kane, 1985, p. 53).

Since communication is a complex phenomenon (Lowery and De Fleur, 1988), highly structured observations that limit the observation to a specific list of activities were not chosen for this research at Business University. Furthermore, even though unstructured observations have the advantage of recording behaviour as it happens, they are not economical of the researcher's time and may collect a great deal of data which later will prove of little value to the research objectives (Johnson, 1994), and were not chosen. Consequently, semi-structured observations, which allow focusing on the issues of communication without limiting to a pre-defined list of activities, were chosen.

However, even having chosen semi-structured direct observations, there was still the issue of how involved to get in the observed activities occurring at Business University, since the researcher is a lecturer at the university. According to Cohen, Manion and Morrison (2000), on one side of the spectrum there is complete participation and on the other there is complete detachment, which includes these four types of observations: (1) complete participant, (2) participant-as-observer, (3) complete observer and (4) observer-as-participant.

The **complete participant** 'involves the observer concealing that he or she is an observer, acting as naturally as possible and seeking to become a

full member of the group' (Robson, 1993, p. 196). However, although the researcher of this study at Business University is already a full member of the group and there is an advantage in concealing the observer because people change their behaviour when they know they are observed (Bassey, 1999), there are 'strong ethical objections to this stance' (Robson, 1993, p. 196). Consequently, the complete participant was not chosen.

An alternative approach is that of the **participant-as-observer** where the researcher also participates 'fully in the situation under investigation' (Pitout, 1995, p. 106), but 'the fact that the observer is an observer is made clear to the group from the start' (Robson, 1993, p. 197). Although this is a more ethical stance, it still has the disadvantage the case study being biased since the researcher 'has less ability to work as an external observer and may, at times, have to assume positions or advocacy roles contrary to the interests of good scientific practice' (Yin, 1994, p. 89). Therefore, the participant-as-observer was not adopted for the study at Business University.

The **complete observer** is the other side of the spectrum, where there is complete detachment from the researched subject, since 'the role of the complete observer is typified in the one-way mirror, the video cassette, the audio-cassette and the photograph' (Cohen, Manion and Morrison, 2000, p. 306). However, not only is the researcher a member of Business University and hence cannot be completely detached, there were also no possibilities to use one-way mirrors, video cassettes, audio-cassettes or photographs. As a result, the complete observer could not be selected as the semi-structured observation approach.

In the **observer-as-participant** approach, the role of the observer as a researcher is known to the observed group members and thus there is no need to pretend to be participants (Pitout, 1995). Although this approach has the disadvantage that the participants know they are being watched and thus 'some behave as though they were no outsiders present, some are on edge throughout, some play to the gallery and some forget' (Bassey, 1999, p. 82), it does not pose the ethical dilemma of covert observations. (A discussion on ethical issues will conclude this methodology chapter.) The observer-as-participant approach is in the mid-point of the spectrum of complete participation to complete detachment and strives 'to balance involvement with detachment, closeness with distance, familiarity with strangeness' (Cohen, Manion and Morrison, 2000, pp. 305-306). Therefore, the observer-as-participant was chosen for the study of the effects of communication technology on organizational communication at Business University.

Planning the Observations

Having decided that the direct observations at the university will take the form of semi-structured observations with the observer-as-participant approach, two kinds of **planned observations** were taken into account: **static observations**, where the researcher would sit at a fix location monitoring the communication activities and **shadowing**. In shadowing, an observer literally follows the participants around while recording their activities, in order to gather information on communication patterns (Gibson and Hodgetts, 1991). However, since 'it is always possible that observations of great significance may be made by chance' (Johnson, 1994, p. 52), a third form of observing in an unplanned manner was needed: **opportunistic observations**. In this category of observation, the

researcher would record any relevant activities on the effects of communication technology on organizational communication when coming upon them accidentally at the university. Although some of these observations were in the form of participant-as-observer, most of them took the observer-as-participant approach.

In order to decide what type of activity to observe and information to collect regarding the effects of communication technology on organizational communication, the following four coding suggestions by Robson (1993, p. 208) were used as a framework:

1. **Non-verbal behaviours** such as body movements. Are people comfortable using communication technologies or do their body movements suggest otherwise when observed at work?

2. **Spatial behaviours** such as movement and distance. For example, where is the computer located in the room relative to the participants?

3. **Extra-linguistic behaviours** such as speaking rates, loudness and interruptions. For instance, are there as many interruptions when using communication technology as there are in face-to-face?

4. **Linguistic behaviours**, including the content of talking and its structural characteristics. How does the content of talking change when using communication technology?

To achieve the last suggestion, recording of conversations in the observations would be necessary, and therefore, guidelines for both the planned observations (whether static observations or shadowing) and the unplanned opportunistic observations were needed. These guidelines were

used in aiding in the systematic collection, recording and transcribing of the data, and hence helping to avoid the criticism that the case study has a lack of rigor, due to the researcher's sloppiness (Yin, 1994). The guidelines for all types of observations in the study were divided into four sections: (1) before, (2) during, (3) immediately after and (4) sometime after. These were done in a very similar way to the interviews (pages 166-168 of this chapter), including the coloured pens.

The key differences between the observations was that in a planned observation the acts that took place were recorded during the observation, while in an opportunistic observation the acts would be usually recorded as soon as possible after the observation. All observations included the time they started (and ended), conversations (including who is talking and who is listening), non-verbal communication and the goal of the act, meaning what is this act trying to achieve. Additionally, the resources that were being used in the scene were recorded, such as a computer to send an email. Since a spatial map aids the researcher in organizing events in the field (Neuman, 1997), a spatial map of the place/s where the observation/s took place would be made including the place of the actors, various objects such as computers and even where the author of this thesis was sitting or standing at the time.

Conducted Observations

Using these guidelines, **overall 42 observations were conducted**, of which 14 were planned observations and 28 were opportunistic observations. The 14 planned observations were carried out during mid February 2002 up to the end of April 2002 in the following order:

Observations	Type of Observation	Date	Duration (In Hours)
1. Pilot - Secretaries	Static	February 2002	1
2. Secretary	Static	March 2002	7
3. System Manager	Shadowing	March 2002	6
4. Secretary	Static	March 2002	1
5. Secretaries	Static	March 2002	4
6. Library	Static	March 2002	1.5
7. Marketing	Static	March 2002	3.5
8. Lecturer	Shadowing	April 2002	4
9. Library	Static	April 2002	4
10. Head caretaker	Shadowing	April 2002	5
11. Lecturer	Shadowing	April 2002	3
12. Student	Shadowing	April 2002	3
13. Secretaries	Static	April 2002	2
14. Student	Shadowing	April 2002	3

Table 3.3: Order of the Planned Observations

An example of an observation's transcript can be seen in Appendix F – Sample of Static Observation Transcript. Additionally, of the 28 opportunistic observations that were conducted during the end of February 2002 up to the end of May 2002, 22 may be considered observer-as-participant, while only six are in the form of participant-as-observer. Thus, with the interviews and observations as the main means of collecting materials for the research project at Business University, it was decided that one more source of information would be obtained, documents.

DOCUMENTARY ANALYSIS

The final method used in this study was documentary analysis, which 'relies primarily on the use of available printed data as a source of evidence' (Johnson, 1994, p. 25). In a case study, 'the most important use of documents is to corroborate and augment evidence from other sources' (Yin, 1994, p. 81). Documents can supplement interviews and observations in providing inferences for further research. For example, the distribution list in a specific document may raise new questions about communications and networking within an organization (Yin, 1994). Furthermore, unlike the other two methods of interviews and observations, documentary analysis has the benefit of being an 'unobtrusive' method of research (Johnson, 1994).

Documentary analysis is an unobtrusive measure in that the nature of the document is not affected by the fact that it is being used for the enquiry (Robson, 1993). Since a document already exists in a definitive form, unlike an interview schedule, 'it cannot be individually designed to suit a particular research purpose, but must be drawn on as a source of data in the form in which it stands' (Johnson, 1994, p. 58). Other methods for discovering communication activities, such as asking respondents to fill in a diary known as a communication log (Gibson and Hodgetts, 1991), are not unobtrusive. The fact that a person is filling in a diary for the project may in some way alter their behaviour (Robson, 1993). Therefore, documentary analysis was used in this research at Business University as an unobtrusive means to supplement the other two methods of interviews and observations.

Definitions of Documents

Robson (1993) classifies documents into three basic categories:

1. **General documents** that include minutes of meetings, letters, memoranda, diaries, speeches, newspapers and magazine articles.
2. **Particular context documents**. For example, studies in educational establishments would contain documents such as written curricula, timetables, notices, course outlines and other course documents.
3. **Non-written documents** such as films, television programs, photographs, comic strips and cartoons.

Although this classification is useful because it broadens the scope of documents to include even cartoons (and indeed one was collected in this study at Business University), it does not differentiate between formal and informal documents. Johnson (1994) makes this distinction by categorizing documents as public or personal. According to Pitout (1995), public documents include data archives and company letters, whereas personal documents, which she refers to as private documents, include personal letters and diaries. Yin (1994) adds to these formal documents 'formal studies or evaluations of the same "site" under study' (p. 81). Moreover, Robson's classification does not include emails, which are also written documents that are alternatives to faxes, formal letters or reports (Booher, 2001). Therefore, any classification of documents should be wide enough to include formal and informal documents, as well as emails. This categorization of documents was the first step in preparing for the collection of documents during the research itself.

Guidelines for Collecting Documentary Data

The preparation of guidelines for the collection of data through the use of documents for the study at Business University was primarily based on the purpose of the research. Each document collected should contribute information that would help achieving the purpose of this study and its research questions. For example, since the first two research questions deal with the past, it was important to look for past documents which 'provide something of a longitudinal dimension to a study' (Robson, 1993, p. 274). The guidelines were also based on the essential steps proposed by Johnson (1994):

- Range – what range of relevant documentation exists? For example, in this research on communication technology, is the there a wide array of documents to choose from or a narrow one.

- Location and access – where is it located and can access to it be obtained? (The issues of access will be presented in detail later in this chapter.)

- Purpose – what was the original purpose of the document? Johnson argues that this is the most important of the three. Therefore, it was important to find out for each document obtained, what was its initial purpose.

Furthermore, there was a need to create guidelines to assess a document once it was found. The criteria for assessing a document were authenticity, credibility, representativeness and meaning (Johnson, 1994). In the research at Business University, each document was first examined

for its authenticity and credibility such as is it an original or a photocopied one. Johnson (1994) states that the main problems of using a photocopied source is that is could be illegible, due to poor quality of reproduction, or could have parts of it missing if it was reproduced negligently. Then, each document would be checked for actually representing a typical situation researched and not an extreme one that does not represent the subject looked for in this communication study. Finally, the question of meaning was addressed to ensure that it is possible to 'decipher the script and to understand the terminology or dating systems used' (Johnson, 1994, p. 61). With these guidelines complete, the collection of documents could then take place.

Collected Documents

On the basis of these guidelines, documents were collected during the extensive period of September 2001 up to July 2002, with some found documents dating back to January 2000. All the documents were classified according to the categories of formal documents, informal documents and non-written documents (see Appendix G – List of Collected Documents). Since some of these documents were collected before the interviews and observations started, they helped in preparing for them. For example, past documents helped in thinking about questions for the former senior regime. In addition, since documents were also collected during and after the interviews and observations were concluded, they allowed corroborating and augmenting the information found in the interviews and observations when analyzing the data qualitatively.

QUALITATIVE ANALYSIS

Once the data was collected from the interviews, observations and documents, the qualitative analysis could begin. However, there is no one prescriptive formula with a set of accepted conventions for qualitative analysis (Robson, 1993). Nevertheless, in order to work within a scientific framework and to convince the scientific or policy-making audiences, qualitative data must be handled in a systematic fashion (Robson, 1993). Therefore, there is a need for a general analytic strategy, which would allow treating the collected data fairly, producing persuasive analytic conclusions and ruling out alternative interpretations (Yin, 1994).

Broadly, there are two general analytic strategies thought to be available (Yin, 1994). The first strategy is based on 'the theoretical propositions that led to the case study' (Yin, 1994, p. 102). The second 'is to develop a descriptive framework for organizing the case study' (Yin, 1994, p. 104). Although the first strategy is preferable, the second serves as an alternative when no theoretical propositions exist (Yin, 1994), which is the situation in the case study at Business University. Theoretical propositions could not be created due to insufficient research on the effects of communication technology on organizational communication in higher education. Consequently, the second strategy of developing a descriptive framework was chosen as the general analytic strategy for the project at Business University, of which three concurrent activities of qualitative analysis were used: (1) data reduction, (2) data display, and (3) conclusion drawing and verification (Miles, and Huberman 1994). All three were continually undertaken during the research at Business University.

Data reduction is 'seeking to make the data mountain manageable through summary and coding' (Robson, 1993, p. 390). Thus, after all the data was collected from the interviews, observations and documents, **unitizing** was undertaken, which 'is essentially a coding operation that identifies information units isolated from the text' (Rudestam and Newton, 1992, p. 114). The interviews, observations and documents were unitized in that from each the information units were extracted. This set the stage for **categorizing**, in which 'information units derived from the unitizing phase are organized into categories on the basis of similarity and meaning' (Rudestam and Newton, 1992, p. 114). The way these categories were created, including citing the relevant evidence (such as an interviewee's pseudo name) in order to enable an independent reader to judge the reliability of the information and thus prevent undermining the credibility of the entire case study (Yin, 1994), will be presented in the findings chapter, which will also include information on the data display methods employed.

Data display - The main emphasis 'here is on *display*: finding methods which present the data in such a form that valid conclusions can be drawn' (Robson, 1993, p. 390). Such methods are already to be found in the previous chapter of this thesis. The systems approach was chosen in the literature review because it also enables studying organizational communication as network analysis (Miller, 1999). Therefore, using network analysis, the patterns of communications at the university could be mapped over time and compared to the theoretical network models presented in the literature review. In this, network analysis allows using a strategy that Yin (1994) argues is one of the most desirable strategies in case study analysis: pattern-matching logic. According to Yin (1994), in pattern-matching logic, an empirically based pattern is compared to a

predicted one or several alternatives. (A detailed account of the symbols used to display the networks will be presented in the findings chapter.) Additionally, since network analysis reveals the informal network, this can be compared to the formal organizational structure (Gibson and Hodgetts, 1991). According to Robson (1993), the standard formal organizational chart that represents certain kinds of relationships may exist as a document or may have to be pieced together by the researcher (as was the case in this research). Hence, the findings chapter will utilize two methods of display, organizational charts and networks, setting the stage for conclusions to be drawn.

Conclusion drawing and verification - This is mainly done after the data collection phase, although some of this may be done during data collection (Robson, 1993). In the data collection phase, this was done by adopting Neuman's (1997) recommendation of rereading the field notes periodically and recording ideas generated by the rereading. Building on these noted ideas and after both the categories based on the data collection and the data display methods were completed, fuzzy theoretical conclusions were drawn regarding the effects of communication technology on organizational communication at Business University. These conclusions will be presented in part in the discussion chapter of this thesis, as well as their verification by 'careful consideration of alternative interpretations' (Yin, 1994, p. 103). These fuzzy theoretical conclusions also took into consideration several important ethical issues, which are discussed next.

ETHICAL ISSUES

> *The research community and those using the findings of research have a right to expect that research be conducted rigorously, scrupulously and in an ethical defensible manner.*
> (Cohen, Manion and Morrison, 2000, p. 47)

To achieve this, a code of ethical practice is necessary. Such a code, according to Cohen, Manion and Morrison (2000), does not only have the advantage of establishing a researcher as part of the wider research community having a shared interest in its values, but is also important in organizing a researcher's perceptions of the research situation and thus assists in preparing the researcher for the unknown. The code of ethical practice for this study at Business University was based on the ethical guidelines of the British Educational Research Association (2000), stating that 'all educational research should be conducted within an ethic of respect for persons, respect for knowledge, respect for democratic values, and respect for the quality of educational research' (online). Consequently, this section on ethical issues will be structured according to these four ethical values.

Respect for Persons

Researchers 'have a responsibility not only to their profession in its search for knowledge and quest for truth, but also for the subjects they depend on for their work' (Robson, 1993, p. 56). Hence, researchers should collect the data from persons 'in ways which recognize those persons' initial ownership of the data and which respect them as fellow human beings who are entitled to dignity and privacy' (Bassey, 1999, p. 74). The main

areas in building ethical guidelines in order to achieve 'respect for persons', according to Bassey (1999), are:

- Permission in obtaining the necessary access in conducting the research as well as publishing it,
- Agreed arrangements for either identifying or concealing the particular setting of the study and its participants, and
- Transferral of ownership of the collected data from the participants to the researcher.

The permission to conduct the research and publishing it was initially given to this researcher by the top manager of the researched institution of higher education, the president of the university. (Additionally, informed consent was also gained from others involved in this research, as will be discussed in the section entitled 'Respect for Democratic values'.) However, in order to obtain approval for the research there were several conditions of access. The first condition was that of confidentiality and hence the researched institution must remain anonymous to the public. Therefore, as noted in the introduction chapter of this thesis, a pseudonym has been given to the institution calling it 'Business University'. The second condition regards confidentiality of the participants. This confidentiality means that although the researcher is able to identify the participants, their names will not be made public (Cohen, Manion and Morrison, 2000). Accordingly, a pseudonym was given to each participant.

The third condition by the president stated that the interviews could only be recorded by note taking and not by the use of any electronic means. Although there was an attempt by the author of this thesis to change this condition and allow the use of tape recorders, the president persistently

refused, stating that he did not want to put pressure on the participants by taping them. This was disappointing, since tape recorders 'provide a more accurate rendition of any interview than any other method' (Yin, 1994, p. 86). In the fourth and last condition of access the management asked to be given the results of the study, which are of key interest to them since they may be used to improve communication within the organization.

Finally, in order to achieve 'respect for persons', transferral of ownership of the collected data from the participants to the researcher was planned by the means of checking out each transcript of an interview (without the comments) with the participants, as recommended by Lincoln and Guba (1985). However, as stated earlier in this research in the interview section, although several participants collaborated and consequently changes were made to their transcripts, most of the participants refused to read what they've said, stating phrases like 'I trust you'. This trust could be the result of the researcher being indeed trusted by the interviewees as an insider at Business University or due to fear that these changes will be reported to the president who gave access to this research, as was known to the participants. This raises the following question:

> *What is it that makes the study believable and trustworthy?*
> (Robson, 1993, p. 56)

Respect for Knowledge

Bassey (1999) refers to this as **'respect for truth'** (p. 74) stating that researchers are expected to be truthful in all phases of the inquiry, i.e. they must not deceive others intentionally as well as unintentionally deceiving themselves or others. Bassey (1999) argues that 'it is here that trustworthiness becomes significant' (p. 74). Trustworthiness, which

means that the researcher is able to persuade the readers that the research is worth giving credence to, was a concept introduced by Lincoln and Guba (1985) to replace reliability and validity, which are vital to surveys and experiments but not to case studies (Bassey, 1999).

> *Reliability is the extent to which a research fact or finding can be repeated, given the same circumstances, and validity is the extent to which a research fact or finding is what if is claimed to be... internal validity is concerned with the relationships between cause and effects, and external validity is concerned with the extent to which a cause-and-effect relationship can be generalized to other contexts.* (Bassey, 1999, p. 75)

Since a case study, according to Bassey (1999), is a unique singularity and not a typical example, trustworthiness - and not reliability or external validity - becomes the main issue. However, Bassey (1999) also states that internal validity is still relevant if it is a theory-seeking case study with a fuzzy cause-and-effect relationship, as is the situation in this research project at Business University. To achieve internal validity, Yin (1994) recommends the tactic of pattern-matching (which is performed in this research as described in the previous section of this methodology chapter on data display.) Therefore, drawing on the work of Lincoln and Guba (1985) as well as introducing additional concepts of his own, Bassey (1999) created the eight questions to built guidelines to ensure trustworthiness in case study research. Each of these questions will be introduced next, followed by their effects on creating guidelines that assure 'respect for truth' in the research at Business University.

> *1. Has there been prolonged engagement with the data sources?*
> (Bassey, 1999, p. 75)

According to Lincoln and Guba (1985) prolonged engagement is 'the investment of sufficient time to achieve certain purposes; learning the 'culture', testing for misinformation introduced by distortions either of the

self or of the respondents, and building trust' (p. 301). Since the research was conducted during an extensive period of approximately three quarters of a year, prolonged engagement can be claimed by this study.

> 2. *Has there been persistent observation of emerging issues?* (Bassey, 1999, p. 75)

Persistent observation is to 'identify those characteristics and elements in the situation that are most relevant to the problem or issue being pursued and focusing on them in detail. If prolonged engagement provides scope, persistent observation provides depth' (Lincoln and Guba, 1985, p. 304). At Business University, persistent observation was also essential in maintaining the focus of the research and avoid going of in other directions.

> 3. *Have the raw data been adequately checked with their sources?* (Bassey, 1999, p. 75)

As stated both earlier in this chapter on interviews and in the previous subsection on respect for persons, most of the participants refused to go over their interview transcripts. Even if they had gone over their transcripts, it is important to recall that interviews are only verbal reports that are subject to the common problems of bias and poor articulation and thus the interview data should be corroborated with information from other sources (Yin, 1994). Therefore, triangulation was necessary for the study at Business University.

> 4. *Has there been sufficient triangulation of raw data leading to analytical statements?* (Bassey, 1999, p. 75)

Lincoln and Guba (1985) define triangulation as the 'cross-checking of data and interpretations through the use of multiple data sources and/or

data collection techniques' (p. 109). Schutt (1999) argues that 'the ability to apply diverse techniques to address different aspects of a complex research problem is one mark of a sophisticated social researcher' (p. 396). Thus, to achieve sufficient triangulation and to claim sophistication in the study, the research at Business University included multiple data sources, such as past and present employees, and the techniques of interviewing, observing and documentary analysis.

> 5. *Has the working hypothesis, or evaluation, or emerging story been systematically tested against the analytical statements?* (Bassey, 1999, p. 75)

Although in research there is often a creative leap that is hard to explain, its end point - whether a hypothesis, an evaluative statement or an emerging storyline - must still be carefully and systematically checked against the analytical statements that have been made about the raw data (Bassey, 1999). In the research at Business University, this was done constantly, as well as 'careful consideration of alternative interpretations' (Yin, 1994, p. 103), to verify that the creative leap is not just something in the researcher's mind with no basis in the data.

> 6. *Has a critical friend thoroughly tried to challenge the findings?* (Bassey, 1999, p. 75)

Lincoln and Guba (1985) refer to this as peer debriefing, which is 'a process of exposing oneself to a disinterested peer in a manner paralleling an analytic session and for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer's mind' (p. 308). This was accomplished by the aid of a fellow doctoral student at Leicester University.

7. *Is the account of the research sufficiently detailed to give the reader confidence in the findings?* (Bassey, 1999, p. 75)

In a doctoral thesis, not only is there an accompanying supervisor that ensures the account is detailed enough, but also the size of the thesis (100,000 words) makes certain that the right balance is struck 'between saying too much (by either confusing the readers or, worse, wearing the out so that they fail to finish reading) and saying too little (and not giving the readers sufficient evidence for them to feel that the conclusions are valid)' (Bassey, 1999, p. 75).

8. *Does the case record provide an adequate audit trail?* (Bassey, 1999, p. 75)

Yin (1994) refers to this as maintaining a chain of evidence that allows an external observer, such as the reader of the case study, 'to follow the derivation of any evidence from initial research questions to ultimate case study conclusions' (p. 98). This chain of evidence was a constant reminder to create links throughout the thesis between the research questions, the literature, the tools used, the collected data and the conclusions. For example, the subsequent chapter will present the findings based on the first four research questions.

However, even following these eight guidelines in the study at Business University has its limitations regarding the reader's acceptance of the trustworthiness of the research. Lincoln and Guba (1985) affirmed that 'no amount of trustworthiness techniques built into a study would ever 'compel' anyone to accept the results of the inquiry; it could at best persuade' (p. 329). After all, an essential element of democracy is the

freedom of opinion (United Nations High Commissioner for Human Rights, 2002).

Respect for Democratic values

> *Researchers in a democratic society can expect certain freedoms: the freedom to investigate and to ask questions; the freedom to give and to receive information; the freedom to express ideas and to criticize the ideas of others; and the freedom to publish research findings.* (Bassey, 1999, p. 74)

Nevertheless, Bassey (1999) maintains that these freedoms are ethically limited by respect for truth and respect for persons, and thus in one case he did not publish an important issue because the head of the school could not be persuaded to let him make public the relevant data. Therefore, in the study at Business University, to ensure that these democratic freedoms are preserved, informed consent from the various participants was 'negotiated at different points in the research cycle' (Bartunek and Louis, 1996, p. 58) by, for example, telling them the purpose of the study and that participation is not mandatory. This negotiation also served in demonstrating the professionalism of the researcher to the participants at the university, and thus assisting in achieving respect in their eyes for educational research.

Respect for the Quality of Educational Research

Bassey (1999) states that respect for the quality of educational research 'enjoins researchers not to conduct their research in ways which will damage the future enquiries of other researchers, but to seek to enhance the image of research' (p. 74). Therefore, during the research period at Business University, it was important to continuously uphold the

aforementioned professional guidelines in both ethics and in conducting the research itself. These guiding standards would not only promote the quality of educational research in the eyes of all participants - leaving the door open in the future for other educational researchers - but would also strengthen the quality of the findings and conclusions that are presented in the following chapters of this thesis.

Chapter 4 – Findings

> *The essence of an effective research account is that it conveys to the reader something of a researcher's empirical experience, together with his reflections on it.* (Johnson, 1994, p. 178)

The following findings chapter will attempt to convey the researcher's empirical experience accumulated during the study at Business University, creating a basis for the discussion chapter which will present this enquirer's reflections on it. In order to focus this chapter, it was necessary to take into account the purpose of this research, which was:

- **To research the effects of communication technology on organizational communication in an institute of higher education in Israel over time [or before, during and after a period of change], including as perceived and enacted by selected members.**

Accordingly, this chapter will give a description of the collected data on the effects of communication technology on organizational communication at Business University. Furthermore, since the purpose of this study includes longitudinal aspects, the findings will be presented as a natural history. This chronological organization was chosen since it allows tracing events over time and thus assists in determining possible casual relationships, since causes must come before effects in time (Robson, 1993). Consequently, this chapter will be structured according to the three major phases of Business University's natural history:

1. The old regime and its attitudes to communications and communication technology at Business University.
2. The new regime in its early days and its attempt to improve communication through the use of communication technology.
3. The current effects of communication technologies on organizational communication at the university, and thus the success of this attempt.

The first phase (up to the end of 1999) will describe the time period of the old regime, which is characterised by very low use of communication technology. The reasons for this situation at Business University will be discussed, including the different attitudes members of the old regime had towards communication technology. A key change in this phase will also be presented with the addition of a new manager to the old regime in the beginning of 1998. This seemingly small change in the senior management of the old regime had a substantial effect on communication technology, as will be discussed in full in the subsequent pages.

The second phase (end of 1999 up to mid 2001) will describe how this new regime, lead by the new president of Business University, went about introducing numerous communication technologies to the university. It will also discuss types of resistance to change, such as logical, psychological (which includes computer anxiety) or sociological, that resulted from this introduction of modern communication technologies, as well as change agents that aided in this change process.

The third phase (mid 2001 to May 2002) will map out the current situation of organizational communication at the university, including the effects the new communication technologies had on communication. It will also comprise changes in management that affected organizational communication. The chapter will conclude with a discussion on the extent of success of communication technology at the university.

In the account that follows, each era will include an organizational chart, a communication network and major themes emerging from it, especially on the subject of communication technology. Each era will also be linked to the relevant key and subsidiary research questions, beginning with the time period of the old regime.

THE REIGN OF THE OLD REGIME

In presenting the findings on the past patterns of communication in the organization before the change in senior management that occurred at the end of 1999, it is important to take into consideration changes that took place during the time period of the old regime itself. A major change in the old regime happened in the beginning of 1998, about two years before the coming of the new regime, when a new manager was added to the old regime, by the pseudo name of 'Leon Garrison'[1]. During the research at Business University, it was discovered with some surprise that credit for the implementation of communication technology does not go solely to the new regime, but that Leon Garrison also held a central role in the introduction of communication technology at the university. Therefore, the period of the old regime will be divided into two sections:

- Before Leon Garrison's time (until 1998), and
- During Leon Garrison's period with the old regime (1998 up to the end of 1999).

Each of these two sections will include empirical issues, which are focused mainly on the subject of communication technology at the university. These empirical issues will be presented in the context of the first research question and its subsidiary questions (emphasized in italics). In addition, the introduction to each section will also contain an explanation on the key sources of collected evidence used in constructing the subsection, starting with the time period before Leon Garrison joined the old regime.

[1] Pseudo names will be given in parenthesis only on this occasion.

Old Regime: before Leon Garrison's Time

The following section on the time period before Garrison joined the old regime will present the findings in the context of the first key research question, which states:

1. **What were the past patterns of communication at the university before the change in senior management, including the attitudes of the former senior management towards communication technology, mainly as perceived by selected members?**

To map out the patterns of communication, first of all the formal organizational structure will be presented by means of an organizational chart. Then, a general account of the attitudes of the senior management towards communication technology will be proposed. In order to support this argument, empirical data in the context of the subsidiary questions of the first research question will be offered. This will include: a definition of the term 'communication'; the attitudes of senior management not only as they expressed themselves but also as perceived by selected others; the level of computer/information literacy of selected members; a description of the communication technologies that then existed at the university; and finally, a network analysis of the university that will bring this section together by mapping out the formal and informal network that existed then at Business University.

Since observations were not possible and documents were not found (due to several reasons, one of which will be explained in this section), the key sources of evidence in depicting this time period were interviews. These were first of all interviews with eleven selected members that worked or studied at the university at that time. The most significant one of these was the interview with Dr. Mike O'Henry, the Senior Vice-President for

Student Enrolment. The other interviewees that worked or studied in university during this time period were:

- Dr. Sean Rogers, the Dean then and now,
- Dr. Herald Ellis, the past and present Academic Coordinator,
- Kirk Gray, then only a caretaker and now the Head Caretaker,
- Sally Porter and Ben Whittaker, two past and present lecturers,
- Diana Newman, a librarian then and now,
- Jill Byers and Sara Robinson, two past and present secretaries,
- Mark Stone, then a student and now a marketing employee, and
- Judith Bird, a student that was studying then at the university and came back to complete her degree.

In addition to these eleven interviewees, some light on this era was shed by one other member not of this time period, Garrison himself, who commented on several occasions on the time before him, including that the organizational structure was very flat when he arrived.

Organizational Structure

In order to begin mapping out the patterns of communication, first of all the formal organizational structure is presented by means of an organizational chart, which is one of the methods of display discussed in the methodology chapter. Since no documents were found for this period, the organizational chart (Figure 4.1 in the next page) was reconstructed only on the basis of the selected members interviewed and thus represents their perceptions of it.

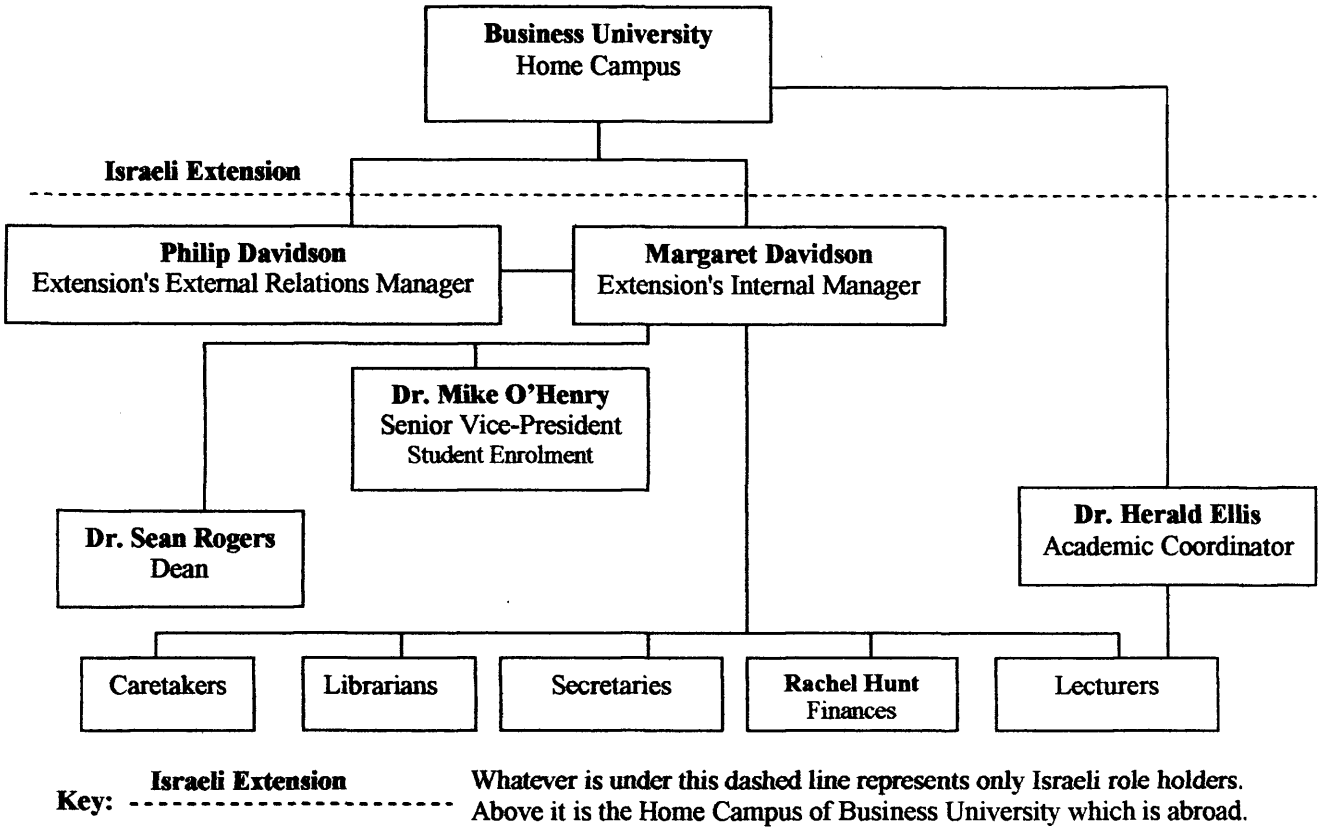


Figure 4.1: Organizational Chart - Old Regime: before Leon Garrison's Time

From this chart it can be seen that the organizational structure of the Israeli extension was relatively a flat one, composed of only four levels of role holders:

Level (1) Margaret Davidson, the Extension's Internal Manager and Philip Davidson, the Extension's External Relations Manager,

Level (2) Dr. O'Henry, Senior Vice-President Student Enrolment,

Level (3) Dr. Ellis, the Academic Coordinator and Dr. Rogers, the Dean, and

Level (4) the rest of the university's staff.

By examining Business University's organizational chart, the centrality of Margaret Davidson is evident. As the Israeli Extension's Internal Manager, she was responsible for all aspects of managing the day to day

running of the university, including reporting to the Home Campus of Business University. Her husband, Philip Davidson, the Extension's External Relations Manager, was responsible for most the relations outside the university such as those with the Council for Higher Education in Israel and also with the Home Campus of Business University. This communication with the Home Campus was done in coordination with his wife.

Dr. O'Henry, as the Senior Vice-President for Student Enrolment, was responsible for all the counselling that took place before students enrolled. Dr. Ellis, the Academic Coordinator, who was contracted directly by the mother institution, was an Israeli whose job was to assure that the academic standards of the extension meet the standards of the Home Campus. In addition, he was responsible for recommending candidates for lecturer positions at the university, with the final decision regarding the acceptance of a lecturer resting in the hands of the Home Campus. Dr. Rogers, the Dean, was responsible for student related problems, and thus students would often approach him on various issues. On the subject of communication technology, Dr. Rogers noted:

> *I was not responsible for communication technology but I did initiate several things in this field... the former [senior] management thought that communication technologies will cause expenses, especially Margaret [Davidson].*

Senior Management's Attitudes towards Communication Technology

The attitudes of senior management to communication technology, before Garrison's time, seem to be negative ones. It was discovered that they felt that investing in such technology was a waste of money. In order to understand senior management's anti-communication technology

approach, it is necessary to first examine how they viewed the term 'communication', as suggested by the subsequent subsidiary research question:

How do these members, especially the former senior management, define the term 'communication'?

Although there are several members from this time period who still work at Business University, the only former senior member who is before Leon Garrison's time is Dr. O'Henry, who defined communication in the following manner:

> *Communication for me is the ability to send a message so as to achieve my objectives or those of the organization. For example, how to market the university to a potential student that he or she would want to enrol. To pass the right message, the desired.*

This definition does give an idea of how the former senior management perceived communication, but it does not directly address the attitudes of senior management towards communication technology, as raised by the following subsidiary research question:

How did the then senior management perceive the use of communication technologies and its importance to organizational communication at Business University?

In order to crosscheck their attitudes towards communication technology, participants in the study were asked both an indirect question and a direct question. The indirect question was 'how do you prefer to communicate?', while the direct question was 'how did senior management then regard the use of communication technologies at Business University?' with some additional sub-questions. (For details, see Appendix A – Interview Schedule for the Old Regime.) Regarding the indirect question, Dr. O'Henry commented that he prefers 'face-to-

face usually, but if there is no alternative there is the cellular phone or the fax. In face-to-face, mainly one on one, it is possible to close everything quickly. It is not like sending an email and waiting two days for an answer'. Additionally, Dr. O'Henry's response to the direct question furthered this anti-communication technology approach as he testified:

> *Most of the time I was there, there were no communication technologies... Generally, Margaret [Davidson], Philip [Davidson] and myself, we did not think that there is need for communication technologies. Yes, you might say that there was a strategic decision not to invest [in communication technologies], but there was no formal document or anything like that. There was no committee, there was nothing. We did everything on paper until the middle of the 90s, except maybe a computer or two... You know, I don't think that there was a need. The fact is we were very successful.*

From this interview (and from actual research) there are no formal documents to triangulate this anti-communication technology approach of the former senior management. (Another reason for this lack of documents, which was uncovered during an interview with one of the senior managers of the new regime, will be given later in this chapter.) However, since in the methodology chapter triangulation was defined as the 'cross-checking of data and interpretations through the use of multiple data sources and/or data collection techniques' (Lincoln and Guba, 1985, p. 109), it was thus possible and necessary to examine other data sources in order to triangulate, as implied by the following subsidiary research question:

How do selected others perceive the importance the former senior management put on communication technologies?

Dr. Rogers confirmed this anti-communication technology by testifying that 'the former [senior] management did not invest in communication technology... then, the one laptop was owned only by Philip [Davidson]'.

He also explained, as mentioned earlier in this section, that they 'thought that communication technologies will cause expenses'. Judith Bird, a student that has been studying at the university on off for five and a half years and is therefore familiar with both regimes, offered a similar yet more intense explanation in her interview:

> *The former management was only interested in money. In the beginning of our studies Dr. Mike O'Henry came to us and promised a million promises, such as we'll get a book in every course and won't have to buy nothing. In the first semester this was indeed the case, but soon everything vanished. They didn't invest anything. So why would they invest in technological systems? They weren't interested in communication technology! Money - that is the only thing that talked! They were simply a bunch of greedy people!*

Sally Porter, a lecturer who has been five years at the university, is in agreement with this view:

> *The former management said, "I am interested in profit". It did everything to promote its own interests. There wasn't one at mouth, one at heart. "There are students, there are lecturers, put together a course. Teach! And that's it!" And the organization succeeded!*

However, the research revealed that this anti-communication technology attitude of the former senior management has its roots not only in their profit-oriented approach, but also in their level of computer/information literacy, as the following subsidiary research question inquires:

What was the level of computer/information literacy of selected members and did computer anxiety exist? Which one of them had a computer and other modern technologies at home?

The level was low with undeniable computer anxiety. Kirk Gray, who is currently the Head Caretaker, but was then only a caretaker, stated:

> *In the beginning they were afraid to even turn the computer on...Rachel [Hunt], even though she was working in finances,*

> *worked also without the computer. Even Dr. Mike O'Henry was far from the computer – he did not object but was far from it. Even Margaret [Davidson] did not object, but was not ready to work with it. Her husband [Philip Davidson] was with a computer all the time.*

As will be demonstrated, this study revealed that even currently it is probable that Dr. O'Henry still has computer anxiety. In his interview he commented that even today when he works more at home he only uses the 'cellular phone and fax'. This further explains the results of the following subsidiary research question:

Which were the communication technologies that then existed at the university?

The answer to this question cannot be a final one, since there seems to be no formal documents on the types of communication technologies at the university during this period. In addition, from the interviews it is not clear just how many modern communication technologies existed at Business University. However, the following quote reveals that the extent of communication technologies must have been negligible:

> *In 1995, when I came to the university there was only one computer at the typist. Everyone worked with a pen and paper... Several years ago they did not think of using an internal email between floor to floor, building to building... Once [for the students] there were 15 computers – a small class. Introduction to the computer and that's it.* Gray

Ben Whittaker, a lecturer who has been six years at the university, corroborated this view:

> *I remember that when I came there wasn't one computer in the organization! Well, maybe there was one in finances, but the manager Margaret [Davidson] and her entire staff did not have a computer and she was the main resistance to computerization.*

Margaret Davidson's resistance to communication technology during this time period can be seen in the network of communication, an issue raised by the following subsidiary research question:

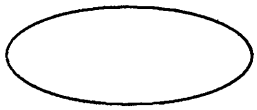
How could this past network of communication be mapped out, including the formal and informal network, messages flow (such as downwards or upwards) and which type of network would best describe those patterns: the 'wheel', the 'circle', the 'chain' or the 'all-channel'? What were then the roles of members (such as liaisons, bridges, gatekeepers, isolates, opinion leaders or cosmopolites) in this communication network?

In the beginning of this section, the formal organizational structure was presented by means of an organizational chart. However, the formal organizational structure does not reveal the informal communication channels. For instance, the research accidentally discovered that one of the students at the university in this period was Dr. O'Henry's brother-in-law. In other words, Dr. O'Henry, if he so wished, could have had at all times informal information on what was happening inside some of the classes of the lecturers. Therefore, as discussed in the methodology chapter, there is need of an additional method of display: network analysis.

Drawing Business University's network will allow not only presenting the informal communication channels, but also seeing the use of communication technology in the entire organization. Furthermore, using this diagram throughout this study will enable historical comparison between the different periods, thus enabling viewing the evolution of communication technology at the university. However, before any of the university's networks are drawn, there is need of a detailed account of the symbols used to display the networks. As promised in the methodology chapter, such an account is offered next.

Symbols in Network Analysis

Here are the key symbols used to draw the subsequent diagrams of Business University:



An ellipse represents an entity that can be either a person (such as a specific manager) or a group of people (such as a department).

Since between two entities communication may be either formal or informal, five graphical possibilities were chosen to convey this:

1. **No line** means that no communication (or almost no communication) takes place between the two entities. For example, two people that just say hello in the morning and have no other known professional or personal interaction would be drawn without any line between them.
2. ····· A dotted line represents both low formal communication and low informal communication between the two entities. Employees that only communicate with each other once a month due to some general meeting would be considered to fit this.
3. - - - - - A broken line symbolizes high formal communication but low informal communication between the two entities. For example, a manager and a subordinate that mainly discuss job related information would fit this graphical representation.
4. · – · – · – A broken dotted line indicates low formal communication but high informal communication between the two entities. For example, two employees that do not work together but are good friends would be presented in this way.
5. ——— A full line represents both high formal communication and high informal communication between the two entities. A president

and a dean of a university that do not only work together but are friends would make an example for such a graphical representation.

It is important to note that **between two entities there can be only one line**. This is due to the fact (see page 54) that a network analysis, like a snapshot, is truly accurate only for the instance of time which it was built. Therefore, at one moment of time there can be only one type of communication between two entities, i.e. one line. Additionally, in order to represent the extent of use of communication technology between the two entities, colours were added in the following way:

- **A black line** means that there is no use (or almost no use) of modern communication technology between the two entities. Thus, a black broken line (_ _ _ _) would symbolizes that the two entities (which are communicating in a high formal but low informal manner) do not use communication technology in their communications.
- **A blue line** states that there is some use of communication technology between the two entities but not very high use. For example, a blue full line (_____) would indicate that communication technologies are only used in part to communicate between the two entities (although the two are communicating in both a high formal and a high informal manner).
- Finally, **an orange line** means that there is high use of communication technology between the two entities when they communicate. Hence, a dotted orange line (.....) asserts that these two use communication technologies extensively when communicating with each other (although they do not communicate a lot either formally or informally, as the dotted line implies).

Consequently, based on these symbols, here is the Business University's network built on the perceptions of the selected members mentioned in the introduction to this time period:

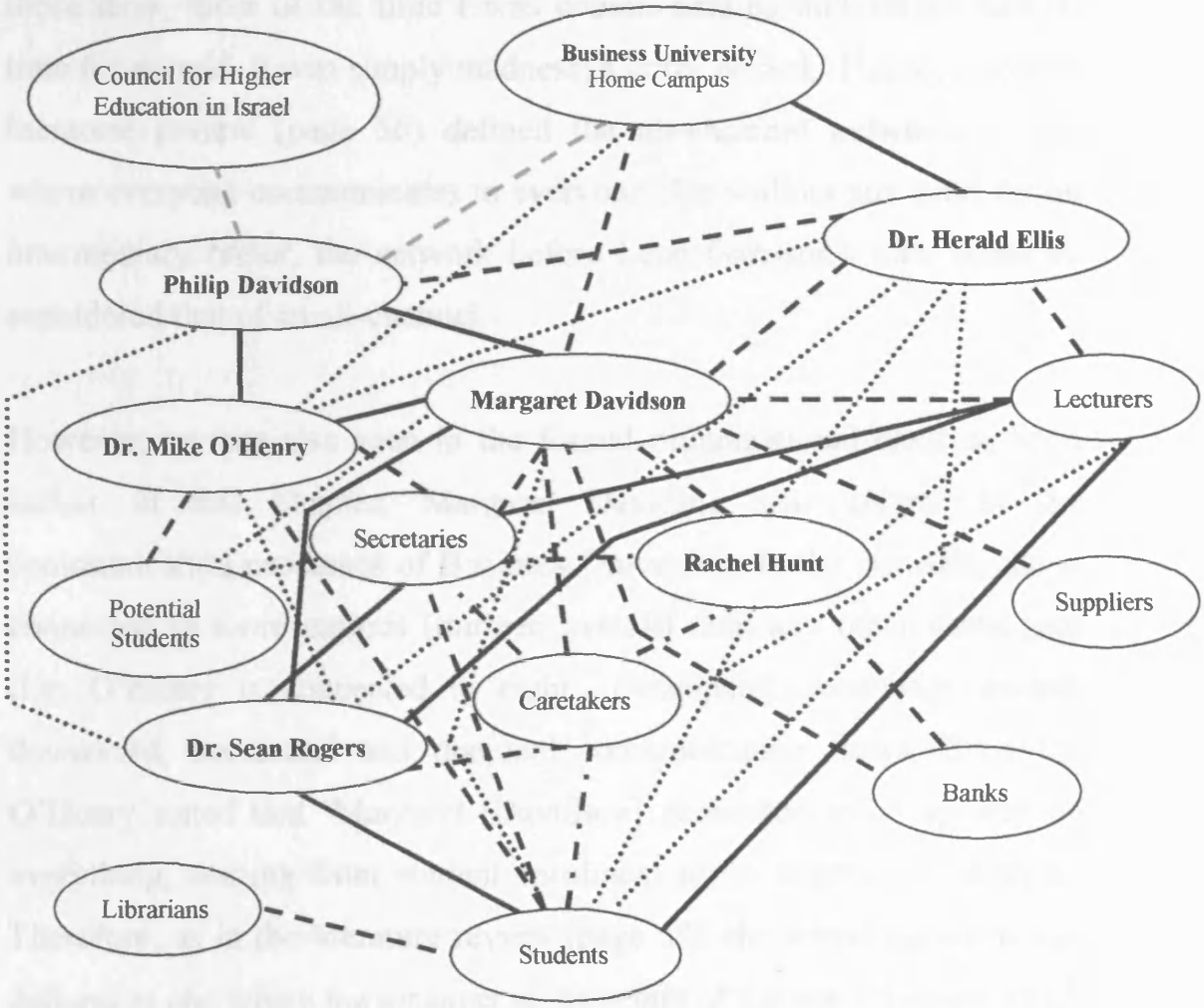


Figure 4.2: Communication Network - Old Regime: before Leon Garrison's Time

At first glance this network (Figure 4.2) seems complex, but several things can be leant from it. First of all, there was almost no use of communication technology (only two blue lines in the network) at the university at that time. In addition, it would seem that then everyone was communicating with everyone else. There are no **gatekeepers** in this network, who (see page 58), are individuals that occupy a position in the network that allows controlling messages through a communication

channel. Indeed, Dr. O'Henry stated that 'during the time I worked [at the university] I talked to everyone possible: students, lecturers, secretaries, management, stockholders, factors abroad and who not... In those days, most of the time I was communicating and almost had no time for myself. It was simply madness, a crazy period.' Hence, since the literature review (page 56) defined the **all-channel network** as one where everyone communicates to everyone else without any need for an intermediary factor, the network before Leon Garrison's time could be considered that of an all-channel.

However, as was also seen in the formal organizational chart outlined earlier in this chapter, Margaret Davidson was central in the communication processes of Business University. In the network, she is connected to more entities (thirteen overall) than any other participant (Dr. O'Henry is connected to eight to compare), receiving upward, downward, horizontal and diagonal communication flows. Even Dr. O'Henry stated that 'Margaret [Davidson] demanded to be updated on everything, starting from student enrolment up to negotiating salaries'. Therefore, as in the literature review (page 55), the **wheel network** was defined as one where the manager is the centre of the team through which all information passes and through which members also communicate between themselves, the network before Leon Garrison's time may be considered that of a wheel (albeit not a perfect one).

In addition, the network shows that the librarians were not connected to anyone else except the students and, since they work in shifts, each one must accordingly be regarded as an isolate. According to the literature review (page 58), an **isolate** is an individual that is usually outside the interactions carried on in networks. After all, in certain cases for an

individual to be in communication with other members of the network may require an intervention by another such as a bridge. In the literature review (page 57), a **bridge** was defined as an individual that connects two groups in a network and belongs to both. In a quick inspection of the network, Dr. Ellis may be viewed as a bridge.

However, although Dr. Ellis did connect between Business University abroad and the Israeli Extension, he was not a member of the Israeli organization, but rather an external quality control body imposed on the extension by the home campus. Furthermore, he was not really a member of the Home Campus, since he was an Israeli that was chosen because there was need of someone with knowledge of Hebrew to monitor the Israeli extension. Therefore, Dr. Ellis must be regarded as a **liaison**, which has been defined (see page 57) as an individual that interpersonally connects two or more cliques but is not a member of any of them.

Additionally, examining the network may result in concluding that Philip Davidson was a **liaison** as well. However, since Philip Davidson was a member of the university, as can be seen from the organizational chart, where he was given the title of Extension's External Relations Manager, he must be regarded as a **cosmopolite**, or **boundary spanner**. This has been defined (see page 59) as an individual who has a relatively high degree of communication with people outside the organization. Philip Davidson did have substantial communication with the Council for Higher Education in Israel and the home campus of Business University, and thus may be deemed a cosmopolite. As a cosmopolite, he had to have answers to those external bodies that were critical for the continued approved operations of Business University.

> *The main problem with communication was that Philip [Davidson] could drive me crazy. He had to have answers even if I was in the middle of a conversation with a potential student! Or if I'm in a middle of a heart attack, a moment before death!*
>
> Dr. O'Henry

However, reviewing the network, it could be argued that at that time the main problem with communication was the conspicuous lack of use of communication technology at the university (as pointed out earlier, there are only two blue lines in the network). This was about to change as Garrison, the new Senior Vice-President for Human Resources, entered Business University and 'started this subject of computers and computerizing the organization, and Margaret [Davidson] just followed him. She counted on him very much and highly appreciated him' (Dr. O'Henry).

Old Regime: Leon Garrison's Period

The following section on the time period when Garrison was a member of the old regime will present the findings (as did the previous section) in the context of the first key research question:

1. **What were the past patterns of communication at the university before the change in senior management, including the attitudes of the former senior management towards communication technology, mainly as perceived by selected members?**

To map out the patterns of communication, first of all the formal organizational structure in Leon Garrison's time will be presented by means of an organizational chart. Then, the extent of change in the attitudes of the senior management towards communication technology

will be proposed in general. In order to support this argument, empirical data in the context of the subsidiary questions of the first research question will be offered. This will include: a definition of the term 'communication'; the attitudes of senior management not only as they expressed themselves but also as perceived by selected others; the level of computer/information literacy of selected members; a description of the communication technologies that then existed at the university; and finally, a network analysis of the university that will bring this section together by mapping out the formal and informal network that existed then at Business University.

Since in this time period observations were also not possible and documents were again not found, the key sources of evidence in depicting this time period were interviews as well. These were first of all interviews with sixteen selected members that worked or studied at the university at that time. The most significant one of these interviews was naturally that of Leon Garrison himself. The other interviewees that worked or studied in university during this time period were:

- Dr. O'Henry, who was still the Senior Vice-President for Student Enrolment,
- Dr. Rogers, the Dean then and now,
- Dr. Ellis, the past and present Academic Coordinator,
- Sam Ford, then a lecturer and later, for a while, the Academic Manager, working in collaboration with Dr. Ellis
- Gray, then and now the Head Caretaker,
- Mary Ford, who was then a lecturer and now the Administrative Manager
- Porter and Whittaker, two past and present lecturers,

- Newman, a librarian then and now,
- Dorothy Daft, then a secretary and now Deputy to the Administrative Manager
- Emily Pelton, Jill Byers and Sara Robinson, three past and present secretaries,
- Stone, then a student and now an academic consultant in the marketing department, and
- Bird, a student that was studying then at the university and came back to complete her degree.

In addition to these sixteen interviewees, some light on this era was shed by two members not of this time period, Richard Marcus, the President of the new regime, and Paul Wilkins, the Senior Vice-President of Operations and Human Resources of the new regime. Consequently, on the basis of these overall eighteen interviews, the organizational structure was reconstructed.

Organizational Structure

The formal organizational structure is presented by means of an organizational chart. As in the previous section, in this section too no documents were found for this period. Thus, the organizational chart (Figure 4.3) was reconstructed solely on the basis of those interviewed and thus represents their perceptions of it.

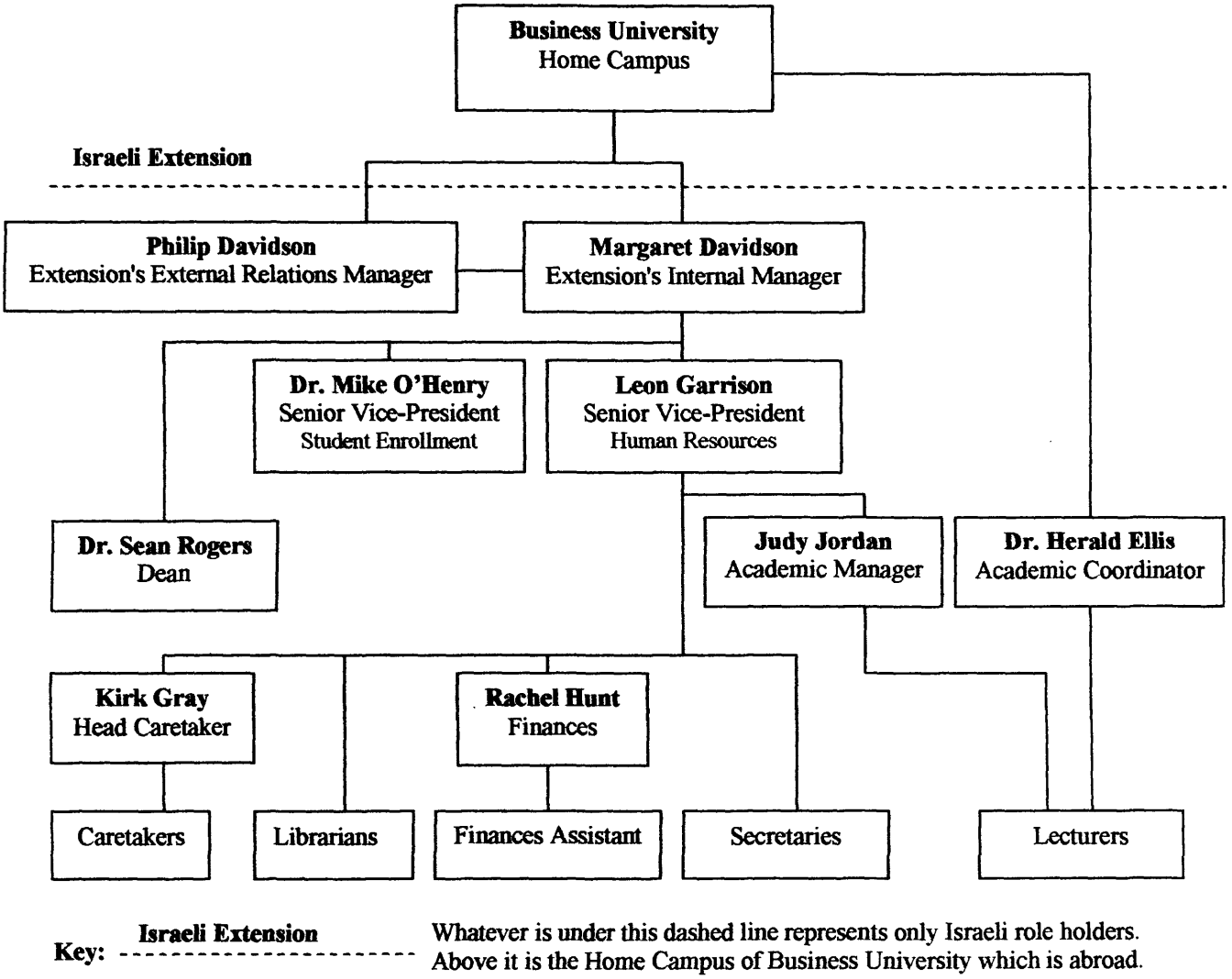


Figure 4.3: Organizational Chart - Old Regime: Leon Garrison's Period

From this chart it can be seen that the organizational structure of the Israeli extension is not as flat as it was before Leon Garrison's time, being composed of five levels (instead of the previous four) and with several more functions. These new functions, on top of the responsibilities of the former role holders that remained more or the less the same, included the role of a Head Caretaker, who would be responsible for the work of all caretakers, an Academic Manager, responsible setting the academic standards of the extension demanded of the lecturers and even an information/computer literate assistant in finances. This is best expressed by Garrison himself:

> *I advanced Kirk [Gray] into the Head caretaker, brought Judy [Jordan] as the academic manager and what not. In short, I really changed the organizational structure. I even brought an assistant that knows computers for Rachel [Hunt] in finances.*

The reason he changed the organizational structure was because of Margaret Davidson. As Garrison commented:

> *In the beginning everything was flat and very centralized with Margaret [Davidson]. It took me a lot of time to convince her that levels of hierarchy are needed and that it is impossible to have a flat organizational structure where everything flows from her. She was just collapsing from the workload.*

Others agree with his perceptions of the situation before he came. 'Leon [Garrison] organized the organizational structure so that everything would not focus on Margaret [Davidson]. He took a lot of load off her' (Dr. O'Henry). Garrison confirmed that planning the changes to the organizational structure 'is the reason I was brought', and was accordingly entitled Senior Vice President of Human Resources.

> *Two years ago I was working at the university as Vice President of Human Resources. I was responsible for hiring lecturers, including advertising in the newspaper if lecturers are needed, hiring and firing employees, financial negotiations with the employees and the lecturers, planning the new organizational structure... and also acquiring information systems.* Garrison

The end of this quote illustrates that he was responsible for information systems and thus for communication technology from day one. Dr. O'Henry confirmed that Garrison was responsible for communication technology, noting that Garrison had not only 'the technological knowledge, but more importantly, the organizational knowledge how to introduce such change into the organization' (Dr. O'Henry). This

knowledge was to affect the attitudes of senior management towards communication technology.

Senior Management's Attitudes towards Communication Technology

In the previous section, before Garrison's time, it was argued that the attitudes of senior management to communication technology appeared to be negative ones. Although it was expected that with Garrison joining the senior management of the old regime, these attitudes would substantially change, this was not to be the case. There was some change however in senior management's attitudes but their orientation was nevertheless towards profit. The research at Business University discovered that they still felt that investing in such technology was a waste of money. Garrison had to prove the economic contribution of each new communication technology he suggested to introduce to the university.

Therefore, in order to understand senior management's continuing in their anti-communication technology approach, it is necessary to first examine how they viewed the term 'communication' and possible changes in it when compared to the previous period, as suggested by the subsequent subsidiary research question:

How do these members, especially the former senior management, define the term 'communication'?

However, the only former senior member added during Leon Garrison's time is Garrison himself, who defined communication in the following manner:

> *Communication for me is first of all personal communication. How a person communicates with those around him. How he*

> *attracts attention. For example, when I was a lecturer I loved to silence a class by putting a transparency [on an overhead projector] with some picture. Everyone would look to see what is there [in the picture] and in this way I would immediately catch the [attention of the] class! This is communication for me. How a person can pass the message he wants to the other side while ensuring that the other side received what the message is about.*

Although this definition gives Garrison's perceptions of the communication process (and even some interesting background information on his past as a lecturer), it does not directly address the attitudes of senior management towards communication technology, as raised by the following subsidiary research question:

How did the then senior management perceive the use of communication technologies and its importance to organizational communication at Business University?

The research revealed that the perceptions of the importance of communication technology did not change much in Garrison's period. Although, Garrison emphasized in his interview several times that he 'was the factor that started the change' and that senior management acknowledged that Garrison was the one that introduced the technology to the university, this, however, was not deemed as important. As Dr. O'Henry noted:

> *I did not introduce any communication technologies into the organization. These things Leon did with my approval... it was Leon that led. He had the technological knowledge, but more importantly, the organizational knowledge how to introduce such change into the organization... Overall, the level of communication technologies was not too high, but there was really no need. We managed the university and we were very much successful, as I said earlier.*

Dr. O'Henry furthered demonstrated that not much has changed with the arrival of Leon Garrison to the scene by saying:

> *If I already needed something from the computer, I would ask my secretary.*

With such an attitude it is no surprise that 'all the management did indeed object, including Mike [O'Henry]' (Garrison). This resistance to change was due to the fact that the focus of management remained on profit and thus they 'saw communication technology as an unnecessary waste of money. Margaret [Davidson] didn't believe in computers, and as with the organizational structure, that took some convincing. Before me there was a decision not to invest in communication technology' (Garrison). This attitude was something Garrison quickly learnt:

> *Due to the fact that until I arrived they didn't spend a Shekel [Israeli currency] on computerization I knew something was wrong. Even when they bought a computer room, it was old equipment, relative to that period. For example, there wasn't any connection of the computers to that of the lecturer as there is today in the Classnet. Therefore, a lecturer needed to go over one by one.*

Therefore, to convince the profit-oriented management that communication technologies were necessary, an economic analysis would have been necessary. However, Garrison maintained that he 'didn't conduct an economic analysis of the productivity of the information system'.

> *There was no outsourcing [of the communication technology]! There was no committee! I decided alone and I needed an approval from Margaret [Davidson] if the expense was very high.* Garrison

The question that stems from this quote is how Garrison got approval from Margaret Davidson to purchase communication technologies. He

answered this by stating that 'Margaret [Davidson] objected, but agreed [to purchase communication technologies] if I showed her the economic advantage'. In this it seems that he is contradicting what he himself said previously in the interview, when he maintained that no economic analysis was conducted. However, as he testified that 'there was no strategic plan, but only due to specific demands' and that 'there was no planning in advance' (Garrison), the explanation is revealed. An analysis of the productivity of the entire system wasn't carried out, but each time they considered a specific subject ad hoc based on existing needs.

> *The need lead me, within the framework of the reorganization that I was carrying out at the university.* Garrison

One of the needs was created as a result of the 11th amendment to the Council for Higher Education Law (see page 13). The 1998 law stipulated that in order to function in Israel, all extensions must get a license from the Council for Higher Education. One of the conditions of the license was that at least 30% of the studies are conducted by lecturers from the mother institute, either by face-to-face communication or through videoconferencing (Council for Higher Education in Israel, 2002, online). Therefore, Business University did not only bring English-speaking lecturers from the mother university for the first time during Garrison's period, it also introduced videoconferencing.

> *When was video conferencing introduced? Ah, this we introduced because of the Israeli Council of Higher Education that a pushed a law in parliament that 30% of lectures should be from abroad instead of the 10% that all of us, all the extensions, agreed on. But still Leon handled all the technical stuff.* Dr. O'Henry

Leon Garrison confirmed that communication technologies, such as videoconferencing, were brought into the university due to the law

(which increased the use of technology in the communications between Israeli students and lecturers at the home campus), but he had to do more than handle the technical stuff.

> *I introduced the videoconference to the organization due to the Israeli Council of Higher Education. It is cheaper than bringing a lecturer to Israel, giving him a place to stay and all the accompanying costs, although we did that as well.* Garrison

By proving to the senior management - and mainly to Margaret Davidson - that communication technologies are cost-effective in this situation, Garrison was able to introduce them to the university. The question that remains to be considered with regard to Garrison's time period is:

How do selected others perceive the importance the former senior management put on communication technologies?

The selected participants were both several employees during Leon Garrison's period as well as the senior management (president and vice-president) of the new regime, who had a short overlapping period with the former senior management at the end of 1999, and thus could observe their attitudes towards communication technologies. First of all, the employees mirrored the previous statements by Garrison and Dr. O'Henry in that Garrison was the one who drove the university towards communication technology and that senior management, especially Margaret Davidson, objected. This is demonstrated by the following quote from Jill Byers, a secretary that has been at the university in both regimes:

> *Leon [Garrison] pushed very hard. It was Margaret [Davidson] that objected. I too was also very frightened in the beginning! They let us understand that for those who won't learn "the door is open". The head is clogged up at my age. Once, we used to prepare the entire system by hand writing!*

However, this fear in Leon Garrison's period did not have any justification. Leon Garrison did begin the change in the organization and Margaret Davidson did object, but he also did this in a supportive manner.

> *It was Leon [Garrison] who began the revolution of the computer. He even taught Margaret [Davidson] how to work the computer. He even taught the secretaries – gave them courses of introduction to the computer.* Gray

Secondly, the two members of the new senior management also confirmed that 'Margaret [Davidson] objected to the computer – she believed in herself and in her people' (Paul Wilkins, New Regime - Senior Vice President). The profit-oriented attitude of minimal spending in general and specifically on communication technologies remained the same.

> *The former management was unaware of the contribution of communication technologies. How it affected the quality of learning. There was a problem of awareness of the subject. The emphasis of the former management was on saving expenses. They saved on anything possible. Although that from the point of savings, it is savings in the short run but it does not constitute savings in the long run.*
>
> Richard Marcus, New Regime - President

In this, Marcus is not only confirming the profit-oriented attitude of the old regime he is also addressing the following research question:

What was the level of computer/information literacy of selected members and did computer anxiety exist? Which one of them had a computer and other modern technologies at home?

As Marcus stated that 'there was a problem of awareness of the subject', he was saying in a diplomatic way that the level of literacy is low.

Accordingly, in order to witness the actual 'savings', the following subsidiary research question is essential in understanding the importance the old regime in Leon Garrison's period put on communication technologies:

Which were the communication technologies that then existed at the university?

In this period, as in the previous before Leon Garrison's time, no documents were found to corroborate the exact number of computers that existed at the university. However, it is clear that 'there were almost no computers until Leon [Garrison], as I told you, came' (Dr. O'Henry). Gray noted (see previous section) that in 1995 when he came to the university, 'there was only one computer at the typist...Once [for the students] there were 15 computers – a small class. Introduction to the computer and that's it'. Garrison validated this by testifying:

> *When I came there was barely one computer room for the students. When I left they were already preparing the third one!*

Hence, it would seem that the new senior management, in implementing communication technology at the university, 'did not indeed start from zero, because Leon did a lot' (Dr. O'Henry). However, this is not something that all the interviewees agree on. Dorothy Daft, who is currently the Deputy to the Administrative Manager, but was a secretary during Leon's time, stated that 'although Leon [Garrison] started the project, he however didn't understand what was needed where and when. And it is important to know how to implement!'

Even Garrison himself commented that he was only 'quite successful in introducing information systems to the organization', adding:

> *In my opinion we succeeded in starting a process, but it is obvious that in the beginning, communication technologies were not laid out perfectly.*

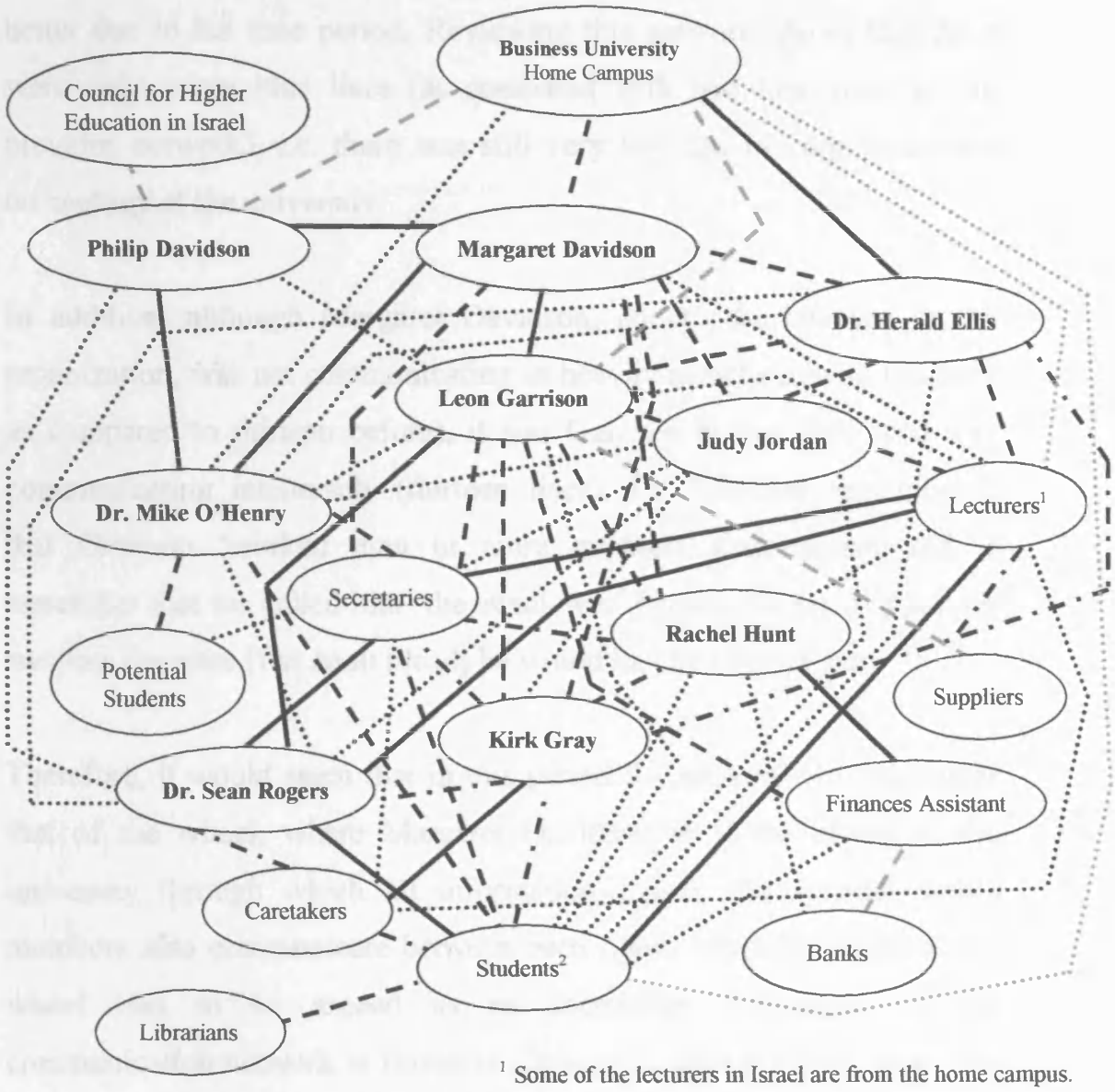
Towards the end of his interview Garrison even ranked the communication technology system at the university.

> *My ranking is:*
> - *Very weak up to nonexistent when I came.*
> - *A little better and the start of a process when I left.*

Consequently, to examine the effect Garrison had not only on the communication technology system, but also on the entire network of communication, it is necessary to undertake network analysis, an issue raised in the next subsidiary research question:

How could this past network of communication be mapped out, including the formal and informal network, messages flow (such as downwards or upwards) and which type of network would best describe those patterns: the 'wheel', the 'circle', the 'chain' or the 'all-channel'? What were then the roles of members (such as liaisons, bridges, gatekeepers, isolates, opinion leaders or cosmopolites) in this communication network?

To address these issues and to view the changes that were made, including the technological ones, below is the communicational network of Business University during Leon Garrison's time, built on the perceptions of the selected members listed in the introduction to this section:



[1] Some of the lecturers in Israel are from the home campus.

[2] The students also learn using videoconferencing (which is the blue line to the home campus).

Figure 4.4: Communication Network - Old Regime: Leon Garrison's Period

Examining this network demonstrates that it is somewhat more complex than the previous network before Garrison's time. This is natural because there are more functions in the organization. However, these changes are not extreme ones. This is especially true of communication technology. The network reveals that Garrison was correct in saying that the

communication technology system at the university was only slightly better due to his time period. Reviewing this network shows that there were only seven blue lines (as compared with two blue lines in the previous network), i.e. there was still very low use of communication technology at the university.

In addition, although Margaret Davidson, due to the changes in the organization, was not communicating as heavily as before (with ten lines as compared to thirteen before), it was Garrison at this time who was communicating intensively (thirteen lines). Dr. O'Henry remembered that Garrison 'worked then in more madness than anyone did. I remember that we called him 'the swallower' because he used to simply swallow the pitas [flat Arab bread] he would buy in a bite or two'.

Therefore, it would seem that in this period the network was no longer that of the wheel, where Margaret Davidson is at the centre of the university through which all information passes and through which members also communicate between each other. Moreover, even if the wheel was to be argued as an acceptable description of the communication network at Business University, then it would seem that Garrison was the centre of that wheel.

However, the following spatial map (Figure 4.5 on the subsequent page), which was constructed with Garrison in his interview, demonstrates that Margaret Davidson was still the focal point of communication and consequently there is still a case to be made that the communication network was that of the wheel, with Margaret Davidson at its centre.

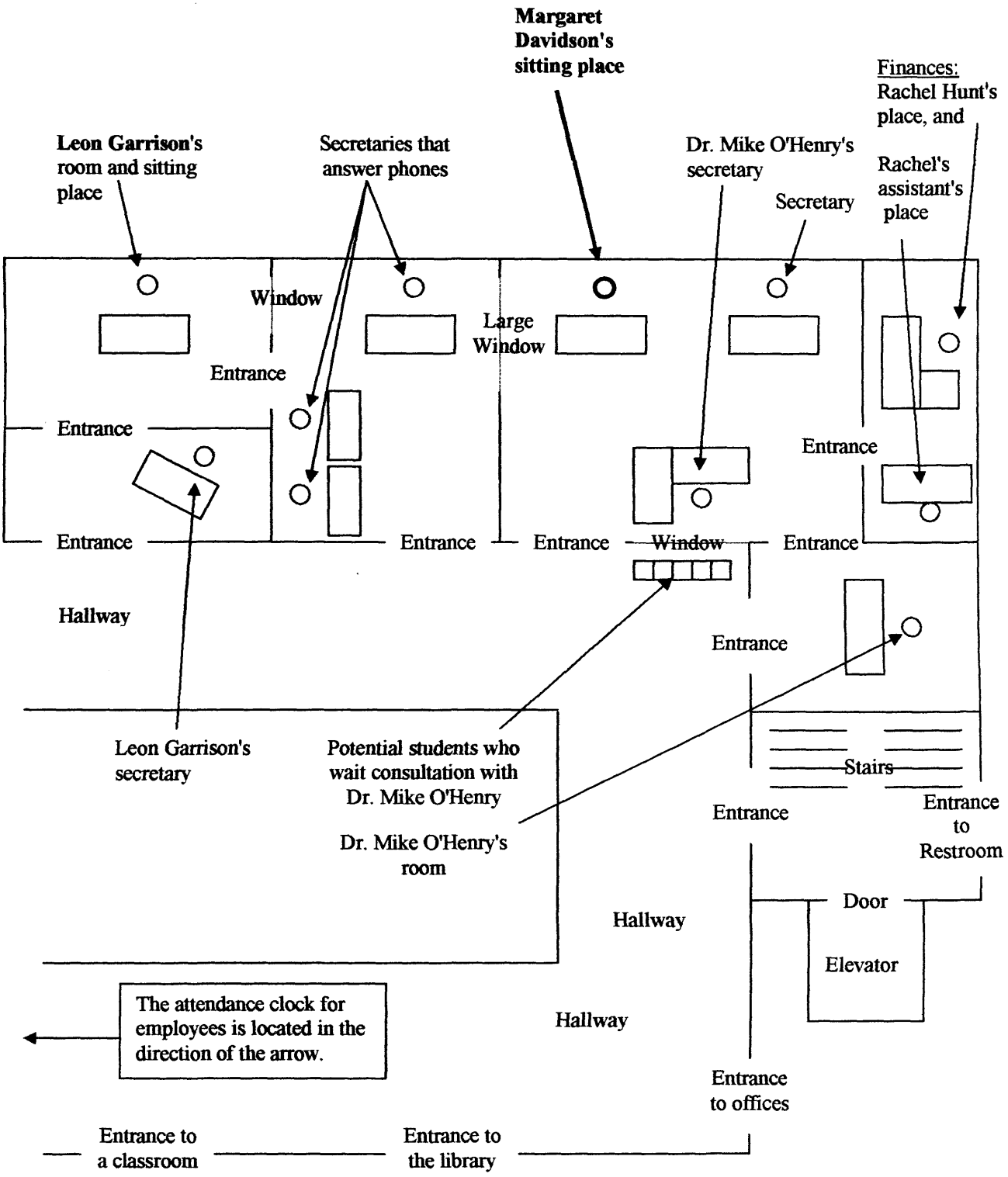


Figure 4.5: Spatial Map - Old Regime: Leon Garrison's Period

Studying Figure 4.5 reveals that Margaret Davidson's sitting place allowed her to monitor almost every activity that was going on at Business University. She could see the students coming to the classrooms on this floor. She could observe when the lecturers or the employees came in to work or when left, since the attendance clock was in a room on this floor. She could see which potential students came for consultation to Dr. O'Henry. She could monitor all the activities of the secretariat.

Garrison recalled that 'she used to sit in the room next to me with the inner window and watch everyone. She would hear every telephone and get angry if they wouldn't pick it within two rings'. Although she was not as overloaded as before Garrison's period, she remained the centre of the communication flows at Business University and was still critical in its negative attitudes towards communication technology.

Thus, although Garrison began the change process at Business University, slowly making changes in the attitudes towards communication technology, the lion's share of implementing communication technology was to lie in the hands of the new regime headed by the university's president, Richard Marcus, who replaced Margaret and Philip Davidson when they left the university. This will be presented in the subsequent section of this findings chapter, which portrays the early days of the new regime and its attempt to improve communication through the use of communication technology.

THE EARLY DAYS OF THE NEW REGIME AND THE IMPLEMENTATION OF COMMUNICATION TECHNOLOGY

> *In end of 1999 I started my post and the first question that I asked was "how many students learn here?" One day went by. Another day went by. They stood on the shelves and counted files. File by file and they counted twice. It took them two and a half days to answer the question how many students are here.*
>
> Richard Marcus, New Regime - President

As Marcus entered Business University, appreciating the need for technology, a new period was about to begin that would bring changes unlike any before at the university. Understanding this period of change (end of 1999 up to mid 2001) is the focus of the second key research question:

2. **What were the patterns of communication at the university immediately after the change in senior management and how did the new senior management attempt to introduce modern communication technology to the organization, mainly as perceived by selected members?**

Examining this research question suggests that it is composed of two parts: the new regime's early days and organizational change in the context of communication technology. Consequently, the following section will be organized according to these two parts. In order to map out the patterns of communication, the section will start with the formal organizational structure that will be presented by means of an organizational chart. Then, a general account of the attitudes of the new senior management towards communication technology will be proposed. In order to support this argument, empirical data in the context of the subsidiary research questions of the second research question will be offered.

This empirical data in the context of the subsidiary research questions will include: a definition of the term 'communication'; the level of computer/information literacy of selected members; the attitudes of senior management towards communication technology, including a strategic decision to increase the use of this technology and the new communication technologies that were introduced due to this decision; a discussion on the types of resistance to change that resulted from this introduction of modern communication technologies; an examination of senior management commitment to this technological change process; a discussion on the stages of the implementation process of communication technology at the university, including the role of change agents in their support of this process; and finally, a network analysis of the university that will bring this section together by mapping out the formal and informal network that existed then at Business University.

Although direct observations of this era were still not possible since the data collection phase of this research began after this time period, a recent opportunistic observation of a conversation between Kirk Gray and Pam White, a former secretary who came to the university for a visit, did give some information on this past period. Nevertheless, the key sources of evidence in depicting the early days of the new regime were documents and interviews. Unlike the previous two sections, although documents of this era were found with the first dating back to January 2000, there were relatively very few relevant documents for this time period. (The mystery behind this perplexing lack of documents was only to unfold, as noted earlier in the previous section, during an interview with one of the senior managers of the new regime that will be discussed later in this chapter.) Therefore, while the documents did provide some

complementary information, most of the empirical evidence in this section is based on the thirty-three interviews with selected members that worked or studied in university during this time period. The interviews were:

- Marcus, President then and now
- Wilkins, the Senior Vice-President of Operations and Human Resources then and now,
- Dr. Rogers, the Dean then and now,
- Dr. Ellis, the past and present Academic Coordinator,
- Bill River, the past and present Marketing Manager,
- Eva River, Deputy Marketing Manager then and now,
- Sam Ford, who was a lecturer which was then given the role of the Academic Manager, working in collaboration with Dr. Ellis
- Gray, then and now the Head Caretaker,
- Mary Ford, then a lecturer and now the Administrative Manager,
- George Miller and John Hall, the system managers then and now,
- Sally Porter, Ben Whittaker and Veronica Cash, three past and present lecturers,
- Newman, a librarian then and now,
- Daft, then a secretary and now Deputy to the Administrative Manager
- Pelton, Byers and Robinson, three past and present secretaries,
- Mark, then a student and now a marketing employee, and
- Out of sixteen interviewed students, thirteen were already studying at the university then.

In addition to these thirty-three interviewees, some light on this phase was shed by one other individual that was a member this era for only a short time, Garrison. He was to see first of all how the new regime went about changing the organizational structure that he himself built.

Organizational Structure

The formal organizational structure is presented by means of an organizational chart (Figure 4.6). This organizational chart was reconstructed on the basis of the selected members interviewed and relevant documents found for this era. (No document was found of an organizational chart created by management for this time period.)

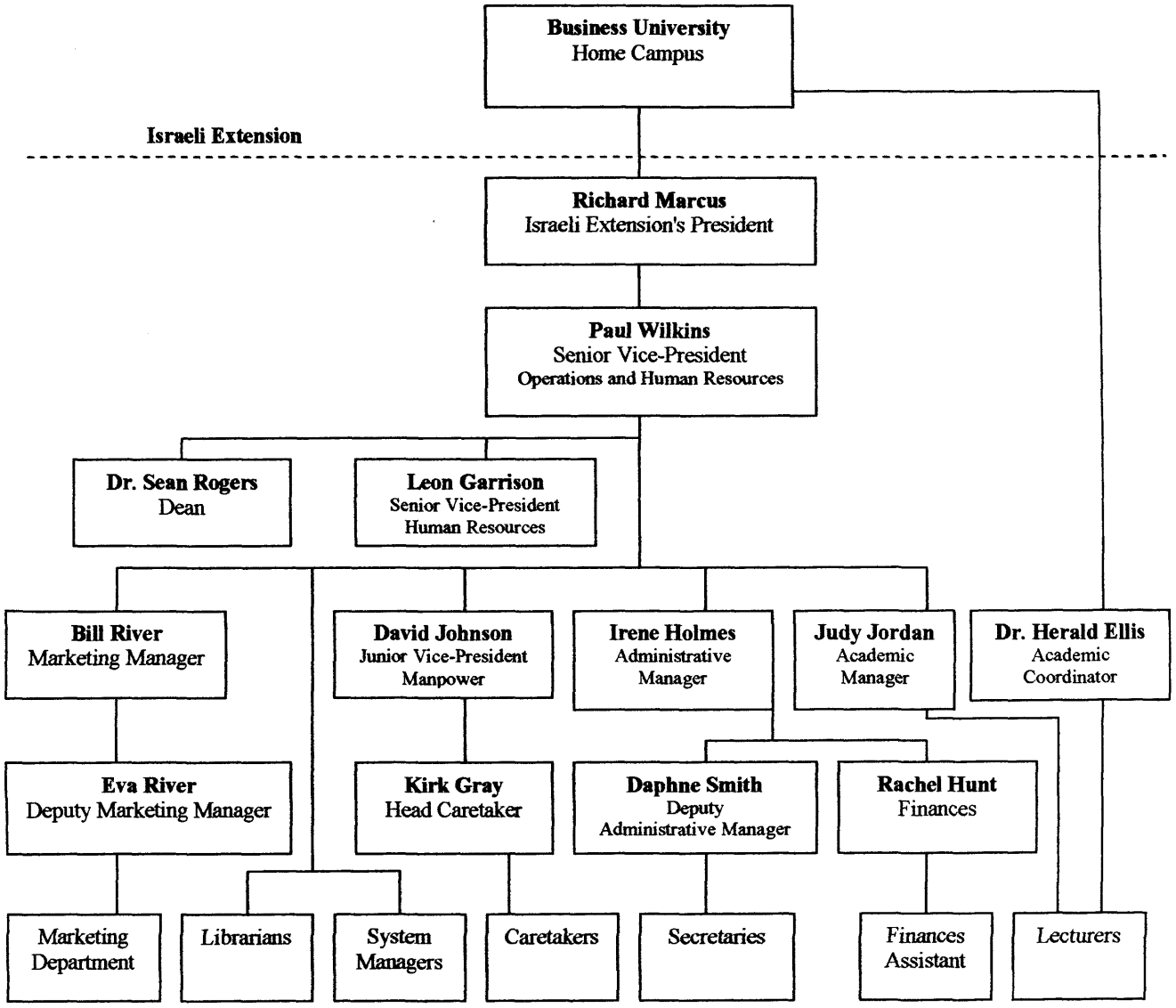


Figure 4.6: Organizational Chart - New Regime: Early Days

By reviewing Figure 4.6, it is clear that the organizational structure is no longer flat at all, since there are now six levels (as compared to five in Garrison's time). There are new functions that did not exist before, such as the administrative manager or the entire marketing department. Another thing to note is that although Garrison is still referred to as a Senior Vice-President of Human Resources he is now under Wilkins with a very similar title: Senior Vice-President of Operations and Human Resources. Additionally, the structure seems very hierarchal, since there are clearly several levels of management. However, Wilkins stated:

> *In my opinion, everyone communicates with everyone else. I think this is a good thing. It is not recommended to communicate through a manager. If someone needs information, you do not need hierarchy.*

Even Marcus commented in his interview that 'in principal I communicate with everyone'. This view of senior management seems to be a direct contradiction of the organizational chart. Yet, examining the full quote by Marcus sheds light on the subject:

> *In principal I communicate with everyone. [I communicate] with all the managers at the middle levels. Today, I definitely communicate with all the different managers in the organization.*

For Marcus, 'everyone' translates to the people directly under him. This approach to communication was also to express itself in the attitudes and implementation of communication technology at Business University.

Senior Management's Attitudes towards Communication Technology

The new senior management's attitudes to communication technology seem to be positive ones, especially when compared to the old regime.

The research at Business University discovered that they felt that investing in such technology is a necessity and consequently began to introduce numerous communication technologies into the university. In order to understand senior management's favourable approach to communication technology, it is necessary to first examine how they viewed the term 'communication', as suggested by the subsequent subsidiary research question:

How do these members, especially the former senior management, define the term 'communication'?

The first definition is that offered by Marcus:

> *Communication is actually the process that in its framework the connection is created between people, organizations and lecturers to students in both on a personal level and on a technological level. Communication may begin with the most banal of things such as email that maybe looks trivial but can cause a revolution in organizational communication. Here, for example, it was not widespread, except among the students to themselves. Today there is a wide variety of communicational means that improve the ability to function, communicate and realize the organization's objectives.*

This definition has a top managerial approach to communication in that it sees communication technology not only as a means to improve organizational communication but also as a way to achieve the organization's objectives. This approach to technology of the top manager at Business University explains the changes that were to occur in communication technology. However, it does not explain how technology might improve communication, as does Wilkins in his definition:

> *Communication in the organization for me is that the information we want is available and accessible to anyone. From the perspective of information, it includes both administrative issues such as where every one is located and on the student such as his or her grades.*

Later in his interview, Wilkins stressed that to have information available and accessible, it is essential to computerize information and keep it online. However, Wilkins also added that 'organizational memory is based on people and not on online information'. Thus, to understand why information was not fully computerised or online, it is necessary to look at level of computer/information literacy employees had at that time, as the subsequent research question inquires:

What was the level of computer/information literacy of selected members and did computer anxiety exist? Which one of them had a computer and other modern technologies at home?

The level of computer/information literacy was still low. Whittaker remarked that there were 'computer-illiterate employees' in the early days of the new regime. This was confirmed by a document dated January 2000, a protocol of a meeting with lecturers headed by Judy Jordan, the Academic Manager. She wrote the letter using a word-processing package but had it printed to twelve different members of Business University, creating much unnecessary paperwork.

Furthermore, the level of employees then is expressed in an opportunistic observation that was carried out during the time of the new regime. Pam White, a former secretary, came to the university for a visit. When asked by Gray what is happening with her, she responded that she is resting at home. When Gray asked if she is not bored, White answered:

> *No way. It is fun to be relieved of all the work here with all these computers, the faxes and emails abroad.*

In this, she is revealing her computer anxiety. She is also implying that management of the university dismissed her due to her computer/information illiteracy. Furthermore, in this she is illustrating

that indeed communication technology entered Business University. Consequently, it must be made clear how they implemented this, starting with the initiation of the process, as expressed in the following subsidiary research question:

How did the new senior management then perceive the use of communication technologies and its importance to organizational communication at Business University? Therefore, after the change, was there a strategic decision to increase the use of communication technology? If so, what resources were allocated due to this decision and thus which were the communication technologies that were then introduced to the university?

> *Communication technologies are very important to the success of the organization, and it was therefore we decided to invest in this subject... We spend money in an effective way according to renewal needs and natural deterioration.* Marcus

In this comment Marcus is demonstrating that senior management did perceive communication technology as highly essential for the success of the university and that a strategic decision was taken on this subject. However, he does not explain why it was important to them, as does Wilkins:

> *The importance of [communication] technologies are on the administration side, saving paper and time, increasing efficiency, and even more important on the managerial side and for the lecturers where it is a 'must have' and not a 'nice to have'. Here more is needed to invest!*

In this, Wilkins is showing that he was well aware of how communication technology can aid Business University. However, from this quote it is not clear which resources were allocated and why is he maintaining that more needs to be invested even now. This issue became clearer later in the interview with Marcus who stated:

> *We needed to expand the infrastructure of the videoconference due to the fact that lecturers from abroad do not come to be hosted by us here in Israel, as was the case previously when the security situation was calmer.*

Thus, videoconferencing became a 'must have' necessity, and not only for saving money on bringing lecturers from abroad as in Garrison's time, resulting in resources being allocated to this. Other investments in technology were made, creating a situation where today 'there is almost no employee without a computer' (Wilkins). This allowed the introduction of communication by email through Outlook between not only members of the university for sharing information and scheduling meetings, but with the home campus abroad as well. Additionally, a program for managing university related information such as students' grades was introduced as well as programs that enable financial control with built-in online banking communication options. For the students, new modern computer rooms were set up.

> *Today there is in one class 40 computers, 20 in another and 20 more in the last: overall 80 more modern computers.* Gray

Other communication technologies included a special room with PowerPoint and Internet access on a screen and even voice mail for locating a member of the university and for leaving a message. In the library, computers were introduced that enable Internet surfing for the students, a computer program for managing the library with the Auto-ID (automatic identification) technologies of optical mark recognition (OMR) scanners, magnetic library card and barcodes on books. There were even Auto-ID technologies such as magnetic cards for the employees when coming and going from the university (i.e. for hour tracking), radio frequency identification (RFID) for car parking, and even using a magnetic card for free access to an automated coffee machine. In

short 'the organization underwent a revolution' (Marcus). Gray agreed with this, stating that the situation now regarding communication technologies is 'like day and night – it is impossible to compare the level today to that two years ago. This is even a technological revolution.' However, this revolution created resistance, as the next subsidiary research question inquires:

As a result of the introduction of modern communication technologies, what types of resistance, such as logical, psychological (which includes computer anxiety) or sociological, did the stakeholders therefore have to these changes?

The research discovered that sociological resistance (see pages 124-125), did not seem to occur at all. Logical resistance, on the other hand (see page 124), may have transpired to some extent. For example, several employees 'didn't have the strength to learn new things' (Whittaker), some 'fear costs' (Dr. Ellis) and others stated that they 'do not have confidence in grades that came without human control' (Wilkins). However, these lacks of strength or confidence, although disguised as logical resistance, are in actual fact psychological resistance, as most of 'the resistance was due to the fear from technology' (Gray).

> *There were also computer-illiterate employees who resisted – some left and others simply learned to work with the computer! I believe that those who resisted were the older ones. Say 50 plus that just didn't have the background in modern communication technologies and were simply afraid of change.*
>
> Whittaker

Danny Kent, another lecturer, does not agree with Whittaker, stating that he does 'not feel that the herd of virgins objected'. Dr. Ellis although strengthening Kent's view, stating that 'there was no resistance' does agree that there was fear. 'The low rank has and had fear. "I will not know how to use this technology." This included lecturers. There are

lecturers that once technology is involved have fear, the older lecturers. When I ask what of the email I sent them, they avoid the subject stating "I didn't get it" and so on. You have to explain to them what Hotmail is... They are afraid of something new.' Dr. Ellis also elaborated that these fears include that:

1. *I can be checked (the big brother),*
2. *A new technology that I will not be able to overcome.*
3. *A fear of change ("30 years I am doing this and it works, why change?")*

One of the secretaries confirmed this fear, especially the second one:

> *There was fear [from communication technologies]. Perhaps you won't be able to do fast enough, good enough.*
>
> Emily Pelton, Secretary

As a result, Miller, one of the system managers responsible for implementing the communication technology system (as will be presented later in this chapter) stated that 'we were worried that they would fear the mouse and the keyboard'. Yet, these worries were soon to vanish as several of the older employees seem to have a positive attitude towards computers and communication technology (as will be presented in detail on the last section of this chapter). For instance, Jill Byers, a secretary, said with pride that communication technologies 'help in a big way! A new era has begun. The children show off with me that "she knows how to hold the computer correctly"!' The reason for this may have had a lot to do with Marcus's commitment in implementing communication technology.

To which extent did creating vision and commitment to learning exist in this technological change process?

Marcus, as the university's new president, was evidently committed to Business University's use of communication technology, although it was Garrison who introduced them first to the university. One of the first things Marcus did was to create a vision. He communicated this vision to all involved with the university by means of hanging on the wall 'The Quality Convention' which both he and Wilkins signed. In this document (which was photocopied with permission for this study), it was stated that the vision is 'to put the university, its managers and employees at the forefront of scientific and technological innovation' (Quality Convention, beginning of 2000). To demonstrate commitment to this vision, Marcus also ensured that Business University received a certificate of a system of quality by ISO 9002 in the middle of the year 2000 (also a collected document in this research).

Marcus also communicated his commitment, first by setting an example himself. Not only did Miller state that Marcus is a smart user that constantly asks when doing something manually if there is something that could help, Marcus made sure that everyone knew that he was dedicated to the transformation of the university. Hall, the other system manager, recalled that in his job interview he was told that 'the president is minded on the subject of computerization. Richard [Marcus] sent an email to all managers telling them to start using Outlook'. This communication of commitment was essential in stimulating the members of the university to start learning due to the changes in the organization.

It was argued (see page 126) that 'an early commitment to learning as a process, not as an end product, and the role information literacy plays in this process, will enable workers to see these changes as transitional, not traumatic'. Thus, in the context of learning, it was important to examine

training efforts in two periods, initially and later on. This continual emphasis on training demonstrates commitment to learning, which was found to only exist in part at Business University. For example, Daft, the current Deputy Administrative Manager, who was then a secretary, said that there were training efforts on behalf of external trainers and that there was a possibility to join computer courses at the university. (This information was corroborated by Robinson, another secretary at the time that still works at the university.) However, when Daft was asked if she herself took these offered courses, she responded:

> *Not so much. I already took some in the past.*

Kent also answered this question on which training on communication technology he got:

> *No, I didn't receive any guidance, no passwords, [or] a place to introduce a site, nothing. Zero!*

Several others responded in the same way. For example, the lecturers Vera Rice, Veronica Cash, Sally Porter and Ben Whittaker all said that no one taught them how to use communication technology. This is true also of Anna Davis, a secretary, and all four members of the marketing department interviewed in this research (Bill River, the Marketing Manager, Eva River, the Deputy Marketing Manager, Bernard Anderson and Mark Stone, academic consultants) who stated that they did not receive any training in using communication technologies. What is more troubling is that of the sixteen students interviewed for this study fifteen reported that no one trained them on communication technology. The only student, who told that somebody taught her, said that she 'learned a lot from a lecturer here, Danny Kent' (Lea Black, student).

Since it was not Kent's job to teach this, she is actually showing that no formal representative of the organization taught her how to use communication technology. Therefore, it can be concluded that creating vision and communicating commitment existed at the university, but commitment to learning almost did not. This is indicative of implementation problems and consequently there is a need to look closer at how communication technology was implemented at Business University, as suggested by the following subsidiary research question:

What were the stages of the implementation process of communication technology at the university? Who were the change agents that helped in introducing the technological change and how did they support communication technology?

The first stage, as described previously, was recognizing the need for modern communication technology at the university. Once the vision was set, there should have been a strategic plan to implement it. Indeed, Marcus maintained that:

> *At the time we built a plan, but I don't remember if it was documented.*

However, Wilkins stated that 'there is no strategic plan' for the implementation of communication technology. Therefore, it was decided to look for one. Although several documents were found on purchasing technology, these turned out to be sporadic with no planning behind them. Furthermore, when re-interviewed and specifically asked on the contradiction, Miller reported that 'there is no plan', adding:

> *I buy little by little all through the year and that is a pity because if there were a plan, I could get more discounts on a concentrated purchase.*

To double-check that indeed no plan was built, Marcus was approached again at the last stages of the research and re-interviewed. He repeated

remembering that a plan was built, but does not know if there is any documentation. He stated:

> *Look, overall we had a few experiments to develop a strategy and purchase advanced tools such as ERP [Enterprise Resource Planning]. However, eventually, today everything is a function of the economic investment and at this time we are trying to conserve what exists and use the existing system in the best way possible.*

In this he is saying in a diplomatic way that there are budget problems. Wilkins has said much the same straight out about a month and a half earlier in his interview. He told of an attempt made to buy an ERP for higher education, but this was cancelled because of its cost. 'In the next two to three months there will be no investments on this subject [communication technology], due to the economic situation' (Wilkins). This explains why John Hall, the other system manager, told that training 'in its planning was organized, but actually it didn't take place, starting but not continuing'. There was simply no budget. But this was not the only problem of implementation.

Wilkins maintained that part of the process of implementing communication technology 'involves replacing employees'. Marcus referred to these employees from the period of the old regime as 'the desert generation of Margaret Davidson's period'. He thus started to bring into the organization 'a new generation, younger, more accessible to the subject of communication technology' (Marcus). However, this required Business University to embark on a road of structural and personnel change that would include the dismissals of a substantial amount of employees. Thus, many were dismissed (such as Judy Jordan, the academic manager, or Rachel Hunt in finances) and some left due

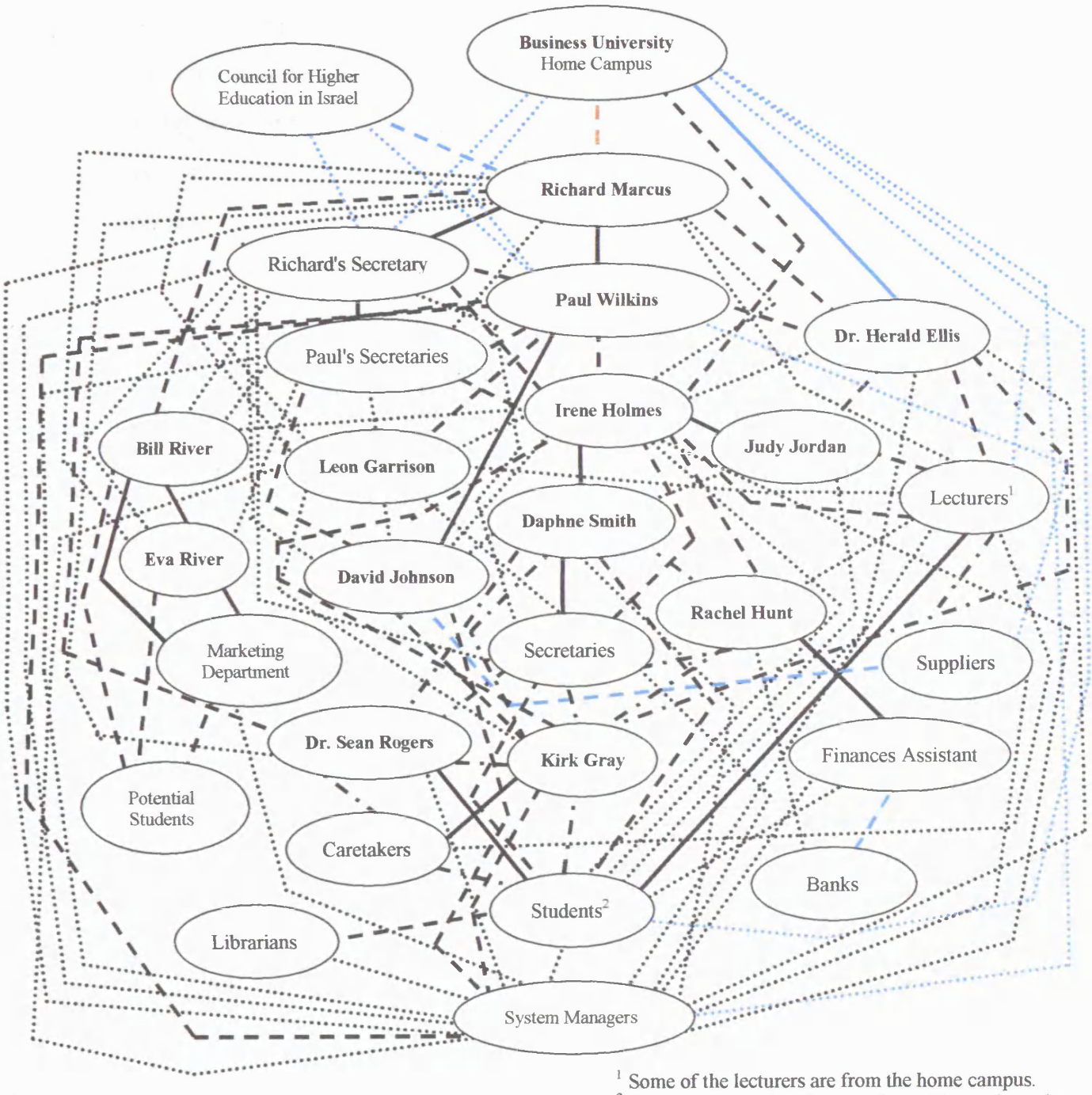
their fear of computers (as Pam White, a secretary approximately 60 years of age, did). One of the first to go however was Garrison.

As reported earlier, Garrison remained in the organization as a senior manager when the new regime came in, not leaving like the other members of senior management of the old regime. However, he was quite quickly neutralized due to the arrival of Wilkins, who was the true senior vice-president. It is not clear whether he left or was fired, but it is crystal clear that he is not satisfied at all with Marcus, stating towards the very end of his interview:

> *I am not interested in criticizing Richard [Marcus]. Overall they are just continuing what I started! There is just one thing that I want to tell you. I do not have any problem if what I say isn't accepted, my recommendations. But I do have a problem when I am not listened to. Richard [Marcus] doesn't know to listen. He likes to talk and always be right and therefore doesn't listen. Today, when I am managing a small college, I listen to everybody as I have always done, and then decide for myself. But you need to listen.* Garrison

With the leaving of the un-listened to Garrison, who was the initial change agent for the implementation of communication technology, there was a need for new change agents to support the process. Marcus, although he was the architect of change in technology, was not the change agent since he was not communicating with enough members in supporting change. Nor was Wilkins for the same reasons. Dr. Ellis clearly hinted who were the change agents by asserting that the systems managers 'George [Miller] and John [Hall] are a blessing from heaven'. As change agents, they were to have a central effect on the communication network at the university, the subject of the next question.

How could this past network of communication be mapped out, including the formal and informal network, messages flow (such as downwards or upwards) and which type of network would best describe those patterns: the 'wheel', the 'circle', the 'chain' or the 'all-channel'? What were then the roles of members (such as liaisons, bridges, gatekeepers, isolates, opinion leaders or cosmopolites) in this communication network?



[1] Some of the lecturers are from the home campus.
[2] The students also learn using videoconferencing (which is the blue dotted line to the home campus).

Figure 4.7: Communication Network - New Regime: Early Days

Although, at first glance this network (Figure 4.7) seems too complex to read, it must be recalled that between two entities there can be only one line of communication. Thus, studying the network must not be done simultaneously, but rather a few entities at a time, starting with the new senior management. This is in order to see whether or not the new senior managers do communicate with everyone as they maintained, i.e. whether the network is that of an all-channel. What Wilkins has to say, strengthens the argument that the network is that of all-channel by stating that 'you can always put a strong secretary... but it doesn't fit the university. It fits offices of another character.' In this Paul is saying that there are no gatekeepers at the university. However, this was strongly contested by one of the interviewed students:

> *To make an appointment with someone from management, Paul [Wilkins] for instance, you need to first of all to call his secretary. Then, you send her a written request and then she replies to the student with a sometimes positive answer and sometimes negative. And then a meeting is set. The way is long and cumbersome with lots of phones and time.*
>
> Judith Bird, student

In this she is demonstrating that there is a gatekeeper, although Wilkins doesn't describe the situation as such. In addition, Porter, speaking as a lecturer, disagreed with the approach that the nature of the communication network at the university is that of an all-channel by saying that 'communication is vertical from up to down. There is a semblance of down up [communication]... but at the system's level it is an army', i.e. extremely hierarchical. Therefore, Business University's network may be viewed as a chain network, which is 'typical of hierarchical organizations, especially in one-way downward communication, since information usually flows in it from a central figure down the chain of command' (see page 55).

Additionally, Bird's quote illustrates that in her communicating with Wilkins, there is high use of phones and not of modern communication technology. Furthermore, she expanded this by stating that communications with Wilkins could be carried out 'by email and he could respond to the student immediately' (Bird). Reviewing the network of this period shows that although the senior management started the change process in communication technology, in the early days neither Marcus nor Wilkins used it much.

Indeed, there was not much more use of communication technology than in Garrison's time (with only 12 blue lines and only one orange line). Most communications do not use communication technology at all. For example, this network illustrates that Leon Garrison was stripped of power, including the use of communication technology. He has very few communications, all of them low and none of them by means of communication technology (as before when he communicated to suppliers, Figure 4.4 on page 223). It is no surprise therefore that he went away frustrated from Business University, leaving the institutionalization of communication technology to Marcus and his staff, as will be discussed in the next section, the reign of the new regime.

THE REIGN OF THE NEW REGIME

In presenting the findings on the patterns of communication in the Business University during this time period (mid 2001 to May 2002), it is important to take into account changes that occurred in the organization itself. Some of the most substantial changes in this era were not only in

the implementation of communication technology but also changes in personnel that took place, such as the dismissal of several mangers and employees. One of these changes happened during March 2002 when Madelyn Adler, the administrative manager, was replaced by Mary Ford, a lecturer up to that point. Since the function of the administrative manager is central to the operations of Business University, this was a major change. Therefore, several parts in this third phase of Business University's natural history, which focuses on the new regime, will include a subdivision into Madelyn Adler's period and Mary Ford's reign. This will allow a comparison of some of the changes at the university that have transpired during this period.

This section on the reign of the new regime will include empirical issues mainly focused on the subject of communication technology at the university. These empirical issues will be presented in the context of the third and fourth research questions as well as their subsidiary research questions (emphasized in italics). In order to begin mapping out the patterns of communication, the section will start with the formal organizational structure that will be presented by means of two organizational charts: one for Madelyn Adler's period and one for Mary Ford's reign. Then, a general account of the attitudes of the new senior management towards communication technology will be proposed. To support this argument, empirical data in the context of the subsidiary research questions of the third and fourth research questions will be offered.

This empirical data in the context of the subsidiary research questions will include: a comparison of the different definitions of the term 'communication'; the present attitudes of the new senior management not

only as they expressed themselves but also as perceived by selected others; the level of computer/information literacy of selected members; a description of the communication technologies that existed at the university; a network analysis of the university that will bring this section together by mapping out the formal and informal network that existed then during both Madelyn Adler's period and Mary Ford's reign; effects of communication technology on organizational communication; a description of the persons currently responsible for communication technology at the university and the type of dialogue they have with the various users; and finally, concluding this third phase of Business University's natural history, success or failure of communication technology.

The key sources of evidence for this time period of the new regime included not only documents and interviews, but observations as well since direct observations of this era were possible. As noted in the methodology chapter, overall 42 observations were conducted, of which 14 were planned observations (8 static observations and 6 shadowing) and 28 were opportunistic observations. The observations were carried out during mid February 2002 up to the end of April 2002. However, like the previous period, here too documents, especially formal ones, were scarce. (Some of the reasons for this will be offered later in this section.) Therefore, while the documents did provide some complementary information, most of the empirical evidence in this section is based on the 42 conducted observations and on the 43 interviews with selected members that worked or studied in university during this time period. Some of the interviews were performed during Madelyn Adler's period, while others during Mary Ford's reign. The 16 interviews during Madelyn Adler's period were:

- Dr. Ellis, the Academic Coordinator,
- Sam Ford, then the Academic Manager (dismissed shortly before Mary Ford's reign, returning to being just a lecturer),
- Gray, the Head Caretaker,
- Miller and Hall, the system managers,
- Beth Bass, a new librarian,
- Pelton and Byers, two secretaries, and
- Eight interviews with students, ranging from the pilot with Isaac Newborn to Student Interview No. 7 with Helen Hunter.

The 27 interviews during Mary Ford's reign were:

- Marcus, President, as a re-interview with him towards the end of the period,
- Wilkins, Senior Vice-President of Operations and Human Resources,
- Dr. Rogers, the Dean,
- Bill River, the Marketing Manager,
- Eva River, the Deputy Marketing Manager,
- Mary Ford, the Administrative Manager,
- A re-interview with Miller, one of the system managers,
- Danny Kent, Vera Rice, Sally Porter, Ben Whittaker and Veronica Cash, five lecturers,
- Newman, a librarian then and now,
- Daft, then a secretary and now Deputy to the Administrative Manager
- Davis and Robinson, two past and present secretaries,

- Stone and Anderson, academic consultants in the marketing department, and
- Eight interviews with students, ranging from Student Interview No. 8 with Mickey Right to Student Interview No. 15 with Lea Black.

In addition to the 43 interviews of the entire period, some light on this phase was shed by one other individual that was not a member of this time period, Dr. O'Henry. He had used the new communication technologies at the university and had some useful comments on them, including that they had a negative effect in his opinion on the university's organizational structure.

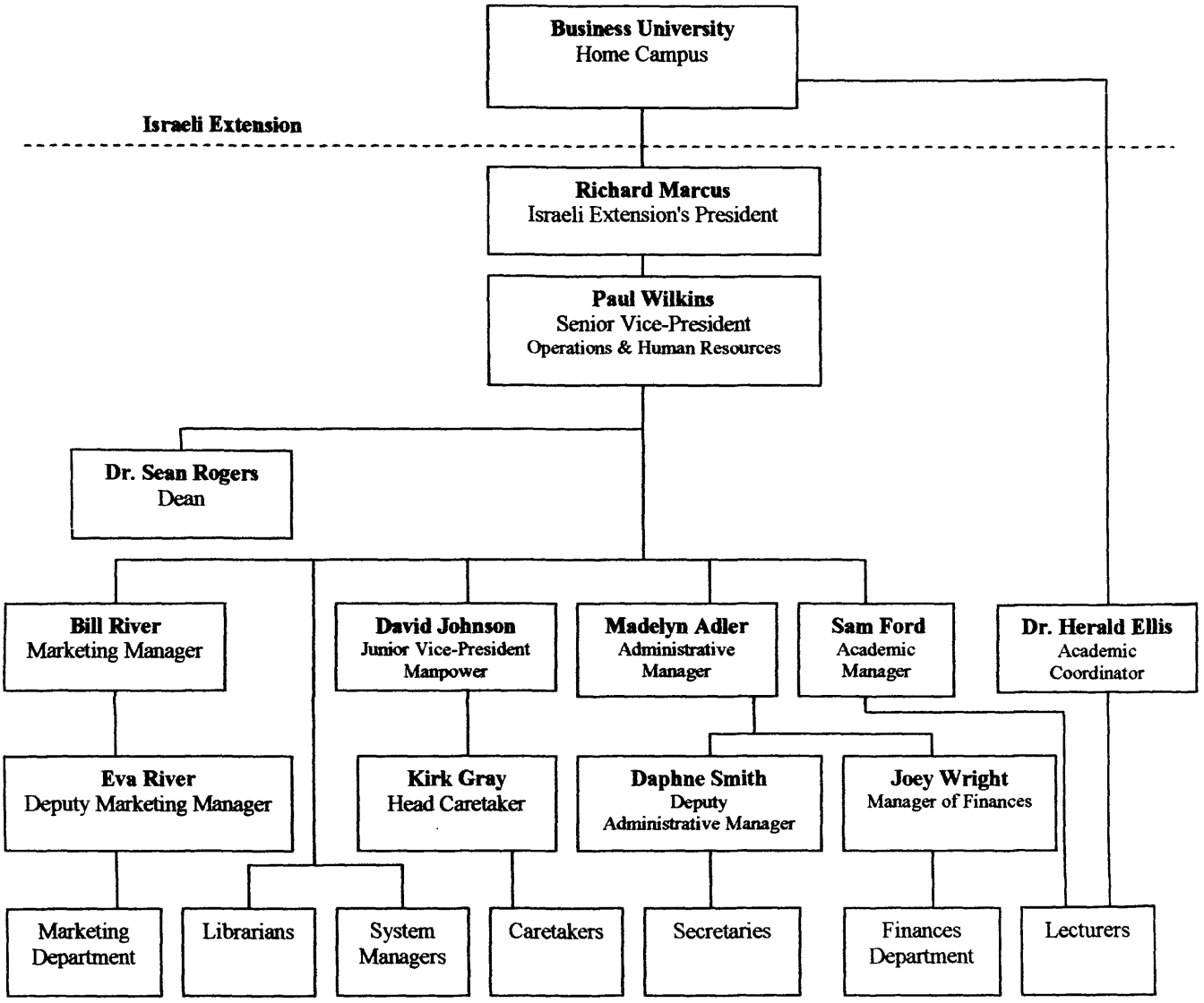
Organizational Structure

The third key research question states:

3. **What are the current patterns of communication at the university, focusing on communication technology and its effects on organizational communication, as both enacted and perceived by selected members?**

The two organizational charts are Figure 4.8 for Madelyn Adler's period and Figure 4.9 for Mary Ford's reign. These organizational charts were reconstructed on the basis of the undertaken observations, the selected members interviewed and relevant documents found for this era. (No document was found of an organizational chart created by management for either of these sub-periods.)

Below is the organizational chart during Madelyn Adler's period:



Key: **Israeli Extension** ---------- Whatever is under this dashed line represents only Israeli role holders. Above it is the Home Campus of Business University which is abroad.

Figure 4.8: Organizational Chart - New Regime: Madelyn Adler's Period

Examining this chart reveals that there are still six levels, as in the early days of the new regime. Although there are less senior managers at the top three levels, there are more people at the lower levels, as before, there were only two responsible for finances: Rachel Hunt and her assistant. Now, the organizational chart reveals that there is a whole department managed by Joey Wright. Shadowing John Hall in an observation revealed that this department has over ten people in it. Additionally, it

can be seen that Irene Holmes has been replaced by Madelyn Adler as the new administrative manager, and that Judy Jordan has been replaced by Sam Ford as the residing academic manager.

To compare the organizational structure in Madelyn Adler's period to that of Mary Ford's, here is the organizational chart for Mary Ford's reign:

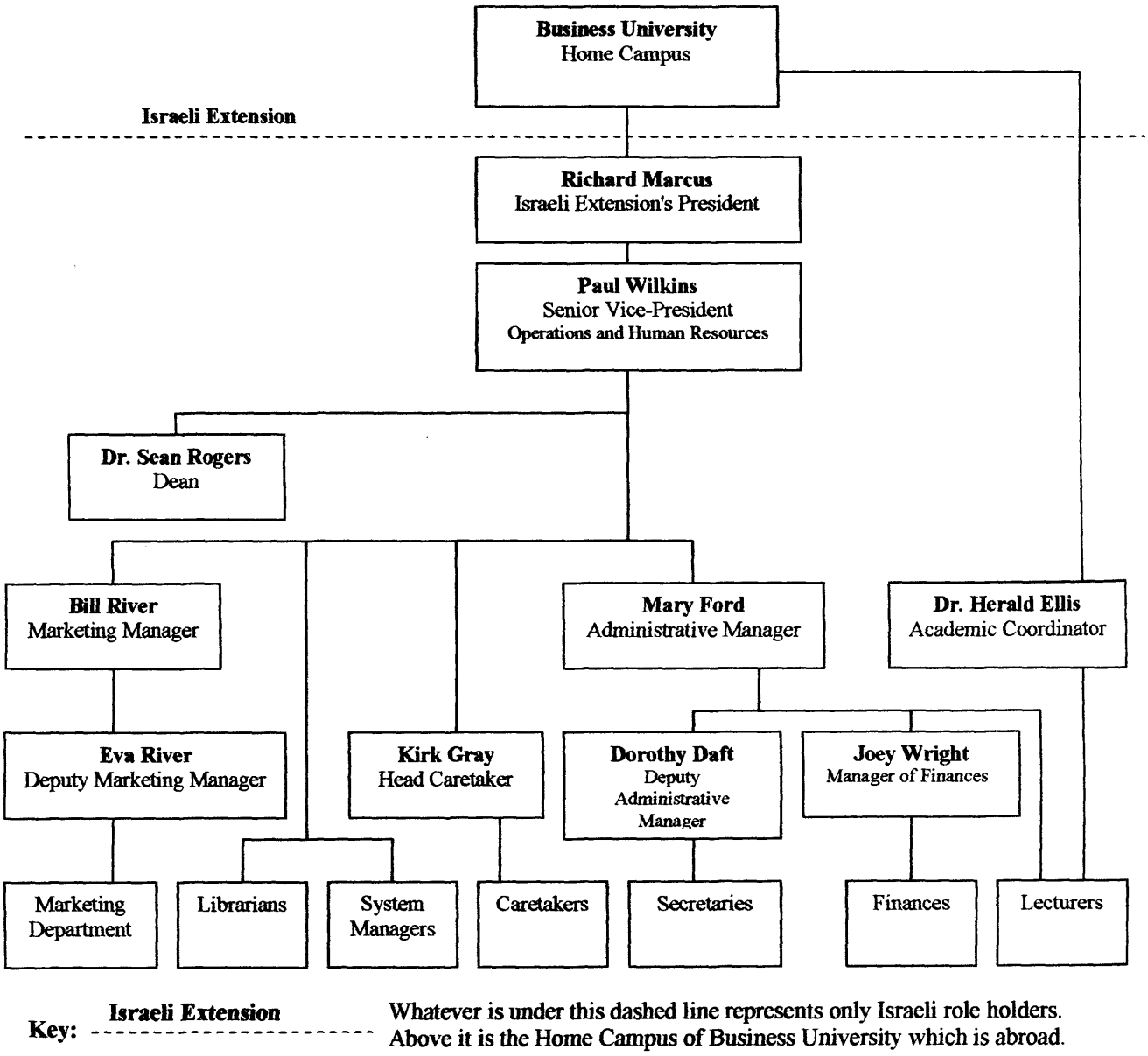


Figure 4.9: Organizational Chart - New Regime: Mary Ford's Reign

Reviewing Figure 4.9 demonstrates that although there are as many levels (six) as there were in the previous period (Figure 4.8), there has

been some serious staff reduction. David Johnson, the junior vice-president of manpower, was dismissed as well as Sam Ford, the academic manager, who remained a lecturer at the university. Mary Ford (who is his wife) not only took the role of administrative manager but in reality she was now the academic manager as well, responsible for the lecturers. However, although some of these changes may have occurred because of communication technology, this is not seen in the organizational charts. Therefore, to examine if the causes of these were indeed in the context of communication technology, senior management's attitudes to communication technology must initially be understood.

Senior Management's Attitudes towards Communication Technology

The attitudes of the new regime to communication technology seem to have remained positive when compared to their early days. However, it will be demonstrated later in this section that practically no new technology was introduced in this time period with purchasing undertaken for maintenance purposes only. One possible explanation for this is that senior management no longer felt that investing in such technology is a necessity and due to budget difficulties cut down on it. Another rival explanation is that they were busy institutionalizing the communication technologies they had introduced in their early days. However, in order to understand senior management's actual approach to communication technology, it is necessary to first examine how they viewed the term 'communication':

How do these members, especially the former senior management, define the term 'communication'?

In this section, although there are as many definitions of communication as there are interviewees, no definitions will be presented. However, in the next chapter, the discussion chapter, not only will all the various definitions of communication be offered, but they will also be analysed in order to develop, by integration with definitions from the literature review, a new theoretical definition of the term 'communication'. This will include categorising the various definitions, as the different categories of respondent will be compared and contrasted both within the category and between categories.

Nevertheless, it is important to recall that it was argued that Marcus's definition (see page 232) has a top managerial approach to communication in that it sees communication technology not only as a means to improve organizational communication but also as a way to achieve the organization's objectives. In his re-interview towards the end of the data collection stage for this study Marcus further stressed the importance of the organization's objectives in the context of communication technology by commenting:

> *Communication technology can give us the possibility to meet the needed criteria to be an attractive centre for students.*

In this Marcus is not showing any change in his perceptions of the centrality of communication technology as expressed by the following subsidiary research question:

How does the current senior management now perceive the use of communication technologies and its importance to organizational communication at Business University?

To further sharpen the answer to this question, Marcus noted in his re-interview:

> *We plan to continue and develop the current systems and to examine various alternatives to find the technological alternative that would best fit in achieving the goals we set for ourselves. Overall, we were able to break the monopoly of the institutionalized universities, and it is important that communication technologies aid us in maintaining our competitive advantage in the market for higher education, where competition grows stronger from day to day.*

In this it would seem that Marcus still perceives communication technology as critical for the success of Business University. However, it is less clear whether he meant what he said or was it just a case of slick public relations using well rehearsed words. To examine this issue, it was necessary to compare this with how other members view senior management's existing attitude towards communication technology, as epitomized by the next question:

How do selected others perceive the importance the current senior management puts on communication technologies?

Sam Ford, who for a time was the academic manager, but had been a lecturer even in Leon's time, stated that the current 'senior management is aware of the importance of the tool [communication technology] and uses it well'. However, this comment was made before he was dismissed.

Porter does not agree with Sam Ford's view:

> *There are things that ought to be said, things that are accepted. But if what you say you do not mean, then there is a problem with basic assumptions... Management says that there is academy but the feeling is that something is missing. You have to check whether they [senior management] believe.*

Kent agrees with Porter, stating that 'at the moment we define ourselves as an academic institution it [communication technologies] has failed

here!' Porter went on to elaborate her comparison to the former senior management stating:

> *Or like the former management. You can say that the management didn't care about the lecturers. I liked it or not, that isn't important. I'll decide whether to work in such an organization. It was real. There the cards were on the table. That's how they conducted negotiations with me. I didn't like the style, but it was an open one. Leon [Garrison]: "I cannot give you a lot of work. You are too expensive." That was disgusting but open. In the end he gave a lot [of work as a lecturer]. They saw in Haifa [one of the centres] that I was okay and they wanted more courses.*

In this she shows her frustration and disappointment with the current senior management. These feelings had a great deal to do with the lack of investment in training on communication technology. As she noted 'no one' really taught her how to use communication technology, rather 'there are just instructions by management on operating whatever needs to be done' (Porter). She also recounted that 'management should sit down and make sure that there is no gap between what they want and what is actually happening. Two-way communication... I do not expect and do not need as a lecturer to be involved in decision making, [but] they should listen to what we have to say.' This is something others also felt:

> *The level of interaction [with senior management] is interrupted, the picture is not clear, something is leaking. This is very annoying, not effective.* Mary Ford

> *It's a pity that Richard doesn't turn to us for help. I just feel that we are going and losing altitude.* Kent

This loss of altitude (which is slang for 'failure' in Hebrew) can be seen in the current level of employees regarding communication technology at the university as expressed in the following subsidiary research question:

What is the current level of computer/information literacy of selected members and does computer anxiety exist? Which one of them has a computer and other modern technologies at home?

According to Marcus, there are varying levels of computer/information literacy. He states that there is the older generation from Margaret's time that is on a low level and the new younger generation that is on a high level, and argues that each generation makes up about fifty percent of the university's staff. However, this is something that the rest of the members contest. Even Wilkins doesn't agree, claiming that the level is 'medium minus with very few knowing the computer'. The only people that have a high level of computer/information literacy, according to Wilkins, are those in the finances department. Still, even this is not universally accepted; Miller, for example, claimed that 'in computers there is a dumb user and a smart user', maintaining that 'Richard [Marcus] is the only smart user there is [at the university] – that tries to use the tools to do more than he is told they do'. This is the reason Kent contends that:

> *The level is very low. They are still into manual calculations instead of a calculator that costs $10. Maybe I exaggerate a bit but their level is really low in computers.*

Indeed, the observations showed that the level of computer use is low. For example, in one opportunistic observation made by the author, Sandra Bush, a secretary of about sixty years of age, printed a Word document, used scissors to cut parts of it, then glued in on a page with a logo of the university and photocopied this to create a new document. All she had to do was cut and paste on the word document and print out a copy. Thus, even Mary Ford, speaking as the current administrative manager, agreed that the 'level is medium, to my sorrow', which is a diplomatic way of saying that the level is actually low. After all, she did say in the same interview that 'most of the

secretaries do not know how to use an Excel'. And there is still much computer anxiety. This is largely due to the fact that these secretaries are 'elderly women that are threatened all the time [by senior management] that they will be replaced by young women' (Mary Ford). They are so scared that they stay 'extra hours at their own expense' (Mary Ford). This taking advantage of employees, along with the lack of budget (as discussed previously in this section), explains the results of the following subsidiary question:

Which are the communication technologies that exist at the university today?

Over a period of two years, there have been very few additions to all the technologies introduced to the university in the early days of the new regime (as elaborated on earlier). These were mainly an online library and an Internet site. The online library was in its initial stages, according to Mary Ford. It is important to note that these were initial efforts to build an online library and not a working communication technology system.

The Internet site was planned to enable automatic handling of student grades with each lecturer having his or her own web page. Word of this site first came up in the data collection stage of the research at Business University during the author's shadowing of John Hall, the system manager. Hall, while working on fixing a computer problem, talked to the researcher, explaining that his and Miller's duties as system managers include mini-projects, such as 'a site that went on the air a few weeks ago' (Hall). When asked whether there is a site for the university, an active one, Hall responded:

> *No. The site exists but it must be fed data. The Internet company went bankrupt, and therefore the site didn't go on the air. The site was in the final stages. Our management simply*

> *took the employees from the Internet company and continued with them the site. But like I said, George [Miller] is involved in it, not I.*

Therefore, the author decided to approach Miller in a re-interview and ask him also about the site. He answered:

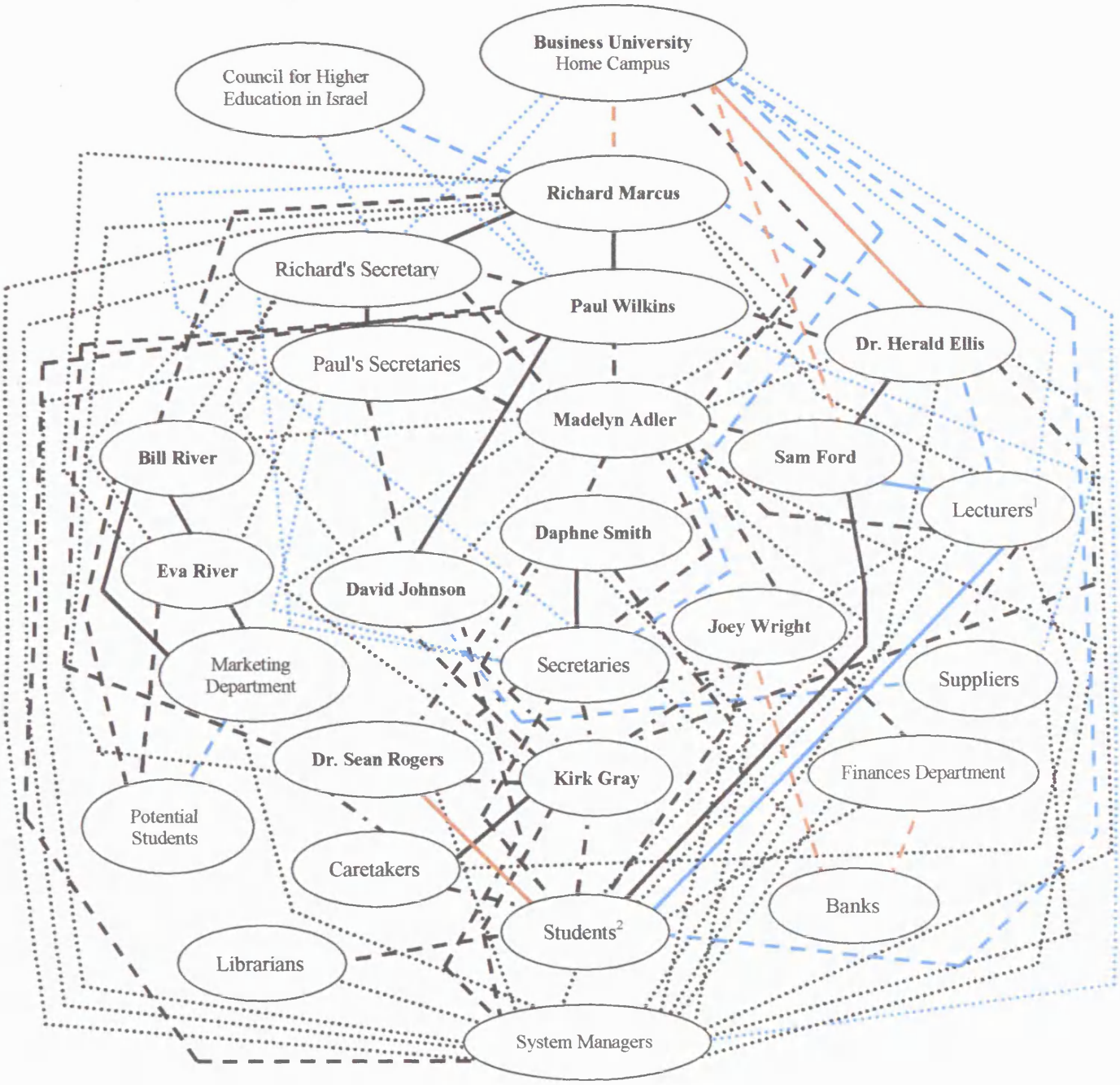
> *Yeah, I helped the guys a little with the technical stuff, to install it here and things like that. But most of the work isn't mine. I'm not so involved. Meanwhile, the site isn't yet active, so I don't know what will happen with it. I'm not being updated.* Miller

Less than two weeks after this re-interview, towards the very end of the data collection phase of the study, the site was first publicly introduced at the Lecturers' Convention. It was not fully operational but some pages were handed out and explanations given. Thus, there was not enough time within the framework of this study to collect data on how this new site affected organizational communication at the university. However, there was need to examine the current effects of the communication technologies on the network of communication at Business University, which is the focus of the next subsidiary research question:

How could this network of communication be mapped out, including the formal and informal network, messages flow (such as downwards or upwards) and which type of network would best describe those patterns: the 'wheel', the 'circle', the 'chain' or the 'all-channel'? What are the roles of members (such as liaisons, bridges, gatekeepers, isolates, opinion leaders or cosmopolites) in this communication network?

Before the following communication network of Madelyn Adler's period and the subsequent one during Mary Ford's reign are presented, it is important to note that they are different than the first three network presented in this chapter. While the first three communication networks are based mainly on the perceptions of selected members, the communication networks during Madelyn Adler's period and Mary Ford's

reign have an element of enactment since they were researched using not only interviews and documents, but utilizing observations as well. Consequently, here is the university's network during Madelyn Adler's period, built on the perceptions and enactments of selected members:



[1] All the lecturers are Israeli ones.

[2] The students have more videoconferencing abroad due to no lecturers from the home campus.

Figure 4.10: Communication Network - New Regime: Madelyn Adler's Period

Reviewing this network reveals that it is still hierarchical in nature. However, looking at the colours of the line between the various entities at the university shows a substantial increase in the use of communication technology (i.e. more blue and orange lines). This illustrates the changes Business University underwent in its use of communication technology. An interesting longitudinal example is Dr. Ellis, the Academic Coordinator.

Initially, Dr. Ellis did not use communication technology at all when making contact with the home campus abroad (see Figure 4.2, page 207). Even later, when Garrison came to the university Dr. Ellis did not use communication technology (see Figure 4.4, page 223). However, in the early days of the new regime he started to contact the home campus with communication technology (see Figure 4.7, page 243). Yet in the network on the previous page (Figure 4.10) he is illustrated as using communication technology heavily (orange line), especially with the home campus. An example of his now heavy use of communication technology was an opportunistic observation of a conversation between Dr. Ellis and Marcus in the hallway. Marcus amiably told Dr. Ellis to 'stop sending me emails at 01^{30} in the morning [i.e. in the middle of the night]' and Dr. Ellis laughed. This change in Dr. Ellis, who was sixty years of age at the time of his interview, was largely due to the support he got from the systems managers, Miller and Hall. Therefore, it is not at all surprising that Dr. Ellis proclaimed they 'are a blessing from heaven'.

Nevertheless, not all members make substantial use of communication technology. A surprising example is in the two system managers themselves who only use communication technology (email) to

communicate with the home campus every once in a while. Although this is perplexing at first because they were and are the change agents at Business University, it is logical in retrospect. Since they have to take care of other members technical problems, they only require cellular phones and usually need to go to the area with the problems in person. Miller even recalled that when he does train the members it is 'one on one'. Since the importance of these two is central to the institutionalization of communication technology, they will be returned to later in this chapter, as well as in the discussion chapter.

Two further members (who were brought in by Marcus) that do not use communication technology at all are Bill River, the marketing manager, and Eva River, the deputy marketing manager. One of the academic consultants in the marketing department stated that 'Bill [River] doesn't understand [how to use communication] technologies at all!' (Stone). In an opportunistic observation the computer/information illiteracy of Bill River was revealed when he had to call for help from academic consultant to look for a file on the computer, making an excuse that he has to go out of the room. He came back into the room after only a minute, asking her whether she found it. It was obvious he was ashamed to say he doesn't know computers, especially since he holds a graduate degree in mechanical engineering.

Another member of Business University that did not use communication technology even slightly is Madelyn Adler. This is witnessed by countless documents such as a handwritten message to the secretary Jill Byers or joint letter with Sam Ford, the academic manager. The latter could have definitely been sent by email, but Adler continuously used paper as her means of written communication, including faxes abroad to

the home campus. It is no wonder that in less than a year after replacing Irene Holmes as the administrative manager during the early days of the new regime, she herself was replaced by Mary Ford. To compare with Adler's period, here is the network of communication in Ford's reign:

[1] All the lecturers are Israeli ones.

[2] The students have more videoconferencing abroad due to no lecturers from the home campus.

Figure 4.11: Communication Network - New Regime: Mary Ford's Reign

The key difference in this network when compared to that of Madelyn Adler's period is that Mary Ford is partially using communication technology in her organizational communication, while Madelyn Adler did not at all. It is important to note that Mary Ford is not a technical person, as her interview revealed, but she managed to learn how to use communication technology with the help of the system managers. For example, in the very first days of Mary Ford in office, during the shadowing of John Hall, the system manager, Mary Ford intercepted him stating: *"I need you for a minute."*

"Willingly." replied Hall.

Hall entered her room and sat on the computer, while Mary Ford stood behind him, as illustrated by the following spatial map from the observation:

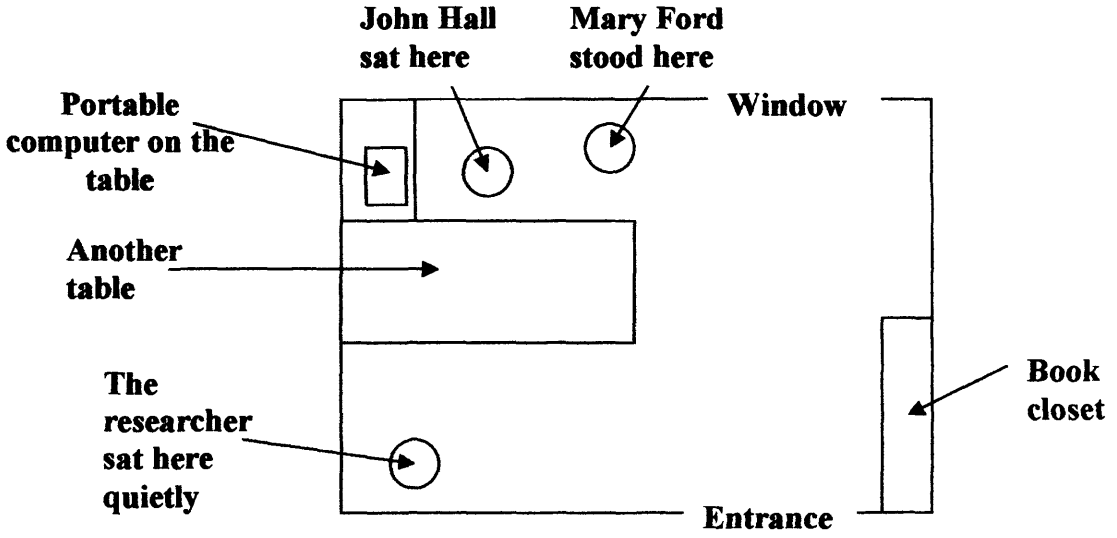


Figure 4.12: Spatial Map - Mary Ford trained by John Hall: Mary Ford's Reign

Mary Ford asked questions such as 'who are these addressees?', 'how do I build a personal address book?' and even how to disassemble the portable computer. Hall taught her in a very pleasant manner, explaining and showing how to do things simply. From this not only can the importance of the system managers as change agents is evident (and will

be discussed later in this chapter), but the openness of Mary Ford is demonstrated as well. It is important to recall that she was a new manager on the job, trying to make a good impression and still wasn't afraid to ask what she didn't know on technology. Her openness and its effects on organizational communication can be seen in another spatial map collected during an observation of the secretaries, which was just over a month after the one with John Hall:

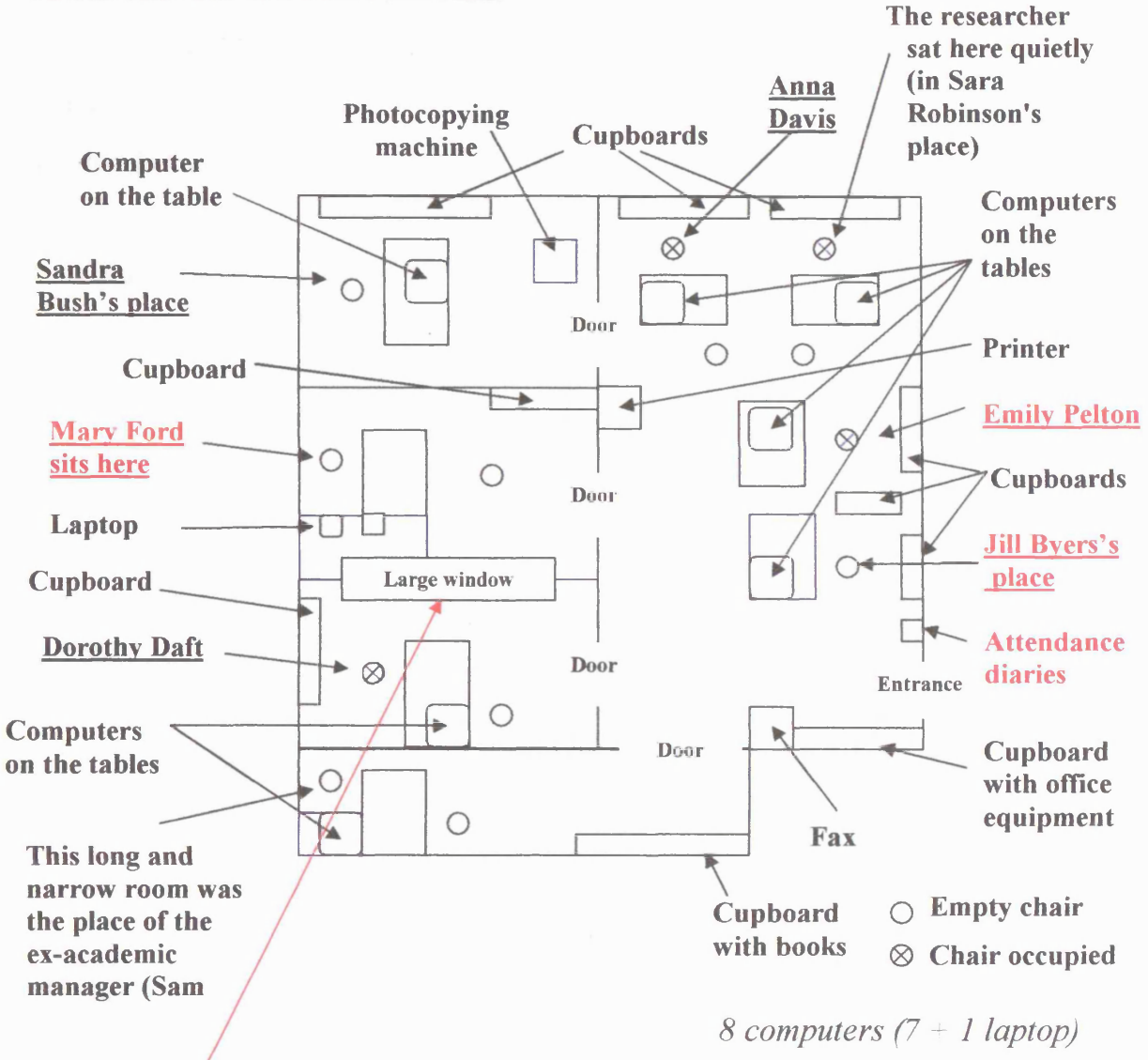


Figure 4.13: Spatial Map - Secretariat: Mary Ford's Reign

This window between the two rooms was created at the request of Irene Holmes, the administrative manager during the early days of the new

regime. She did this to be able to see Daphne Smith, her deputy administrative manager, which is also a form of communication. Madelyn Adler, the manager after Irene Holmes and before Mary Ford, added drapes, so she would not see Daphne Smith (who was then still the deputy). This also shows her closed style of communication, which is opposed to Mary Ford's (who pulled down the drapes to see her deputy, Dorothy Daft). Another thing to look at, which further contrasts the communication styles of Madelyn Adler and Mary Ford, are the sitting place of Emily Pelton and Jill Byers (marked in red in the previous page, Figure 4.13). In Madelyn Adler's period, the secretary would sit so as to block anyone from entering the closed door of Adler, as can be seen in the following spatial map:

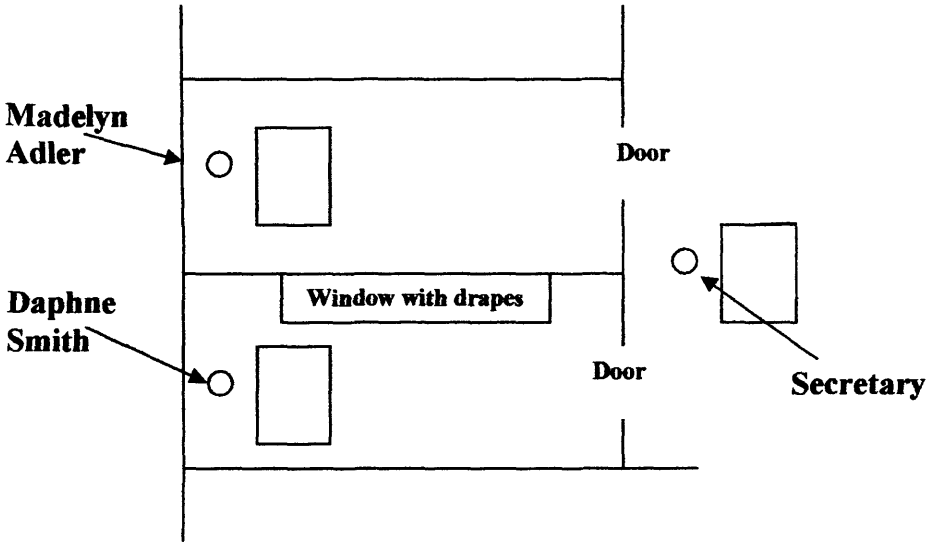


Figure 4.14: Spatial Map - Secretary as Gatekeeper: Madelyn Adler's Period

The secretary was the gatekeeper at Madelyn Adler's period, while as the previous page illustrates, the secretaries now (Pelton and Byers) are not gatekeepers. Since Mary Ford did not have someone blocking her ever-open door, she could see who came into the room immediately. For example, in order to observe the coming and going of lecturers, she

moved the attendance diaries (used by the lecturers to mark student attendance) from a room on the other side of the building, which was their original location, to the secretariat in front of her office (see Figure 4.13 on page 264 where the attendance diaries are marked in red). This is reminiscent of how Margaret Davidson's sitting place allowed her to monitor almost every thing that was happening at Business University (see pages 224-226).

Therefore, with all these changes in the personnel and structure of Business University, it is necessary to summarize the effects of communication technology on organizational communication, as the following subsidiary question suggests:

What are the specific effects of communication technology on formal and informal organizational communication network, including on downward, upward, horizontal and diagonal communication? Which structural change resulted from the introduction of communication technology? Which personnel change resulted from the introduction of communication technology? To what extent is email being used at the university?

To answer all these questions and others on the effects of communication technology on organizational communication, data reduction (see page 182) was needed more than in any other part of this findings chapter. Consequently, the interviews, observations and documents were unitized in that from each the information units were extracted and then categorizing took place in which the information units from the unitizing phase were organized into categories on the basis of similarity and meaning. From this several significant categories on the effects of communication technology on organizational communication resulted, which will be presented in the next section.

The Effects of Communication Technology on Communication

In this section, several effects of communication technology on communication will be presented. However, first it is useful to understand the evolution (or revolution) of communication technologies at Business University by examining the following summarizing time line:

OLD REGIME - The Middle Ages of Communication Technology				
Period	**Years**	**Communication Network**	**Existing Technologies**	**Use of Technology**
Before Leon Garrison's Period	**Up to '98**	• **flat organizational structure (4 levels)** • **no gatekeepers** • **wheel network** • **few dismissals**	• **1 computer at the typist** • **1 laptop** • **15 computers – a small class**	• **Almost no use at all** • **computer illiteracy**
Leon Garrison's Period	**'98 to end of '99**	• **less flat organizational structure (5 levels)** • **still no gatekeepers** • **still wheel network** • **few dismissals**	• **computer at the typist** • **3 computer classes** • **initiation of videoconferencing**	• **The seeds are planted** • **Some initial training, still computer illiteracy**

NEW REGIME - The Communication Technology Revolution				
Period	**Years**	**Communication Network**	**Existing Technologies**	**Use of Technology**
Early days (of Richard Marcus and Paul Wilkins)	**End of '99 to mid '01**	• **complex organizational structure (6 levels)** • **many new functions such as administrative manager (Holmes), marketing department or new systems managers (Hall and Miller)** • **very hierarchal with several gatekeepers** • **a chain network with one-way downward communication** • **some psychological resistance** • **computer anxiety** • **numerous dismissals**	• **videoconferencing** • **computer for each** • **email (Outlook)** • **programs for managing the university** • **financial programs with online banking communication options** • **modern computer rooms with 80 more computers** • **classroom with PowerPoint and Internet access** • **voice mail** • **computers In the library** • **Auto-ID technologies**	• **initially, organized training** • **later, no organized training** • **low level of computer literacy** • **change agents**

NEW REGIME - Institutionalization of Communication Technology				
Period	**Years**	**Communication Network**	**Existing Technologies**	**Use of Technology**
Madelyn Adler's Period	**Mid '01 to May '02**	• complex organizational structure (6 levels) • very hierarchal with several gatekeepers • a chain network with one-way downward communication • numerous dismissals	• practically no new technology is introduced (purchasing for maintenance purposes) • budget difficulties	• still low level of computer literacy • some moderate use of technology
Mary Ford's Reign	**May '02 up**	• less complex organizational structure (still 6 levels) • very hierarchal with several gatekeepers • a chain network with one-way downward communication • numerous dismissals	• initiation of online library • introduction of an Internet site (not fully functional yet)	• still low level of computer literacy • some moderate use of technology

To present the effects all these changes had on communication at Business University, an encompassing framework was necessary. Therefore, in providing such a framework for these findings is sought by uniting the two frameworks on the effects of communication technology offered by Miller (1999, pp. 277-279) and O'Connell (1988, pp. 480-481), as discussed in detail on pages 101-106. The outcome is the following identification of the twelve effects of communication technology on organizational communication (on which a fuller discussion will follow):

1. Speed.
2. Distance.
3. Asynchronous communication.
4. Addressing messages.
5. New memory, storage, and retrieval features.
6. Cues.

7. Decrease in face-to-face communication.
8. 'Short-circuits' in informal messages.
9. Impaired decision-making.
10. A loss of trust.
11. Less patience and tolerance.
12. Increased expectations of employees.

Although these are helpful as theoretical propositions allowing for analytic generalization (see pages 159-160), it is important to keep in mind that they were not created for higher education but rather for more general circumstances. In addition, these propositions did not come out of the data, but more accurately were used to interrogate the data (and thus the material in the subsequent pages comes only from the data and not from a reading of the literature). Accordingly, it should be of no surprise that other effects of communication technology on organizational communication were discovered at Business University, which these twelve do not cover. Consequently, the findings on these discovered effects will also be presented. However, this will be done after the twelve effects of the united framework are exhibited, of which the first is entitled 'Speed'.

1. Speed

The research did discover that in some cases at Business University communication technologies (such as email) allow message transmission that is faster than transmission by traditional communication media (mail or fax). As for example, Davis, a secretary, noted 'answers by email are received a lot faster from the home campus than from a fax, sometimes even immediately'. Dr. Ellis, the academic coordinator, agreed with this

view, stating that communication technologies are important for the university because 'they do not require a delay in time'. He also gave an example where he sent a message abroad only a few minutes before the interview with the author and 'after three minutes I got an answer' (Dr. Ellis).

However, in other cases, the opposite was discovered, where the use of email resulted in the slower transmission of messages.

> *The connection with abroad [the home campus] is very bad, at least with some of the lecturers. The correspondence by email with some is without getting a response on time. You send an email and just wait and wait!* Mickey Right, student

Several of the students interviewed complained in a similar fashion and others even stated that communication through email or other means is not only ineffective with the home campus but with the staff at Business University as well. For example, one student commented that as he does not get the solutions he needs through communication technologies, even traditional ones such as the telephone, 'it is preferable to always come to the university and solve things face-to-face' (Ishmael Gold). This suggests that communication technologies are also not used enough at Business University to solve the problem of distance.

2. Distance

At Business University, communication technologies (such as email or videoconferencing) were also found to allow communication among geographically dispersed participants. Although according to Marcus 'geographical distance is two buildings', communication technology was mainly used in communicating with the home campus. For example,

secretaries could contact their counterparts abroad using email. Students could communicate with lecturers from abroad through email (even if not always successfully as noted in the previous paragraph) or learn through videoconferencing. At the university, videoconferencing enabled not only learning when lecturers from abroad could not come due to the security situation in Israel, as discussed earlier in this chapter, but it also allowed Marcus, the president of Business University, to hold regular virtual meetings with the president of the home campus. However, it was also found that not all members of Business University use these communication technologies and some secretaries still use the telephone or the fax to transmit messages over long distances. For example, Sara Robinson, one of the secretaries confessed in her interview that she uses the fax much more than the email. Pelton, another secretary, corroborated this by stating that a lot of faxes are sent abroad in asynchronous communication.

3. Asynchronous communication

At the university, with the introduction of email, asynchronous communication between individuals at different points in time naturally occurred in a variety of situations, ranging from correspondence through email by various lecturers and secretaries with the home campus to emails written at night and read in the morning by various participants, even only local ones. For instance, an opportunistic observation of a conversation between Marcus and Dr. Ellis revealed that Dr. Ellis sent an email to Marcus, in the middle of the night. Marcus told Dr. Ellis:

> *Stop sending me emails at $01^{\underline{30}}$ at night. Get some sleep. You do not have to work all the time.*

However, research at the university also uncovered that there was very low asynchronous communication between students and lecturers, whether local lecturers or those from abroad. It seems that most of the local lecturers do not give their email addresses to the students. This is best expressed by the following quote:

> *There is [only] one lecturer at the university that gives his email and through it passing homework and exercises – a wonderful thing.* Shelly Storm, student

Additionally, the asynchronous communication with lecturers from the home campus was not effective. One student clearly articulated this:

> *In the communication between myself and the lecturers from abroad, there are some problems of synchronization in email. There is need, in my opinion, that for every email sent to a lecturer from abroad to receive immediately a message that the email was indeed arrived / received by the lecturer.*
>
> Isaac Newborn, student

Another student said that she only uses email to send homework to the home campus (Helen Hunter). Thus, it is not surprising with this lack of effective use of email in asynchronous communication that one of the students stated in his interview that he would be 'happy if there was more access through email to the function holders at the university' (Joey Rich).

4. Addressing messages

This too existed at the university, done mostly by Marcus who would in downwards communication send a sporadic update, telling all employees what's new. Emily Pelton, a secretary, was very enthusiastic when she received such a message from Marcus, as witnessed during one of the observations:

> *Look, Richard [Marcus] sent us a message. I wouldn't have read it on the bulletin board. This reached me personally. It is flattering although I know everyone received it. It is like you're important and are updated on what is happening in a large organization although you're a small component.* Emily Pelton

5. New memory, storage, and retrieval features

At the university, communication technology has allowed the handling of information, such as students' grades, in various ways. For example, in an observation, Pelton was able to pass on a test sent from abroad simply by attaching it. Again with enthusiasm, Pelton declared that 'once I would have to type everything from the beginning. Now the translators send an email and I have to just pass it to Dr. Ellis'. However, not all participants are satisfied with current abilities of the communication system to handle information.

> *The information is not available from each [of the members of the university]. The information is not computerized, not online.* Wilkins

Low satisfaction with communication technologies at the university exists for other reasons, including those presented in the following section on the subject of cues.

6. Cues

There is low satisfaction at the university with videoconferencing because it lacks in traditional cues, such as nonverbal communication. For example, an English-speaking lecturer who visited Israel several times for a semester and was very successful when lecturing face-to-face

in English, receiving high appraisals from the students, was not at all successful in a videoconference course. In an opportunistic observation of a conversation between lecturers, James Hock, one of the assistant Israeli lecturers said 'I don't know how he was in a course [in Israel], but in the course that I am accompanying him he is terrible. The videoconference with him is boring'. Several students supported this negative view of videoconferencing. One of them complained that 'there is a problem in the videoconference learning with the quality of the lecturers and the method of study' (Milton Keynes, student). In videoconferencing, the method of study lacks some of the cues which exist is face-to-face communication because in a videoconference the lecturer is sitting down, seen on a screen.

7. Decrease in face-to-face communication

There has been a decrease in face-to-face communication at the university due to communication technology. For example, students use the computers in the library to surf the Internet instead of talking to peers during a break. However, this decrease has not been a substantial one. Most of the participants interviewed, whether employees of Business University or students, reported that face-to-face is essential in certain situations. This is expressed by Bill River:

> *You can see the eyes of the person in front of you. In the eyes you can see a lot: if the person is lying, if he is smart, if he is interested. There is no other way to sell! You got to have face-to-face!*

Kent agreed with this view:

> *The communication channel that is very informative is face-to-face communication. If you want to tell someone something severe, then only face-to-face communication. A less*

> *informative communication channel is the telephone. I would never use it to tell something severe to someone... I use everything – according to the issues, the objectives I want to attain.*

The use of the communication media according to the goals of communication is best described by one of the students:

> *My favourite type of communication is the telephone for messages regarding the cancellation of lessons. It is very accessible, and there are electronic secretaries. Emails are my favourite for getting grades – it is private and personal. Faxes for getting approvals for courses [per semester] or email. There is personal communication [i.e. face-to-face communication] that is especially important if there is a short circuit between the lecturer and the pupil.* Shelly Storm

8. 'Short-circuits' in informal messages

The research revealed that at Business University communication technologies did not create 'short-circuits' in informal messages and thus reduce the level of problem solving, which is based on informal communication. On the contrary, communication technology increased informal communication between several members and hence tended to improve problem solving. Email allowed sending various personal letters between students and lecturers, among staff or even happy holidays from the home campus abroad. These informal emails were instrumental in creating relationships between people at Business University and members of the home campus that would not have been possible otherwise.

For instance, in one opportunistic observation, Pelton received an email with musical clowns for the holidays from Sam Ford, who was then the

academic manager. 'Look what Sam [Ford] sent us' she proclaimed enthusiastically. It is probable that such an informal email improves working relationships. In another example, the documents collected for this study included correspondence by email between a local lecturer and an academic manager abroad. Reviewing this correspondence demonstrated that email in this case did build a personal relationship. The academic manager from abroad wrote in the email in response to a previous email from the Israeli lecturer:

> *My holidays were very nice. I hope your's were also good, though with the current situation, it is hard for me to imagine how you must feel. I think of all my friends in Israel often and hope that peace comes soon.*

Only after this informal part of the email did problem solving (on the subject of course approval) take place. This may explain why Dr. Ellis, claimed in his interview that communication technology 'creates a brave bond between people'.

9. Impaired decision-making

There were no indications that communication technologies at Business University had resulted in impaired decision-making due to ambiguity in interpreting information and decreased socio-emotional content. On the contrary, the email by the academic manager from the home campus in the previous paragraph contains socio-emotional content. Furthermore, examining the electronic documents collected for this research at Business University revealed that emails were forwarded to more than one participant, preventing in this fashion ambiguity in interpreting information. For example, in a correspondence between a local lecturer and a member of the home campus, the emails were also sent to Dr. Ellis,

the academic coordinator, who could ensure that both sides understood each other, and reinforce a message when necessary. For example, in one email he sent a Hebrew message as an introduction to an English message from the home campus to two local lecturers.

10. A loss of trust

There was some loss of trust at the university, since the informal every day contact with Marcus was very small, partially due to communication technology. Several members clearly expressed a lack of trust towards senior management. For example, Porter, in context of the new management, gave an imperfect quote in English of Abraham Lincoln:

> *You can fool some of the people some of the time, but not all the people all of the time.*

In this sentence not only is her lack of trust apparent, but also she is implying that she does not like the new management's style of communicating.

11. Less patience and tolerance

There was less patience and tolerance in the organization for individual styles of communicating that can be partially attributed to communication technology. An example of this decrease in patience and tolerance due to technology is the conversation between two lectures, Garry Gross and Kent, which was recorded in an opportunistic observation. The two, especially Kent, were infuriated by the fact that a message handed out to them from the secretariat had spelling mistakes in it:

> *Kent: 'Did you see the piece of paper they gave me on the Internet site?*
> *Gross: 'No, no. I didn't get that page on the site.'*
> *Kent: 'Well, sure [you didn't]. I went to Mary [Ford] and showed her, 38 spelling errors! I'm sure she pulled it back!'*
> *Gross: 'Really? How do they produce at all such a page? Don't they have Word?'*
> *Kent: 'Management! That's not how to manage and distribute the site!'*

In this, the two reveal they have less patience and tolerance since they expect that with technology, such as Microsoft Word software, spelling mistakes should not occur. However, the research at Business University also revealed that is some instances this decrease in patience and tolerance is not caused directly by the existence of communication technology, but rather indirectly due to the lack of use of it, as the following quote illustrates:

> *I call Dorothy [Daft] on the phone to find out which courses I'll be taking or send her a fax. Usually, when I call she doesn't answer so I leave a message. I have no idea if she got my message or not because she doesn't get back to me. If there were other ways to reach her, like an email, it would make things easier.* Joey Rich, student

In this, Rich is showing that since people are aware of the possibilities of technology, they have higher expectations for improved performance.

12. Increased expectations of employees

The research at the university revealed that there were increased expectations that employees would perform with the speed and accuracy similar to that of the computer. These increased expectations are clearly implied in the following quote of Marcus:

> *Today there is a wide variety of communicational means that improve the ability to function, communicate and realize the organization's objectives.*

Several secretaries stated that more is demanded of them due to communication technology. For example, Robinson, a secretary said that 'there is more load. We got more work because of the technology'. However, since the use of technology didn't meet the expectations, the results were disappointments. Dr. Rogers even claimed that although numerous technologies were introduced to the university 'we did not advance much since the previous management!' He is saying this with all the changes that were made. This will be elaborated towards the end of the chapter, after the following additional effects (derived from analysing the data from interviews, observations and documents) are presented.

Additional Effects of Communication Technology

This section presents the further effects of communication technology on organizational communication that emerged by analysing the evidence collected at Business University by means of interviews, observations and documents. Initially, each effect will be given a title with a short explanation. Then, each will be elaborated on by giving examples from the research at the university. (The order of these effects is not of importance.) The first is entitled 'marketing and technology'.

a. Marketing and technology

Communication technologies have a marketing effect, i.e. by using them it is possible to attract students. One example is the use of computers in the library. As one of the librarians commented:

> *There is no argument that computers here attract a crowd. The students would like more computers.* Bass

This was confirmed both by the conducted observations and by several of the interviewed students, as the following quote illustrates:

> *There is a lack of computers and it is usually full in the library during break hours. It is worthwhile to add more [computer work-] stations.* Shelly Storm, student

Another example may be the use of PowerPoint in a lecture. As Gray said in his interview:

> *Today Larry [Gates], who teaches Hotel Management – every lesson is on PowerPoint, which is very comfortable for the students as well.*

However, this may have changed, as an opportunistic observation revealed in the following conversation between Dr. Rogers and Gates:

> *Dr. Rogers: 'The thing that helps most today in lectures is PowerPoint.'*
> *Gates: 'PowerPoint is passé. A few months ago everybody was enthusiastic. Today, they want to see that you can lecture without any aids.'*

b. Paper full instead of paperless

Management anticipated that the use of communication technologies would result in a paperless world at the university, and not in a paper full one. This contradiction was best illustrated by Dr. Ellis:

> *It is recommended to use as little as paper as possible. I print and backup important messages.*

In this, Dr. Ellis reveals that he prints a lot, while the idea of a paperless world is to backup, not to print. According to Hall even Wilkins 'likes to have copies'. Hall stated that Outlook was supposed to create a paperless

world at the university, but this was not achieved. Therefore, with so many paper copies, it would seem that the research at Business University should have had no trouble in collecting documentary evidence. However, as noted on several occasions earlier in this chapter, this was not the case. One of the reasons for this lack of documents was to unfold in a surprising manner in the following type of effect of communication technology on the organization, entitled 'fire and hire'.

c. Fire and hire

The introduction of communication technology at Business University resulted in structural change, where new functions such as the system managers were inserted to the university. It also resulted in personnel change, since some people were dismissed and others hired. Wilkins maintained that firing and hiring new personnel due to communication technology is 'part of the natural development' of an organization. However, this caused information to be lost due to the frequent changes that took place. As Wilkins commented:

> *Mary [Ford] comes and replaces Madelyn [Adler] and throws away [written] information because it is not important.*

This comment, which at first glance does not seem overly important, was critical in understanding not only that frequent personnel change result in the loss of information, but also in shedding light on a perplexing problem all through the research: the relative lack of formal documents. It would seem that Mary Ford was throwing away documents that she thought were unnecessary, as she herself implied:

> *I try not to touch paper forms. There is a book of regulations that is 120 pages long. I cancelled it and created one of 16*

> *pages. If they will sit around all day filling forms then no one will work.*

Furthermore, there was also a lack of electronic documents on computers, as Wilkins noted with regret in his voice:

> *The problem is that information is not available from everyone. The information is not computerised, not online. Two years back, there isn't any computerised information. I don't know anything about a student three years back except his grades.*

Therefore, all the changes in technology in personnel resulted in a situation that, on one hand, paper documents are thrown away, and on the other hand, there isn't almost any electronic documents saved on computers. In addition, the firing and hiring of employees who could not adapt to communication technologies created an unstable situation, which put extra pressure on existing employees, which had an effect on informal training.

d. Informal training

According to the two system managers (as will be elaborated in the next section with the subsidiary research question on the persons currently responsible for communication technology at the university), the organized formal training on the subject of communication technology at the university was not sustained over time. Thus, since no formal training on communication technology exists, in several instances the secretaries were observed teaching each other as well as lecturers teaching students during a class break.

e. The damages of technology

Communication technology does have advantages, but like any technology it can be a double edge sword if not used wisely, thereby damaging work processes and even the learning process itself. For example, both a lecturer and a student, each in their respective interview, stated that in some cases students are playing with the computer instead of listening to the lecturer. This playing with the computer was also witnessed in an observation at the marketing department, where one of the employees was sitting in front of the computer and looking very focused, but it turns out he was playing a computerized card game: solitaire. Furthermore, since communication technology may do damage, laws were created in its context.

f. The law and technology

The law affects communication technologies, which in turn affect organizational communication. In addition, the Law by the Council for Higher Education that resulted in videoconference (as discussed earlier in this chapter), there is the Protecting Privacy and Information Security Law which stipulates that large data warehouses must be registered (The Public Council for Protecting Privacy, 1999, p. 11). At Business University, this law caused senior management to act:

> *Well, a short while ago, the management decided that it is necessary to take out all the printers and the hard disks from all our computers since we have data warehouses. In one evening they took out everything and when we came in the morning there was nothing. It was impossible to take anymore lists of potential students. No, they did not tell me in advance. The reason is that there is the law of databases and if you have a large database you have to protect it. They were afraid that the employees could print out the lists and take it outside.*
>
> Bill River

Hall and Miller had the unwanted task of taking out the printers. This is one of their numerous responsibilities for communication technology at Business University, as elaborated on next.

Who are the persons currently responsible for communication technology in this institute of higher education and what type of dialogue do they have with the various users?

The systems managers Miller and Hall are those who have the main current responsibility for communication technology at the university. As was seen in Hall's observation (when he was shadowed for a whole day) and as reflected in the communication network, they are in touch by face-to-face communication with almost all the members of the organization. They may be regarded as the change agents that are continuously institutionalizing technology at the university. They have some help from Gray who noted that he is 'responsible for all the mechanical aids to the class such as video, overhead projector and so on, mail – both incoming and outgoing, videoconference including the system itself'. However, in the case of any technical problem, the system managers are responsible and he calls them:

> *I turn to George [Miller] and John [Hall] when there is a malfunction in the library, in room 9 where there is a video and PowerPoint, since a computer is connected to a projector there.* Gray

Hall stated that as a system manager he 'is responsible for all computerization in the organization: technical problems, purchasing computers, videoconferencing, [and] fax. [I'm responsible for] anything that is related to computers plus videoconferencing plus fax, from the smallest to the largest'. Miller added telephones to the list. The observation of Hall (who was shadowed by the researcher) confirmed that the systems managers do take care of all issues related to computers.

Hall was witnessed installing software in classes and in offices, checking servers, updating virus protection and even training a manager. Although the two are responsible for training, this is not carried out in an organized manner, even though 'in the beginning we tried to do it organized' (Miller). Therefore, Hall told that one day he got fed up, took a projector and 'started teaching on Outlook, room by room', adding:

> *I do not have a problem to teach, but it is not defined in my job description as far as I know. The more the employees will know, the less they will call me... They do not know basic stuff... There is need of training! There is need of time!*

For without time (as well as budget, as implied by this quote) communication technology could fail and not succeed.

Success/Failure of Communication Technology

The fourth key research question asks:

4. **How successful is the communication technology system at the university, as both enacted and perceived by selected members?**

To answer this question, subsidiary research questions were developed, each of which will be discussed below.

Is there a high level of communication technology system use?

To address this question, the most updated communication network during Mary Ford's reign (on page 262) should be re-examined. Going back and reviewing this network clearly demonstrates that although there is some use of the communication technology system, it can by no means be considered a high one. There are very few that use the system a great deal (orange lines such as Joey Wright with the banks or Dr. Ellis with the home campus), some who partially use it (as seen in the blue lines),

but most still do not use communication technology (various black lines). This situation was described by Dr. Rogers:

> *In my opinion, communication technologies are not placed correctly in the organization! All there is exists for enrolling students and that's it! The use of technology should allow a bit more than this! Can you tell me that technology here helps in planning a year in advance? So, before Philip [Davidson] would send some emails abroad and to the Council for Higher Education and today everyone can. Is that the big difference?*

Thus, it can be concluded that at best there is medium use of the system, but not why there is low use and so, user satisfaction must be investigated, as suggested by the next question:

Are the various users satisfied with the communication technology system?

The level of satisfaction varies. On one hand, from the 27 members of staff interviewed, 11 (41%) were highly satisfied with the communication technology system at the university. For example, Dr. Ellis displayed a high degree of satisfaction with the communication technology system, stating in his interview that he has 'no complaints for the current system' and that 'communication technologies contribute to the academic level'. On the other hand, 16 others (59% of staff) commented that they are not satisfied with the system, even the current senior management. For instance, Wilkins exhibited a low degree of satisfaction, stating that the university must have ERP (Enterprise Resource Planning), since too many things are done manually, although 'everything we do manually exists in computerized system' (Wilkins).

Although, both observations in the library and interviews (with students and also with the librarians) showed that students are satisfied with computers in the library and even want more of them, overall students are

not at all satisfied with the system. It is important to recall that almost 90% of the students are working individuals (as the documentary analysis revealed from a study that was conducted in 2001 by a marketing firm for Business University, which examined whether the university should change its location). Thus, for them to come to the university for something that technology could have handled is frustrating, as the following quote from the student Ishmael Gold illustrates:

> *My only communication with the university and its employees is face-to-face! This [face-to-face communication with the university] is because any other type of communication is difficult to obtain. There is no feedback when using telephone communication or other [type of] communication from the university or factors at the university. Only in face-to-face communication is there an answer to questions and solutions.*
>
> *Additionally, what is it worth if there are technologies and the student doesn't know! Technology hasn't improved the service for the student!* Dr. Rogers

This situation explains the unfavourable nature of students' attitudes towards communication technology at the university.

How favourable are the attitudes towards the communication technology system?

The attitudes of the students are very negative toward communication technology. Although some employees have a positive view, and may even be enthusiastic (such as Gray), it is the students attitudes that are paramount. After all the system was primarily created for them, in order to give Business University the competitive advantage Marcus talked about in his re-interview. Kent explained in detail the causes of students' attitudes in relations to communication technology:

> *A student will treat the institution with the required seriousness and will recommend it to his friends due to the atmosphere he absorbs. A child that hears his father yelling on his mother will yell on his friends. A matter of absorption, my wife says. The students should get upon entering the studies a password that would give them [their grades] 4 minutes later and not have to stand in line at Dorothy [Daft] to find out a grade four semesters ago. Today Dorothy has to enter the system and give them an oral answer. A test cannot be downloaded from the site of Business University. A student that cannot enter the computer and see his grade in a course will call me at home to ask what is his grade in my course. These things make the student understand that the institute is not at the height of technology and therefore he is not at the height of technology, and will not take the studies seriously.*

This negative attitude of students towards communication technology also raises the following question:

Did the communication technology system achieve its objectives?

The research has shown the system is not by any means fully achieving its designated objectives. When Marcus claimed they plan to continue and develop the current systems and to examine various alternatives to find the technological alternative that would best fit in achieving the goals they set for themselves, he was indirectly saying that these goals weren't reached. Wilkins also showed that their objectives were not reached, simply by stating 'we're too poor'. In this Wilkins revealed that it is doubtful if the system is achieving its increased profitability goals, as raised by the subsequent subsidiary question:

Were there financial payoffs to the communication technology system such as reduced costs or increased student enrolment?

Although, the system did reduce costs in a number of areas, such as saving the expenses of bringing lecturers from abroad, it had increased costs in other areas. For example, it required a whole new organizational structure to support it (such as hiring the system managers) and personnel change, which has its costs as well, such as training a new employee. While it may be correctly argued that in the long-term these costs will be reduced, these are costs nonetheless felt by the university. Additionally, even if the reduced savings overweigh the increased costs, there is the issue of increased student enrolment, which communication technologies did not achieve.

Consequently, as can be seen by summing the results to these five subsidiary research questions, at best the university achieved only moderate success in its implementation of communication technology. In reality, the situation could also be regarded as a failure. Dr. Rogers expressed this lucidly:

> *In my opinion, overall they have failed in introducing communication technology to the organization. I was one of the only managers and lecturers who demanded and got the technology he wanted. The others simply did not care or cannot handle advanced technologies. Nobody leads the technology in senior management. Between us, with such a low level of employees that no one invested in training them, how does this management want to succeed in technology!*

The issue is of course why did this happen and what can be learnt from it? These themes are addressed in the following chapters of the thesis, the discussion chapter and the conclusions and recommendations chapter.

Chapter 5 – Discussion

> *The Discussion chapter is an opportunity to move beyond the data and integrate creatively the results of your study with existing theory and research.*
>
> (Rudestam and Newton, 1992, p. 121)

In order to move beyond the data and integrate the results creatively with contemporary theory and research, it was important first to decide which materials from the literature to integrate with. This was not a simple task due to the fact that the effects of communication technology on organizational communication have hitherto received little attention in the context of higher education. Therefore, when analyzing and seeking to theorize from the data from the findings chapter, it was necessary to compare it to literature that is often not from higher education. This not withstanding, such an analysis of the data would seek to respond to the fifth of the key research questions that have shaped this study:

5. **Why did the communication technology system develop at the university to its current level of success or failure?**

Understanding this is paramount for this research project since it will enable this doctoral thesis to move from the descriptive to the analytical and finally to the theoretical in the sixth chapter of conclusions and recommendations. To achieve this, three subsidiary research questions were created. The first is:

Are there major differences in the definitions of the term 'communication' of selected members, especially of those by the new senior management when compared to those of the former senior management?

Since the focus of this question is on communication, the first section of this chapter will be accordingly entitled 'Communication'. In the beginning of this section, some of the definitions by the interviewees of the term 'communication' will be classified into respondent groups. (As noted in the previous chapter, some of these definitions are introduced for the first time, making first pages of this section into a hybrid of the findings chapter with the discussion chapter.) These different categories will then be compared and contrasted both within the category and between categories. This will set the stage for an attempt to develop a new theoretical definition of the term 'communication' that is based on an integration of the analysed definitions with materials from the literature review.

Once communication is understood, then the subject of communication technology can be addressed, as the second subsidiary research question illustrates:

Are there major differences in the attitudes of selected members to modern communication technology, especially the attitudes of the new senior management as compared to those of the former senior management?

To address the issues raised by this question, the second section of the discussion chapter entitled 'Communication Technology' will examine the different perceptions and attitudes that the interviewees had regarding communication technology. To examine how interviewees describe the term 'communication technology', they were not required directly to define the term, but rather were asked which types of organizational communication technologies exist at the university and which ones do they use themselves in their current position or at home (see Appendix C – General Interview Schedule). Consequently, categorizing which

technologies fall under the term and which do not will enable to see how they actually define communication technology. Once their definitions of communication technology are understood, it will be possible to compare these definitions to the terms in the literature review chapter in order to develop a new definition to communication technology that integrates what was previously reviewed in the literature to what was found during the study at Business University.

Once the subject of communication technology is made clear, then its implementation can be addressed, which is the focus of the third subsidiary research question:

Analyzing the implementation process of communication technology at Business University, what can be learnt? What did senior management do right and what did they do wrong in implementing technology?

The third section of this chapter, entitled 'Organizational Effects of Communication Technology', will address these issues. First, it will examine the various models of media selection in the context of the evidence collected at Business University. Then, the framework in the findings chapter that was used to describe the twelve effects of communication technology on organizational communication will be compared and contrasted to what was found in the literature review. This will be followed by a discussion on the additional effects that were discovered at Business University and also presented in the findings chapter. Then, a discussion will follow on computer/information literacy, including alternative explanations being offered using typologies. In the last part of this chapter, senior management's positive and negative implementation actions will be discussed. This will set the stage for the theoretical model on the implementation of communication technology as well as for the recommendations that follow.

COMMUNICATION

In this section on communication, first of all, some of the definitions by the interviewees of the term 'communication' will be classified into respondent groups, where members were categorised according to their time period, function and their level in the organizational chart. Consequently, the following resulting nine categories will be presented:

- Senior management old regime.
- Senior management new regime.
- Academic management (including the Dean).
- Administration (management and secretaries).
- Marketing department (management and academic consultants).
- Systems management (including the Head Caretaker).
- Library.
- Lecturers.
- Students.

Within each of these categories the definitions of the term 'communication' will be compared and contrasted with each other. Secondly, the definitions in each category will also be compared and contrasted between categories. This will set the stage for the third part of this section on communication, where on the basis of the analysed definitions as well as on integration with definitions from the literature review, an attempt will be made to develop a new theoretical definition of the term 'communication'. This definition will also address communication technology, leading to the subsequent section of this chapter on this subject.

Senior management old regime

Dr. O'Henry, the Senior Vice-President for Student Enrolment in the old regime, defined communication as the ability to send a message so as to achieve his objectives or those of the organization (see page 200 for the full definition). Garrison, the Senior Vice-President of Human Resources in the old regime, defined communication first of all as personal communication, noting that communication is 'how a person can pass the message he wants to the other side while ensuring that the other side received what the message is about' (see pages 215-216 for the full quote).

Comparing these two definitions, it can be seen that both address the need to send the desired messages as part of the communication process. However, contrasting these two definitions shows that while in O'Henry's definition it is clear that the purpose of the message is to achieve his or the organization's objectives, this is not so obvious in Garrison's definition. Garrison only notes that communication is undertaken to attract attention but does not say for which reasons or objectives. In addition, these two definitions are different in that O'Henry's focuses on organizational communication while Garrison's concentrates on personal communication. Some of these differences exist in the new regime.

Senior management new regime

Marcus, the President of the new regime defined communication as 'the process that in its framework the connection is created between people, organizations and lecturers to students in both on a personal level and on a

technological level', adding also that communication technology can 'improve the ability to function, communicate and realize the organization's objectives' (see page 232 for the full quote). Wilkins, the new regime's Senior Vice-President Operations and Human Resources, defined communication as available and accessible information (see pages 232-233 for his full definition).

Comparing these two definitions reveals that both view communication as a means to an end. However, as argued in the previous chapter, Marcus's definition has a top managerial approach to communication in that it views technology not only as a means to improve organizational communication but also as a way to attain the organization's objectives. Wilkins's definition, on the other hand, does not address the organizations objectives in general but in a more practical way by explaining how communication technology might improve communication. In addition, Marcus address that a type of communication is also personal, while the focus of Wilkins's definition is only on work-related subjects, i.e. on organizational communication. Therefore, it is important to examine whether such differences exist in other levels of management.

Academic management

The three definitions in this category are:

> *Communication is the contact between a person and his peer, under different definitions such as teacher and student, husband and wife, and in a business environment, communication is an essential tool for the existence of the organization.*
>
> Dr. Rogers, Dean

> *Organizational communication is having the knowledge of the system in the two-way transferral of information. It is mainly*

> *based not on my job but on my personality. "You say", "I say" – I do not reach this situation.* Dr. Ellis, Academic Coordinator

> *Communication – organizational/business – is promoting the subjects that I am responsible of, without ignoring that I am part of the system and therefore work in cooperation with projects of marketing, finances, operations and the successful book fare. Interpersonal communication is a form of verbal communication between employees of an organization to promote common objectives by positive motivation and not by job duty alone.* Sam Ford, Academic Manager

All three definitions are similar in that they focus on organizational communication. However, Dr. Roger's definition, although claiming that communication is needed for the very survival of an organization, does not explain why. Dr. Ellis's definition argues that one needs to understand the system, i.e. the organization, to communicate as well as the personal aspects of communication, implying conflict management, but he too does not say why communication is necessary. Only Sam Ford's definition addresses the purpose of communication, taking into consideration not only the specific objectives of his role but also the objectives of the entire organization. Even in his approach of interpersonal communication, Sam Ford emphasizes objectives, which is a subject also discussed in the next category, administration.

Administration

In this category, there are two managers and four secretaries. First, below is a comparison of the two managers:

> *Communication is personal communication with respect, attention, personal treatment and giving response ASAP [as soon as possible]. Not evasion, but end.*
>
> Mary Ford, Administrative Manager

> *Communication is creating relationships with people on the basis of understanding and constructive communication.*
> Daft, Deputy Administrative Manager

Both emphasize the personal aspect of communication as well as implying that communication must address conflict management. Mary Ford's definition achieves this by using the words 'respect, attention, personal treatment', while Daft's definition accomplishes this by saying 'understanding and constructive communication'. Mary Ford's definition is different than Daft's in that it stresses not only the relationship aspect of communication, but also the need for communication to be result-oriented, or as Mary Ford puts it 'giving response ASAP. Not evasion, but end'. In this approach, the definition of Mary Ford is different from all the definitions in this category, perhaps due to her being the manager, as can be seen in the following three quotes:

> *Communication is the human relationships between people at the general level and at the private level. The private [level] is personal and the general level is professional work, not personal.* Davis, Secretary

> *Communication is the ability to transfer things, to understand one another, [and] to get help from one another.*
> Robinson, Secretary

> *Communication [is] let's talk, let's pass information, let's work things out, [and] let's hear one another. It is not just to sit in front of the computer.* Byers, Secretary

Examining these three definitions reveals that none of them addresses, directly or indirectly, the true purpose of communication. The last two do say that communication's goal is to pass information, but they do not elaborate to what ends. However, these three definitions are also similar to

Mary Ford's and Daft's in emphasizing the relationship aspect in various ways. Davis's definition achieves this directly by categorizing relationships into the 'personal' level and the 'professional work' level. Robinson's definition does this in a less direct manner by saying that communication is not only to understand but to get help from one another, i.e. be in a relationship. Byers's definition accomplishes this also in a less direct way by emphasizing that people need to work out problems and hear one another.

There is one final definition in this category of one of the secretaries that is different than all others noted earlier:

> *Communication is between me and the lecturer, me and the student and me and my roommate.* Pelton, Secretary

This definition is very limited because it only deals with whom communication takes place. It does not address the relationship aspect of communication, nor does it say anything about the objectives of communication. (However, it is important to state that this was the first of the two pilot interviews conducted for the research at Business University, and consequently was the first interview of the entire study. It is possible that Pelton did not understand the question posed by this researcher, and therefore the problem here was simply of communication.)

Marketing department

In this category, there are two managers and two academic consultants. First, below is a comparison of the two managers (who are also husband and wife):

> *What is communication? Connection, communication, I suppose...any connection that sends information, that is an information conduit or an information channel. It could be information between people, information between organizations, information between people in organizations and it could also be information that is transmitted by electronic means. In a crude way, any exchange of information is for me communication.* Bill River, Marketing Manager

> *Communication is a common interest that creates collaboration that satisfies both sides. It is simply different between friends where the interests are different than institutions. Between friends it is personal and between institutions it is professional.*
> Eva River, Deputy-marketing Manager

These two definitions reveal two completely different approaches to communication, although their roles are very similar. Bill River's definition stresses the information aspect of communication, including the transferral of information by electronic means, while Eva River's definition emphasizes the relationship aspects of communication. One possible explanation for these differences could be their background. Bill River is an engineer by trade, while Eva River has a background in psychology. Reviewing the remaining two definitions in this category and cross-checking this with the information in their respective interviews reveals that the background of individuals does influence their definitions of communication. This is illustrated in the following definition:

> *Communication is transferring information between two or more people.* Stone, Academic Consultant

Although this is a very succinct definition, it is similar to that of Bill River in its focus on information. Stone's background, according to his interview, includes not only working as a PC technician and an information systems analyst, but also completing his degree in computer

science at Business University several years earlier. The other academic consultant in the marketing department, studying business administration, had a different approach to communication, as his definition below demonstrates:

> *Communication is divided into different kinds. One kind is communication between employees to all teams. There has to be relative clarity [regarding the organization's objectives] as to assist one another, for mutual support. [The second kind is] communication between departments. There was a rift between departments and fights over people and it was more extreme. Communication with potential students is another form of communication.* Anderson, Academic Consultant

This definition differs from those offered by Bill River and Stone since it does not concentrate on the subject of information. Rather, Anderson's definition is more similar to that of Eva River. He too stresses like Eva River that communication involves conflict management, but while Eva River does this less directly referring to common interests, Anderson is more direct in his approach noting that 'there was a rift between departments and fights over people'. There are nevertheless some differences in Anderson's and Eva River's. While Anderson differentiates between three types of communication - communication between employees, communication between departments and communication with potential students - he does not distinguish between personal and professional communication as Eva River does or as do the definitions in the subsequent category: systems and maintenance management.

Systems and maintenance management

This category grouped together the system managers with the Head Caretaker since the research at Business University revealed he has some

responsibility regarding communication technology such as providing lecturers a PowerPoint projector and operating the video conference rooms, turning to the system managers for help if there are technical problems. However, the two definitions presented first are those of the system managers:

> *Today, a distinction between organizational communication and communication technology cannot be made. Communication is communication technology. In communication technology, I differentiate between computers and telecommunications. Computers are the network, while telecommunications for me are the telephones.* Hall

> *Communication is a way to transfer data. Organizational communication is divided into inside the organization and from the organization outwards. Inside the organization includes communication regarding the work and communication due to personal relationships. Communication from the organization outwards is representing the university in front of clients and suppliers.* Miller

Comparing these two definitions shows they both address communication technology, but while Hall does this directly, Miller is only implying this by using the term 'data'. Other than that, the two definitions of the system managers are completely different. Hall makes the case that organizational communication cannot be distinguished from communication technology, classifying then communication technology to include computers and telecommunications. Miller, in his very different approach to the subject, categorizes organizational communication to 'inside the organization and from the organization outwards'. His definition is much less technically oriented than that of Hall. This is surprising since the two have the exact same job and very similar technological backgrounds. Miller's definition is much closer to the

following definition offered by Gray, the Head Caretaker, who has a very different background than the two:

> *Organizational communication [is] the relation between people in the company. If there is a relation/understanding then there is communication. If something is coming from the management it should go all the way down. Not only should management know what there is, students, classes, but that a person could come to management and tell them.*

Gray's definition does not address communication technology at all, and therefore is completely different than that of Hall. Rather it focuses on human relations, a subject that Miller also puts forth. However, there are also differences between Gray's and Miller's definitions. Gray definition focuses only on internal aspects of organizational communication, while Miller clearly distinguishes between internal to external communication. In addition, Miller also differentiates between 'communication regarding the work and communication due to personal relationships', a distinction not made in Gray's definition. However, Miller, although classifying organizational communication in a clear fashion, does not tackle problems in communication channels such as lack of feedback in upward communication. Gray, on the other hand, is not only dealing with such problems, he is even criticizing senior management by presenting them. He is actually commenting in a direct manner that an employee cannot approach senior management (a problem presented in length in the findings chapter, which will also be discussed in the last section of this chapter on the implementation of communication technology). This lack of contact with senior management was also raised by one librarian.

Library

The two definitions in the library category are:

> *Communication is the connection between people, such as David [Johnson, the Junior Vice-President of Manpower during Madelyn Adler's period], secretaries, Kirk [Gray], those responsible for the computers, caretakers and working with the other librarian.* Bass, Librarian

> *For me communication is first of all treating the readers. That is to say, how I am in contact with every one of the readers in the library. And I really am in contact with everyone!*
> Newman, Librarian

Contrasting these definitions reveals that while Bass's definition gives a list of whom she communicates with, it does not say why she communicates. Newman's definition, on the other hand, explains why she communicates which is to serve the readers or as she puts it 'treating the readers'. Nonetheless, both these definitions are also similar in that they portray a picture that the librarians are in contact with numerous readers, with Newman even claiming that she is communicating with everyone.

However, in an opportunistic observation, she was overheard complaining to Wilkins on the telephone that members of senior management do not come to the library enough and are not in contact with her. This observation contradicts her claim that she is in contact with everyone at the university. It does, however, strengthen the point made on the previous page regarding the lack of contact with senior management at Business University, which is a problem several lecturers noted in their interviews.

Lecturers

There are overall five definitions of communication in this category. The first two definitions to be compared and contrasted are the following:

> *Communication is the transferral of information, feedback, [or] any verbal and non-verbal information, while understanding the message and the ability to manage situations of misunderstandings.* Porter

> *For me communication is the transferral of information between people, in both a formal fashion and in other ways such as informal communication, gossip for example, or body language.* Whittaker

These definitions are similar in that both view communication as the transferral of information. Moreover, both also add non-verbal information as part of communication. However, there are differences in these definitions. Porter's definition does not differentiate between formal and informal communication as does Whittaker's definition, but it does address the subjects of feedback and misunderstandings, which Whittaker's definition does not. The subjects of feedback and misunderstandings are also implied in the following definition:

> *Communication is transferring messages in the best possible way that they will be understood in the clearest manner by the other person and in a pleasant fashion. It is important that the message will pass in a pleasant fashion.* Cash

This definition by Cash, like the two before it, also views communication as transferral of information (or 'messages' as she puts it). Cash's definition is also comparable to Sally's in expressing that understanding is necessary in communication, emphasizing that communication should occur in a pleasant fashion. However, Cash's definition does not differentiate between formal and informal communication as does Whittaker's, nor does it address feedback as does Porter's as well as the following definition:

> *Communication is some connection between two bodies or more, in which some message is transferred between one to the*

> *other. It can be one-way or two-way. And good communication is when there is complete understanding in each side that the message was delivered. That is, full understanding of that message. Usually it includes some sort of reaction from the side to which the message is transferred. Usually, not always.* Rice

This definition doesn't distinguish between formal and informal communication as does Whittaker's, which is the only definition in this category that does so. However, Rice's definition, in a similar manner to the three before it, sees communication as transferral of information (or 'some message' as she expressed it). It is also stresses the importance of understanding in communication, as Porter's and Cash's definitions have done but Whittaker's definition has not. However, Rice's definition argues that communication 'can be one-way or two-way' with feedback usually but not always occurring. This is a point that the following definition also makes but in a very different fashion:

> *Everybody thinks that communication has got to be two sided. I spend 5 hours to convince [the student] that communication is one sided. When you drive in your car and there is noise, the car has transmitted information. A dog is barking like crazy – here is one-sided communication. Communication is anything you take out of your mouth. A telephone is intensive communication – it works with more senses, versus a newspaper – less intensive.* Kent

Kent's definition differs from the four before it, even Rice's, insofar as it views communication as a one-sided process. This approach will be later discussed in detail, but first follows a discussion on students' definitions.

Students

In addition to the previous definitions by the university's staff, overall sixteen students offered their definition of communication. These were

classified according to the themes in each definition. The major themes that emerged from the students' definitions were 'information', 'purpose of communication', 'feedback', 'non-verbal communication', 'understanding', 'communication channels' and 'interrelationships'. Since some of the definitions included two themes, the following Venn diagram was created to show the relationships between these themes in students' definitions:

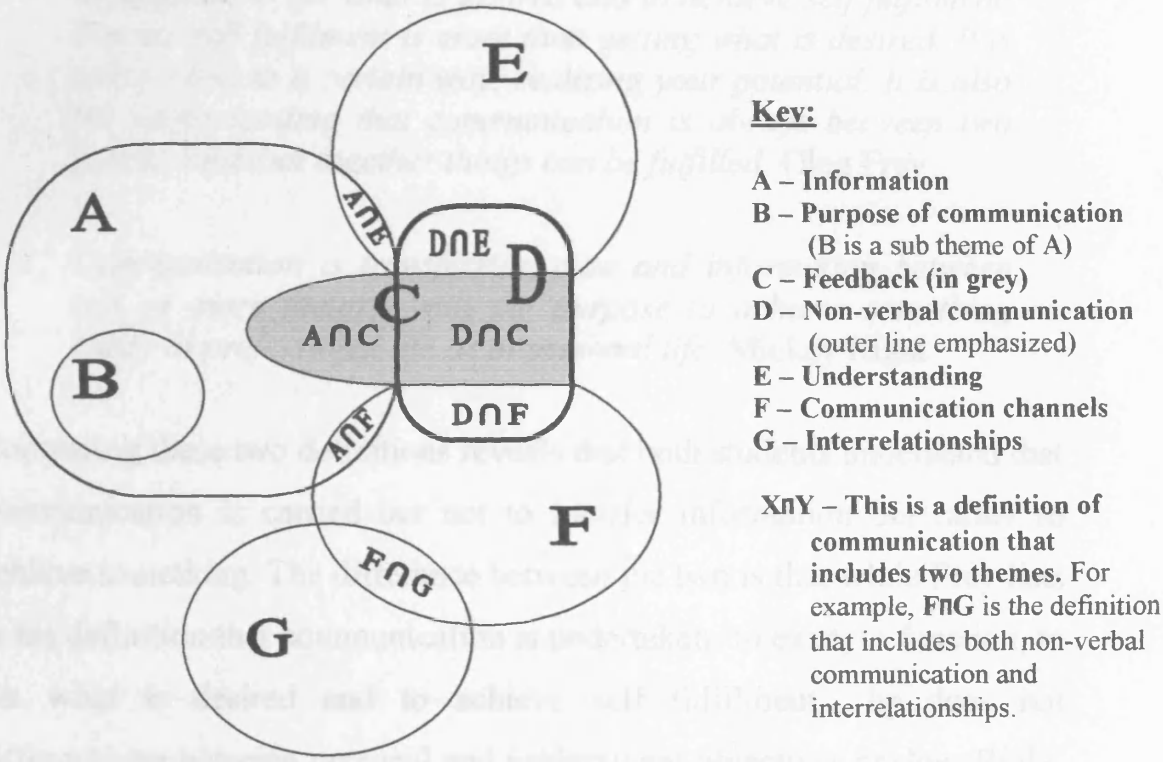


Figure 5.1: Venn Diagram of Students' Definitions of Communication

The most reoccurring theme was 'information'. Eight of the sixteen students defined communication as the transferral of information, as does the definition below:

> *Communication is the transferral of information whether in private or in public. It includes also the transferral of information between departments.* Lea Black

However, there are differences in the definitions in this subcategory. For example the definition above only expresses that information is transferred in communication but it does not address the objective of this transferral. Only the following two definitions noted why information is transferred, i.e. the 'purpose of communication' (which thus may be considered another theme or sub theme):

> *Communication is the transfer of information in order to exist, to function, to get what is desired and to achieve self fulfilment. For me self fulfilment is more than getting what is desired. It is also feeling in a certain way, realizing your potential. It is also the understanding that communication is always between two people, and that together things can be fulfilled.* Oleg Frey

> *Communication is transferring data and information between two or more factors, with the purpose to achieve something either in professional life or in personal life.* Mickey Right

Comparing these two definitions reveals that both students understand that communication is carried out not to transfer information but rather to achieve something. The difference between the two is that while Frey lists in his definition that communication is undertaken 'to exist, to function, to get what is desired and to achieve self fulfilment', he does not differentiates between personal and professional objectives as does Right. However, neither of these two definitions addresses the theme of 'feedback' in the transferral of information as do the next three definitions in this subcategory:

> *Communication in my eyes is the ability to clarify, among people, a message and to receive a reaction/feedback where information flows continuously without interruptions. This includes communication among the students, the lecturers and the management.* Shelly Storm

> *Communication is a system of transferring data or information, messages, receiving feedback, instructions, between people, between the individual and the public and vice versa.*
>
> Ishmael Gold

> *Communication is the ability to transfer information from one destination to another, including a conversation between people: one talks, the other hears and responds, up to an "Internet chat", [which is] "blind" correspondence to different destinations.* Leonid Wharton

Comparing and contrasting these three definitions brings to light that while in the first two the word 'feedback' was noted directly, in the third definition by Wharton feedback is implied without using the word directly. Rather Wharton describes communication as a two-way process that includes feedback by commenting that 'one talks, the other hears and responds'. (It is important to note that another definition, May East's, also included feedback, but since it did not address information in communication it is not part of this subcategory and will thus be returned to later.) Nevertheless, Wharton definition also states that in an Internet chat communication is a one-way process with no feedback. This view that communication may be a one-way process or a two-way process in the transferral of information is noted directly in the definition below:

> *Communication for me is transferring information in one-way or two-way between people.* Isaac Newborn

However, this definition of communication does not describe the process as did the previous definition by Wharton, or as does the following definition:

> *Communication is the ability to transfer a message/information from one place (one person) to another place (the other person) when the receiver of information (the message) decodes and understands it. The difference between messages and information is that messages are announcements, such as on*

> *this day the lecturer will not be present, and real information is what the essence of the course is, what is in it, what will be taught!* Milton Keynes

Keynes's definition, in a similar way to Wharton's definition, describes the one-way process of communication between people but without including feedback. It does however add something new (which none of the seven definitions before have done) that communication includes understanding of the sent information. Therefore, Keynes's definition is not only a part of the first theme of 'information', but it is also part of the second theme in the students' definitions: 'understanding'. There were three other definitions that addressed understanding:

> *Communication is personal communication, understanding and listing to one another, matching language, [and] the possibility to contact one another through a number of ways such as conversation, email, [or] fax.* Helen Hunter

> *Communication is personal communication between two or more people. It is a conversation between people. It is how people communicate with one another, understanding, listening and so on.* Judith Bird

> *The word communication in my opinion is a collection of symbols that allow understanding and a collection of agreed data between human beings.* Eddy Gator

Contrasting these three definitions reveals that the first two definitions do not address the subject of symbols in communication as does Gator's definition. In this Gator is implying that communication may be carried out not only in a verbal manner but also by non-verbal means such as body language. Therefore, Gator's definition is also a part of the next theme in the students' definitions: 'non-verbal communication'. Two other definitions addressed this:

> *Communication is some type of feedback in a conversation or in creating contact whether verbally or not.* May East

> *Communication between people includes language, body language, media and Internet.* Amy Poor

One difference between these two definitions is that East's includes the theme of 'feedback' while Poor's does not. Another difference is that Poor's definition considers possible communication channels including the media and Internet which East's definition does not. In this Poor's definition is also a part of the next theme of 'communication channels'. The existence of different channels was also noted in Wharton's definition earlier which included the Internet as one channel of communication. The two other definitions on this theme are the following:

> *Communication is first of all between people, and then there is computer communication, book communication, newspaper communication – communication with the world – what is happening all over [the world].* Boris Livingstone

> *Communication is the interrelationships between two or more in a medium. There is often noise in this medium.* Joey Rich

Contrasting these two definitions reveals that while Livingstone's definition lists several communication channels, Rich only says that communication occurs in a media without specifying in which. However, Rich does add that communication is 'interrelationships', a theme which Daphne Richardson's definition also addresses, albeit indirectly:

> *Communication is between cultures, taking place between man and the world. It is to know how to interconnect with the environment. You are in some sort of work environment that you work with them and [communication] is how to connect with people in talking, in knowledge and so on.*

Since Richardson's definition is the remaining one in the students' category, the next section will compare the definitions between categories.

Comparing definitions between categories

The following subsection will compare and contrast definitions of communication between categories of respondent. To achieve this, first of all a typology entitled 'Objective-oriented vs. Relationship-oriented Communication' is presented. Although it is possible from this research to identify a variety of different dimensions of difference that could have be used to construct a number of more or less plausible typologies, this would have to be the subject of a much more comprehensive study. Therefore, it was decided to focus on the typology most relevant and central to this study. Since it was argued in the literature review (see page 36) that relationships between people are part of communication, even if none of them has any intention of transmitting anything, it was necessary to compare objective-oriented definitions of communication to relationship-oriented ones.

Secondly, the influence of current position on defining communication will be discussed. This will set the stage for the subsequent part of this section on communication, where on the basis of these analysed definitions and on integration with the definition developed in the literature review, an attempt will be made to produce a new theoretical definition of the term 'communication'.

<u>Objective-oriented vs. relationship-oriented communication</u> – The following typology (Figure 5.2) describes two themes that emerged from the interviews, communication as a means to achieve objectives and communication in building relationships.

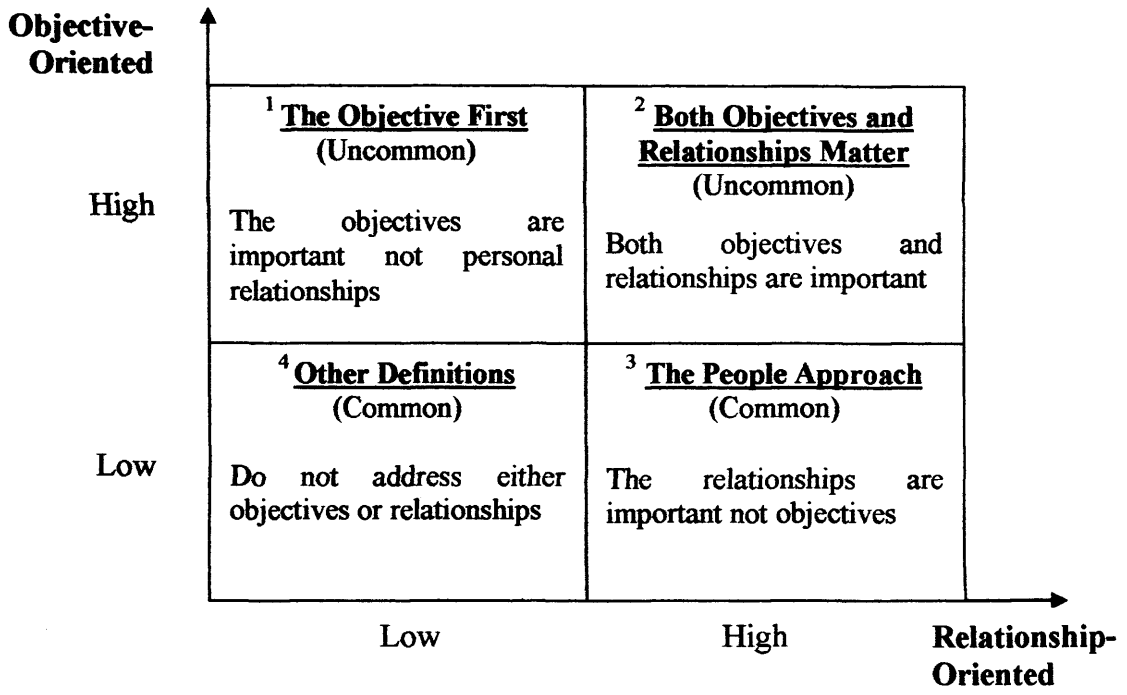


Figure 5.2: Typology of Objective-oriented vs. Relationship-oriented Communication

In quadrant 1, labelled 'The Objective First', there were only four definitions overall, of which three were from employees past and present of Business University: Dr. O'Henry, Marcus and Dr. Rogers. The first two, the senior managers past and present, noted directly that communication is a way to achieve organizational objectives, while Dr. Rogers, a middle level manager, commented on this indirectly by saying that communication is necessary for the existence of an organization, which is definitely an objective of almost any organization. In addition, only one student, Right, who works as a manager in a high-tech company, fits into this quadrant since he noted that communication takes place 'with the purpose to achieve something'.

Quadrant 2, entitled 'Both Objectives and Relationships Matter', also included a total of only four definitions. One definition offered by Sam Ford, the Academic Manager, one by Eva River, the Deputy-marketing

Manager, one by Anderson, an Academic Consultant and another by Frey, a student. Sam Ford's definition emphasizes several types of objectives and thus tends more to objectives than relationships. However, since he also added 'positive motivation' it reveals his understanding of relationships in achieving organizational goals. Eva River noted, in the first sentence of her definition, that 'communication is a common interest that creates collaboration that satisfies both sides'. The word 'interest' could be replaced by objective, while the word 'collaboration' could be changed for 'relationship'. Anderson commented in his definition that 'there has to be relative clarity in order to assist one another, for mutual support'. In 'clarity' he is referring to the organization's objectives that must be clear, while in 'mutual support' he is implying the need for a relationship. Frey, by saying in his definition 'to get what is desired and to achieve self fulfilment', is confirming the importance of objectives. In the last sentence of his definition, Frey demonstrates the importance of relationships by emphasizing 'understanding' and also 'that together things can be fulfilled'.

Quadrant 3, labelled 'The People Approach', included fourteen definitions overall of which twelve were employees of Business University and two were the students Joey Rich and Boris Livingstone who emphasized relationship (or interrelationship) in the previous subsection. The twelve employees that stressed the importance of relationship in their definitions were Dr. Ellis, the Academic Coordinator, Mary Ford, the Administrative Manager, Daft, the Deputy Administrative Manager, three secretaries, Davis, Robinson and Byers, Miller, one of the system managers, Gray, the Head Caretaker, Newman, a librarian and three lecturers, Porter, Cash and Rice. Quadrant 4, entitled 'Other Definitions', included the remaining twenty-two definitions of which eight were by employees of Business

University and fourteen by students. Since these definitions did not emphasize either objectives or relationships, it was necessary to attempt other comparisons of the interviewees' definitions to understand why neither objectives nor relationships were addressed in some of them.

Examining the various definitions, it was discovered that almost 63% (17 out of 27) of the employees past and present of Business University defined the term in relation to their current post. In addition, 37.5% (6 out of 16) of the students defined communication either in relation to their current job (4 students) or in relation to their student status (2 students). For example, Dr. O'Henry defined communication in the context of what he used to be responsible for: student enrolment (see page 200). Garrison also related his definition to something from his past organizational experience of working as a lecturer (see pages 215-216). Furthermore, both Marcus and Wilkins defined the term 'communication' in relation to their current position in the organization (see pages 232-233). Indeed, some members simply defined communication in terms of only what they do:

> *Communication is between me and the lecturer, me and the student and me and my roommate.* Pelton, Secretary

> *For me communication is first of all treating the readers. That is to say, how I am in contact with every one of the readers in the library. And I really am in contact with everyone!*
> Newman, Librarian

Others used it to stress the importance of their job:

> *Today, a distinction between organization communication and communication technology cannot be made. Communication is communication technology.* Hall, System Manager

Four students also defined communication in context of their work. Below is one example of this:

> *Communication is a system of transferring data or information, messages, receiving feedback, instructions, between people, between the individual and the public and vice versa.* Gold

Since in his interview Gold told that he manages nearly 40 people, it becomes clear why 'instructions' for him are part of communication. Therefore, all these definitions illustrate that the position held by a person directly influences how he or she perceives communication. Sam Ford's definition directly made this link between a person's responsibilities in the organization and communication (see page 296). This link should not be surprising since a person's position influences both the work objectives and the work relationships. In this it would seem that although many did not address objectives and relationships directly in defining communication, they were actually doing this indirectly through their position. Thus, developing a definition for communication requires addressing the position of a person in an organization. However, producing such a new definition necessitates not only the insights from the research at Business University, but also addressing materials on this subject found earlier in the literature review chapter.

Defining communication

In this subsection an attempt will be made to produce a definition of communication that unites the insights on communication from the research at Business University with the relevant information from the literature review chapter. To achieve this, first of all the definition that was developed in the literature review is presented again. Secondly, this definition is examined and compared to evidence collected at the

university as well as other materials from the literature review. Thirdly, a definition that unites the empirical evidence with the review of the literature will be produced.

Therefore, the following definition of communication, which was developed in the literature review chapter (page 33) on the basis of examining other offered definitions by various researchers, is recalled:

- Communication is a social two-way process through which information (such as facts, ideas, feelings and values) is transferred by any means, whether interpersonal or mechanical, between at least two people: a sender and a receiver. Although the goal of sender is to have the receiver understand the message as it was sent - and indeed such effective communication prevents misunderstandings - **communication is what the receiver actually understands**, not what was sent.

By reviewing this definition it is revealed that communication in it is considered a two-way process. Several interviewees agreed with this view. For example, since Porter's definition (see page 304) includes the term feedback, she is agreeing that communication is a two-way process. She also addresses the term 'misunderstandings', as does the definition in the literature review, but adds that it should be managed. In this she is implying that as two people when communicating may or may not understand each other, it is important to see that the meaning they put on communication is similar otherwise there will be misunderstandings. In the literature review on page 42, this was stated clearly: 'communication involves shared meanings'. As suggested by the interpretive and transactional nature of communication, correct meanings are not just 'out there' to be found. Therefore, as people participate in the ordinary and

everyday activities, which form the context for common interpretations, they invent or create meanings, including the meanings that were put at Business University on communication technologies.

However, not all selected participants in this study agree with this view that communication always involves both sides. Rice (see pages 304-305) argues that for effective communication to take place, feedback is not necessary. Indeed, this is something that Kent, another lecturer also believes, but expressed in a much more flamboyant style (see page 305 for the full quote):

> *Everybody thinks that communication has got to be two sided. I spend 5 hours to convince that communication is one sided. When you drive in your car and there is noise, the car has transmitted information. A dog is barking like crazy – here is one-sided communication.*

This is a unique approach to communication from an educated man, stating as did Rice, that communication may be one-way. The example of the dog is unique and may seem like one-way communication, but it is not. For example, if a person is in his or her house and hears a dog 'barking outside like crazy' to quote Kent, he or she may conclude that there is a thief, whereas the dog is simply hungry. This demonstrates that such communication is a two-way process, where it is what the receiver actually understood from the dog, not what was sent. Although it is true that communication in such a case was not between two human beings, it was nonetheless between two parties.

Kent would argue with this and would probably return to the example of the car, which is not even a leaving organism. However, communication here is also a two-way process, depending on what was understood by the

person, the driver. For example, if the noise is due to a plastic bag that was caught under the wheel, but sounds like a mechanical problem to the driver, demonstrating that communication is still what the receiver actually understood. Furthermore, in the long-run if the car does have problems, it is then offering the information that there may be problems with the manufacturer, and thus asynchronous communication took place between the driver and the manufacturer.

Kent also argued that 'communication is anything you take out of your mouth' (see page 305). Although this is true, it is important to remember the argument put forth by Salomon (1996) that communication can take place even when no one meant to transmit anything (see page 35). In this, Salomon is insinuating that a lack of action could also send a message in an unintentional manner. Therefore, in Kent's example, a person on the other side of the telephone who was asked a question (such as 'I'm going to be late again, is it okay?') and doesn't take a word out of his or her mouth is still saying something (since silence may translate to mean 'I'm too angry right now to answer'). In addition, it was shown in the literature review (page 40) that communication involves symbols, which are not only words or actions, but objects as well. It is important to bear in mind that a new computer on someone's desk, for example, is also sending a message. Therefore, communication must be regarded as a two-way process.

However, before a final definition of communication is attempted, it is worthwhile to recall Cash's definition (see page 304 for full quote). This definition, while agreeing with the two-way process of communicating, also brought something new to the table in its last sentence: 'it is important that the message will pass in a pleasant fashion'. This is not a

trivial sentence. It is implying that organizational communication must take the long-term view. For example, two members can communicate in a two-way process, understand each other perfectly, but due to one or both sides being unpleasant, a personal conflict may result which could damage organizational communication in the long-run.

Such a situation, although it is not the main focus of the research, was revealed in an opportunistic observation to which a secretary and this researcher were witnesses. Mary Ford, the administrative manager, had an exchange of harsh words with Dr. Rogers, the Dean, on the hours when Dr. Rogers should receive students. Mary Ford wanted to build Business University's time schedule as she saw fit including the reception hours of various role holders. Dr. Rogers objected to this and wanted to meet with students when he decided to. The two understood each other perfectly, but there was permanent damage to their working relationship. Keeping this long-term view in mind, the following new definition is offered, resulting from a union of a definition developed in literature review chapter by synthesizing the definitions of various authors (on page 33) with the findings of the author's research at Business University:

- Organizational communication is a social and professional two-way long-term process, influenced by the position in the organization of those participating in it, through which information (such as facts, ideas, feelings and values) is transferred by any means, whether interpersonal, mechanical or even objects that carry symbols, between at least two people: a sender and a receiver. Although the goal of sender is to have the receiver understand the message as it was sent - and indeed such effective communication prevents misunderstandings - **communication is what the receiver actually understands**, not what was sent.

This account of communication, building on the one developed in the literature review chapter, added several new things to its preceding definition, due to the information discovered in the case study at Business University, such as the major themes in students' definitions. First of all it added that organizational communication is not only social but also professional, thereby implying the importance of an organization's objectives in communication. The social aspect was not dropped because any meeting between people involves social relationships at some level or other. Secondly, this new definition stressed that the process of organizational communication is a long-term one. This is implying that 'message will pass in a pleasant fashion' as Cash recommended. Thirdly, since the research at the university discovered the importance of the organizational position in defining communication, the definition recognizes that the position of participants engaged in communicating influences their perceptions of communication. Lastly, in addition to interpersonal or mechanical means, symbols, such as objects, were added to the communication process. Mechanical means of communication include both traditional methods of communicating, such as a fax, as well as modern communication technology, such as videoconferencing. Consequently, the next section of this chapter will discuss what can be learnt from the research when compared to the literature review in the context of communication technology.

COMMUNICATION TECHNOLOGY

This section of the discussion chapter will examine the different perceptions and attitudes that the interviewees had regarding communication technology, including its relation to information technology and information systems. As stated at the beginning of the chapter, when interviewed, participants were not required directly to define communication technology, but rather asked what types of organizational communication technologies exist at the university and which ones they use themselves in their current position or at home. This made it possible to see how interviewees categorize which technologies fall under the term 'communication technology' and which do not, and thus how they actually define the term. Once their definitions of communication technology were understood, it was possible to compare these definitions to the terms in the literature review chapter, especially to ICT (information and communication technologies), in order to seek a new definition to communication technology that integrates what was previously reviewed in the literature to what was found during the study at Business University.

Perceptions of Communication Technology

What follows are some examples of responses from various selected members on how they perceive what is communication technology by answering the following questions in their interviews (see Appendix C - General Interview Schedule):

What types of organizational communication technologies exist in the organization? Which communication technologies do you use today at your current position?

Another question that was asked in order to get a better understanding of the technological background of the interviewee which is relevant here: **Which communication technologies do you use at home?**

Here are some examples and their meanings:

> *There are a lot of different kinds [of communication technologies]. I use the cellular phone. Secretaries and clerks call me, and management too but a lot less... I have a computer at home but I don't use it because I don't have the time. My son uses it.* Gray

One possible explanation regarding why Gray perceives the cellular phone as modern communication technology could be due to all the novel possibilities that it now has, including computer games, sending emails and even surfing the web. However, an alternative explanation is that he doesn't know how to use the computer, as he hinted when he said he had one at home but did not use it. In stating this he also demonstrates that for him communication technology and computers are linked. A similar situation can be found in the following comment from Dr. O'Henry:

> *Well, I currently work more at home and therefore the things I use are only the things I said earlier: cellular phone and fax. If I already needed something from the computer, I would ask my secretary, and at home I ask my wife.*

He too does not differentiate between traditional communication technologies such as the fax to more modern technologies, though he is aware, in a very similar way to Gray, that communication technology is related to the computer.

This is something that Bill River, the marketing manager also believes:

> *There are computers, faxes and emails here. I use the email a little bit. A little bit the cellular phone. Most of my meetings are face-to-face ones. Most of my communication is traditional. As I said face-to-face, both with my employees and also with the management. We have an Excel that helps us in managing the lists of students, but that is only on the computer.*

The different factor here when compared to the initial two examples is that he added Excel, a computer program, as a type of communication technology. It would seem that Excel has nothing to do with communication technology and it is more of an information system. However, it is possible to communicate even using an Excel sheet, such as the one collected during the interview of Byers, a secretary at the university. This Excel sheet was a document of lecturers' attendance record, listing all the times each lecturer was absent as well as who the substitute lecturer was. This document was constructed for Marcus, so he could know which lecturer was not doing what he or she was supposed to be doing. Therefore, the Excel page was on one hand an information system and on the other hand a communication tool, communicating asynchronously to Marcus what is happening at the university. In this it seems that communication technology and information technology or information systems are intertwined. The connection between these terms is further seen in the following example:

> *To my regret, I almost do not use at all the communication technologies [available] here [at Business University]. There are no methodological means. There are not any administrative aids available for the lecturer. I know that there is an Internet site to put in grades. Does it work? No! At home at an Israeli university I put the grades into the computer. The students see [the grades] 4 minutes after I wrote them. They don't need the office there. They fill in from home a password and a username. My password is with a wider authorization. This is very simple technically. It is troublesome that here this is not executed. Technologically to write it would be a matter of two hours. The*

> *necessary numbers already exist in the system. All that is needed is a system and diary.* Kent

Kent is storing grades on an information system, but these grades are communicated to students and thus communication technology is involved. For the students themselves, the distinction between communication technology and information systems is not clear, as demonstrated by the following:

> *The Internet in the library is definitely in use. It is also desired to add more computers and move to the fast Internet. This will save a lot of time for the university and maybe it will be possible to add fewer [computer work-] stations. It could save money... I use the Internet also at home but only once every so often. I just don't have the time, and I have enough of computers at work.*
>
> Frey, student

Frey is clearly relating modern communication technology to computers as have done other interviewees:

> *Which technologies do we use in the organization? Internet – although in the past I used it more. There is a lack of computers and it is usually full in the library during break hours. It is worthwhile to add more [computer work-] stations. I also use the television/video and room 9 [in which there is a computer with a projector for PowerPoint on a fixed basis]... [TV] For videoconference, you know... Which technology do we use at home?*
>
> - *I use the computer – [Microsoft] Office and Internet – surfing and emails.*
> - *Faxes.*
> - *Telephones.* Storm, Student

This is very similar to others interviewed, although she elaborated a bit more and added something no one else had until this point: videoconferencing. These issues were again noted by the following student:

> *I do not use the technologies found at the university, except the video...I mean the studies from abroad using the video. You know, videoconference... Communication which I use at home is in the computer, and using the Internet to surf in the little free time I've got.* Gold

A possible explanation for this is that he almost does not use technology at the university except when he has no choice and he has to take a videoconference class. Another contending explanation is that communication technology is not giving him the service he expected to get at the university. However, he too does not differentiate between communication technologies to computers. This must be addressed when defining again communication technology.

To build such a definition, it is necessary to go back to the related discussion in the literature review chapter (pages 85-90), when defining communication technology. The following definition of communication technology was proposed for this research project (see page 91):

- Communication technology is any mechanical means, including computer-mediated communications, which are mainly used to support formal and informal organizational communication but, being an integral part of information technology, are also used to support the formal information system.

This definition was based on a Figure 2.21 (see page 88) that was created in order to set out the differences and relationships among organizational communication, communication technology, information systems and information technology. In this diagram (presented again on the next page for the convenience of the reader), the organization was put at the top, in order to emphasize that everything should support in achieving an

organization's goals. Management was placed under it because it is also a supporting activity. Management was also put at the top, since it has a central effect on organizational communication and information systems, just by allocating funds to technology, as was the case at Business University. In the diagram there is an overlap (in light grey) between organizational communication and the information system. This is to show that the system of organizational communication cannot be separated from the information system, since communication is intertwined with information:

Figure 5.3: Organizational Communication and Information Systems
(Originally Figure 2.21 in literature review, page 88)

It is important to note that organizational communication and information systems complete one another. Information systems sustain organizational communication, just by allowing a written message to be stored on an Excel spreadsheet for lengthy periods of time (as was the case in Byers' Excel on lecturers' attendance), before it is passed on to the intended receiver (Marcus in Byer's case). Therefore, in order both to demonstrate this and to show the interconnection between communication technology and information technology - which created the term ICT (see pages 89-90) - the overlap of the two in the diagram was created (and marked in

dark grey). This overlap was put directly under the overlap between organizational communication and the information system, since it illustrates the fact that communication technology could also support the information system and not just organizational communication. In the same manner, it shows that information technology could aid in organizational communication, even of the informal kind. This overlap between communication technology and information technology was also specifically important in the context of the study at Business University, since it accentuated that there is no clear line in-between communication technology and information technology, several aspects of information technology could not (and were not) ignored during the research itself on communication technology at Business University. Indeed, reviewing the last several quotes in this section illustrates that communication technology and information technology are intertwined.

Consequently, since the definition on page 91 of the literature review took into account these issues, it remains relevant and needs no updating. However, there is a problem with the model on which it is based. The model is not a wrong one, but rather is a complicated one. According to Neuman (1997), a principle of good theory building is parsimony, which means 'simpler is better' (p. 37). Parsimony is known as "Occam's Razor" because of 14th century philosopher ,William of Occam, who 'said that explanatory principles (entities) should not be needlessly multiplied' (Cohen, Manion and Morrison, 2000, p. 12). This means that 'a parsimonious theory has minimal complexity, with no redundant or excess elements' (Neuman, 1997, p. 37). Therefore, it was necessary to simplify the model, resulting in the following new model that is based on the model in the literature review:

Figure 5.4: Information and Communication Systems

This model, although similar to the one outlined in the previous pages, is first of all simpler. However, it also introduces a new term: ICS or information and communication systems. In this it is stating that organizational communication and information systems are interconnected, much the same as communication technology and information technology, which resulted in ICT. This new model is also adding the informal communication of organizational communication to information systems. This is not a small thing since it implies that the fields of organizational communication and information systems should be united into one. There are organizational consultants that take an information system program, specializing in both, but the term ICS does not appear to exist in this context and it should if ICT exists. When the term ICS has been encountered (for example in Information & Communication Systems, 2003), the C usually means telecommunications and not organizational communication that includes informal aspects. Therefore, such a concept creates change that affects an organization, as will be discussed in the subsequent section of this chapter accordingly entitled 'Organizational Effects of Communication Technology'.

ORGANIZATIONAL EFFECTS OF COMMUNICATION TECHNOLOGY

In this section on the organizational effects of communication technology, first the various models of media selection (i.e. the media richness model, the theory of electronic propinquity, the social information processing model and the dual-capacity model) are examined to see which describes best the evidence collected at Business University. Then, the framework in the previous chapter (see pages 268-279) that was used to describe the twelve effects of communication technology on organizational communication will be compared and contrasted to what was found in the literature review. This will be followed by a discussion on the additional effects that were discovered at Business University and also presented in the findings chapter (see pages 279-283). Then, a discussion on computer/information literacy will follow with alternative explanations being offered using typologies. In the last part of this chapter, senior management's positive and negative actions will be discussed, which will lay the foundation for building an implementation model of communication technology in the conclusions and recommendations chapter.

Models of Media Selection

The first model to be appraised in the context of the findings at Business University is **the media richness model** (presented in detail in the literature review, pages 93-96). In this model it is explained that communication choices are influenced by ambiguity, which 'refers to the existence of conflicting and multiple interpretations of an issue' (Miller, 1999, p. 280). In order to rank communication channels on the basis of

ambiguity, Robbins (1993, p. 337) offers the following hierarchy of channel richness:

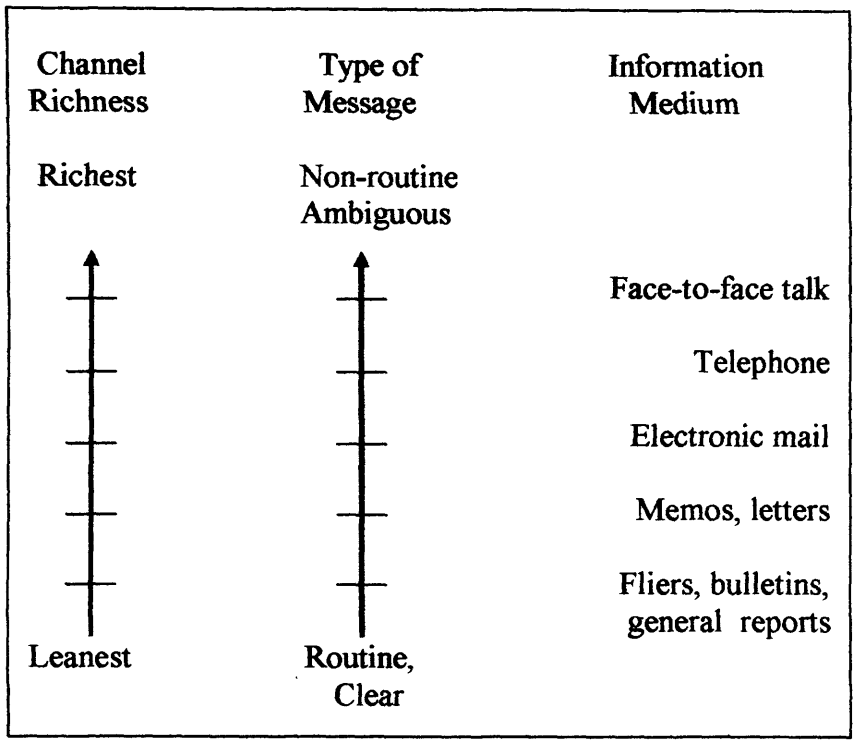


Figure 5.5: Hierarchy of Channel Richness
(Originally Figure 2.22 in literature review, page 94)

Robbins (1993) explains that face-to-face scores the highest because it supplies the maximal information in a communication transmission. Also, research has shown that face-to-face channels are preferred over other communication channels in conflict management and resolution (Hartnett, 1983; Newman, 1983). The research at Business University did discover that managers and selected others feel that rich channels, especially face-to-face, are recommended for conflict management and resolution. Overall 81.5% (22 of 27) of past and present employees said that face-to-face is advisable in conflict management. For example, Kent noted:

> *The communication channel that is very informative is face-to-face communication. If you want to tell someone something severe, then only face-to-face communication. A less informative communication channel is the telephone. I would never use it to tell something severe to someone.*

In this Kent is clearly demonstrating that he uses face-to-face communication for conflict management and resolution. Since twenty-two other respondents mirrored Kent's view, it would seem that the media richness model fits the study at Business University. However, in the literature review chapter the media richness model was criticized. It was claimed amongst other things that communication technology may not be so far behind traditional methods in term of its richness since computerized communication is creating complex, fast, reliable channels of communication that allow personal communication that in some aspects can replace face-to-face (Miller and Bar-Haim, 1994).

In addition, several studies have demonstrated that computerized communication can be as profound and intricate as personal contact is (Walther and Burgoon, 1992; Walther, 1993). Neumann (1997) argues that communication technologies, such as an email, often enable easier communication 'with someone across the office, across town, across the country, or even across an ocean, than it may be to communication with a neighbour face-to-face' (p. 347). In the research at Business University, it was found that email could enable easier communication, with even personal aspects, such as the email correspondence between a local lecturer and a manager at the home campus. Therefore, it is concluded that the media richness model may not provide a full explanation of the use of communication technology, as others have also deduced (Fulk, Steinfield, Schmitz, and Power, 1987; El-Shinnawy and Markus, 1997). Consequently, an alternative approach, the theory of electronic propinquity, will be examined next.

The theory of electronic propinquity (see pages 96-98) examines how nearness in physical space influences people's communication patterns (Neumann, 1997). Therefore, according to Newcomb (1956), in its extreme form, the proposition of propinquity may be interpreted as follows: 'other things equal, people are most likely to be attracted to those in closest contact with them', (p. 575). However, the study at Business University discovered that although communication is indeed affected by physical closeness (such as an informal conversation between two secretaries sitting by each other), physical closeness is chosen when people want to communicate. For example, the spatial map on page 225 in the findings chapter reveals that Margaret Davidson's place allowed her to monitor almost every thing that was going on at Business University. She planned physical closeness in order to communicate.

The planning of physical closeness can be also witnessed by the window between the two rooms (see page 264) that was created at the request of Holmes, the administrative manager during the early days of the new regime. She did this to be able to see Smith, her deputy administrative manager, which is also a form of communication. Adler, the manager after Holmes and before Mary Ford, added drapes, so she would not see Smith (who was then still the deputy). This also shows her closed style of communication although she was physically close to Smith, which is opposed to Mary Ford's (who pulled down the drapes to see her deputy, Daft).

The theory of electronic propinquity was also adapted to communication technology. Neumann (1997) claimed that:

> *With increased electronic communication our closest communication partners are no longer our neighbours or office mates, rather, they*

> *are those people on the other end of the telephone, videoconference, or Internet. The factor of physical closeness is replaced with technological closeness. But it would be short-sighted to assert that relationships and friendships develop in the same manner via e-mail and face-to-face communication. Electronic propinquity examines the bandwidth of communication technologies as important factors in relationship development. The larger the bandwidth, the more communication cues available. All other factors being equal, channels that supply more cues are more likely to foster interpersonal attraction and relationship growth.* (P. 347)

For example, in communication channels where there is greater nonverbal capacity, participants have generally more favourable perceptions of each other (Kiesler, Siegel, and McGuire, 1984; Kiesler, Zubrow, Moses, and Geller, 1985). However, the research at Business University showed the opposite can also be true, since in some instances communication channels with lesser nonverbal capacity (such as email) were held in a much more favourable perception than communication channels with higher nonverbal capacity (such as videoconferencing, which received negative feedback from both lecturers and students). One explanation for this could be that the members at the university know how to use email effectively and thus have a positive view of it, while they do not know how to utilize videoconferencing, and hence have a negative perception of it.

However, a contending explanation may be that each communication technology is compared to the alternative traditional communication channel that would otherwise be used. An email would be compared to regular mail (i.e. snail mail) or a fax, and if it is faster than its alternatives, it would be perceived favourably and if not it would be viewed unfavourably. For example, as Davis, a secretary, or Dr. Ellis, the academic coordinator, received an immediate response by email from the

home campus, they have a favourable attitude towards email communication. The students, who have complained that it takes a long time to a lecturer from the home campus to answer their emails, have a negative attitude towards email communication. This is also true of videoconferencing, which is compared to lecturing in the classroom face-to-face and in Hebrew, and thus is viewed unfavourably, although it is a communication channel with higher nonverbal capacity than an email. As such, another model of media selection should be considered in light of the findings from the research at Business University, which takes into consideration attitudes towards communication technology.

According to Miller (1999), **the social information processing model** (which was introduced in the literature review on pages 98-99) explains that social information can not only influence perceived media characteristics or perceived task requirements, but this communicative interaction can also directly effect attitudes toward the communications media and media use behaviour. According to Miller (1999), the social approach sees the use of a communication technology as a complex function including: (1) the objective characteristics of the task and media, (2) past experience and knowledge, (3) individual differences, and (4) social information. In order to compare this model to the media richness model, Miller (1999) gives the example of an organization that has just introduced an electronic mail system, to be used for internal organizational communication:

> *A media richness approach would suggest that this communication channel will be used whenever it provides a proper "match" for the ambiguity of the communicative task. However, a social information processing approach suggests that an individual's use of electronic mail will also be influenced by interaction with others in the organization.* (P. 283)

In this Miller (1999) argues that the perceptions of the various members regarding communication technology will influence the other members' actual use of the technology. However, at Business University it was discovered that there are major differences in the way members perceive communication technology, and thus it is not clear who is influencing who. This makes use of the model problematic. Furthermore, it was argued in the literature review that this model is not that different from the media richness model for 'the model shows the objective characteristics of task and media (i.e., task ambiguity and media richness) as influencing media use, it can be seen as an extension of the media richness theory' (Miller, 1999, p. 283). Therefore, another model that aids in explaining media selection at the university is necessary.

According to **the dual-capacity model** (presented in the literature review on pages 99-101), communication media are not merely 'rich' or 'lean,' but that any communication medium transmits two kinds of messages: 'data' and 'meaning' through symbols (Sitkin, Sutcliffe, and Barrios-Choplin, 1992). **Data-carrying capacity** is defined as the degree to which a medium is able to effectively and efficiently convey task-relevant data (Sitkin et al., 1992). Data-carrying capacity is parallel to media richness and Sitkin et al. (1992, p. 566) stress that the data-carrying capacity of a medium is relatively constant across organizations. For example, email will have similar data-carrying capacity in various organizational environments. **Symbol-carrying capacity** suggests that organizational media, such as communication technologies, have the ability to convey meaning (Sitkin et al., 1992). According to Miller (1999) this includes two types of meanings: organizational culture and organizational status. This argument that the choice of communication channel is dependent on

both the data-carrying capacity and the symbol-carrying capacity can also be inferred from the following comments on email:

> *Electronic mail is said to give cheap, immediate communications, at once leveling barriers and reaching straight to the desk of the recipient. You don't risk missing a message because of a busy signal or a slow post office. Yet I find e-mail to be often undependable and annoying to access; it's usually impersonal and boring.* (Stoll, 1995, p. 17)

The research at the Business University did reveal that an email is indeed regarded as impersonal and as a result there is still substantial use of a letter as a more personal means of communication. For example, when Dr. Ellis finished his role as the academic coordinator and retired, he chose to leave each lecturer a general letter addressed to all and not to send an email that would have been read sooner, but is also less personal. Therefore, it could be concluded that from the four models, the dual-capacity model fits best in describing how individuals at Business University select their communication channels. The next subsection will discuss the effects of communication technology on these channels.

The Effects of Communication Technology on Communication

This subsection will discuss the effects of communication technology on organizational communication. The discussion is first of all based on the evidence collected at Business University regarding these effects, which was fully presented in the findings chapter (see pages 268-283). Consequently, the structure of this subsection will be divided into two parts in a similar manner to the division in the subsection on these effects in the findings chapter. The first part, entitled 'The Twelve Effects of Communication Technology', will deliberate on these effects within a

framework created in the previous chapter (see pages 268-269). The second part, labelled 'Additional Effects of Communication Technology', will review other effects that emerged by analysing the evidence collected at Business University but that were not included in the twelve effects suggested by the framework earlier.

It is important to note that this subsection does not intend to rehearse materials from the previous chapter on the effects of communication technology on communication. Thus, it will only include a brief summary of each effect which was presented in detail the previous chapter. Furthermore, unlike the findings chapter, each effect will not only be compared and contrasted to the relevant materials from the literature review, but also for each effect possible explanations will be suggested on the reasons why the evidence either supports or not these materials. Finally, concluding remarks on the effects of communication technology on communication will lead to the next subsection on the subject of computer/information illiteracy.

The Twelve Effects of Communication Technology

Each of the twelve effects of communication technology on organizational communication (presented in detail on pages 268-279) will be discussed next, starting with 'Speed'.

1. Speed

Miller (1999) argues that communication technology enables message transmission that is faster than transmission by traditional communication

media. The research did discover that in some cases at Business University communication technologies (such as email) allowed message transmission that is faster than transmission by traditional communication media (mail or fax). However, in other cases, the exact opposite was discovered, where the use of email resulted in the slower transmission of messages. One reason could be that the emails did not arrive. Although this is possible in some cases, it is improbable that this is the cause of all the slow transmission of messages at the university. Another reason for this is that, in the end, communication is between people, even when carried out by communication technology. For example, once a person receives an email he or she can decide whether to respond or not. Although the email itself is fast and can cover large distances, if a person chooses not to answer, then the ability of technology is not relevant.

2. Distance

According to Miller (1999), communication technology allows communication among geographically dispersed participants. At Business University communication technologies (such as email or videoconferencing) were found to allow communication among geographically dispersed participants, mainly used in communicating with the home campus. However, it was also found that not all members of Business University use these communication technologies and some secretaries still use the telephone or the fax to transmit messages over long distances. There are several possible causes for this. One is that in some cases as a fax is a legal document while an email is not, a fax must be sent. Another, if the dual-capacity model is adopted, is that a telephone has a data-carrying capacity not available by email and it could also be

considered to more personal in its symbol-carrying capacity. However, the most probable reason is that some of the secretaries simply still do not know how to use Outlook in effective asynchronous communication. (The reasons for their computer/information illiteracy will be discussed later in this chapter.)

3. Asynchronous communication

Miller (1999) maintains that in communication technology asynchronous communication occurs between individuals at different points in time. At the university, with the introduction of email, asynchronous communication did occur in a variety of situations, ranging from correspondence through email by various lecturers and secretaries with the home campus to emails written at night and read in the morning by various participants, even only local ones. However, the research at the university also uncovered that there was a very low level of asynchronous communication between students and lecturers, whether local lecturers or ones from abroad. It seems that most of the local lecturers do not give their emails to the students. Moreover, the asynchronous communication with lecturers from the home campus was not effective. This demonstrates once again that in the end, communication is between people.

4. Addressing messages

Siegel (1999) recommends that managers send a weekly email message since it 'is a reassuring way to keep people informed of the latest developments' (p. 64). Such a message was received with enthusiasm by Pelton, one of the secretaries, but Marcus who would send this update not weekly but in a sporadic fashion. Although this seems like a minor

difference, it is not. By sending a message regularly, members receive information constantly, and are thus more reassured as Siegel (1999) suggests. However, a message that is sporadic may create pressure, since the receiving member is getting only partial inconsistent information.

5. New memory, storage, and retrieval features

According to Miller (1999), communication technology offers new ways to store and retrieve information. At Business University it was found that communication technology did enable the handling of information, such as students' grades, in various ways. However, not all participants are satisfied with current abilities of the communication system to handle information, since it is not computerized online information. One explanation for this is that the computerized communication system is not yet complete. Indeed, the research discovered that communication technology is not yet fully implemented throughout the organization.

6. Cues

Miller (1999) suggests that many new technologies differ in terms of the cues, such as nonverbal communication, that are available in the communication process. The research at Business University revealed that there is some dissatisfaction with videoconferencing since it lacks some of the traditional cues that exist in a face-to-face lecture. For example, in class, since the lecturer is usually standing and moving around, students can see his or her body language. In videoconferencing on the other hand, since the lecturer is sitting down, only the top of his or her body is seen on a screen, and thus less nonverbal information can be picked up by the

students. Nevertheless, it may be argued that at Business University it is not the lack of cues that causes students to be dissatisfied with videoconferencing but rather the fact that the lecturer in the videoconference is from abroad and lecturing in English. However, the fact that the same lecturer was successful when lecturing face-to-face in Israel but failed in videoconferencing, demonstrates that English is not the central problem, but rather it is the lack of cues which harm the core activity of the university: learning.

7. Decrease in face-to-face communication

O'Connell (1988) maintains that due to the growing use of communication technologies, face-to-face communication will decrease. In higher education, according to Lavi (1998), this will result in lack of interactions among students who because of their use of technology will be sitting by themselves isolated from one another and concentrating on their activities. At Business University, evidence was found there was a decrease in face-to-face communication due to existence of communication technology. For example, students use the computers in the library to surf the Internet instead of talking to peers during a break. However, this decrease has not been a substantial one. Most of the participants interviewed, whether employees of Business University or students, reported that face-to-face is essential in certain situations. This is in accordance with the dual-capacity model. Therefore, at the university, face-to-face communication is not likely to disappear.

8. 'Short-circuits' in informal messages

O'Connell (1988) argues that the escalating use of communication technologies will result in more informal messages of the hierarchy to 'short-circuit' and consequently problem solving, based on informal communication, may yield poor decisions created out of deficient data. However, the research at Business University revealed - as did other studies in the literature review (Gibson and Hodgetts, 1991; Kraemer, 1982; Rice and Case, 1983) - that communication technologies did not create 'short-circuits' in informal messages. On the contrary, communication technology increased informal communication between several members and hence improved problem solving. This also confirms that communication technologies cannot be disconnected from informal communication, as Laudon and Laudon have done (see page 72).

9. Impaired decision-making

O'Connell (1988) maintains that as the use communication technologies increases, decision-making will not be improved but rather damaged, due to ambiguity in interpreting information. However, not only were there no indications that communication technologies at Business University resulted in impaired decision-making, but in some cases the opposite was true. For example, reviewing the emails collected at the university reveals that some emails were forwarded to more than one participant, preventing in this fashion ambiguity in interpreting information. Therefore, it may be concluded that communication technology may be used as a tool to improve decision making and even build trust in an organization.

10. A loss of trust

O'Connell (1988) claims that as communication technology replaces traditional face-to-face communication, there will be a decrease in the informal every day contact that aids in developing trust between people. The study at Business University did reveal that there was a loss of trust at the university. One of the reasons for this loss of trust was the low informal every day contact with Marcus, which was partially due to his use of communication technology. However, although several interviewees, such as the lecturers Sally Porter and Danny Kent, clearly expressed a lack of trust towards senior management, the causes for this were not communication technologies. They complained that senior management doesn't listen to them, i.e. that there was insufficient upwards communication, whether formally or informally, at the university. Therefore, although communication technology affects trust, it may not the main reason for either increased or reduced trust. Two-way communication, whether carried out with communication technology or not, formally or informally, is essential in building trust and in improving patience and tolerance for individual styles of communicating.

11. Less patience and tolerance

O'Connell (1988) argues that the increased use of computer-based communication technologies will result in there being 'less patience and tolerance for individual styles of communicating' (p. 481). The research at Business University found that there was less patience and tolerance in the organization for individual styles of communicating which can be partially attributed to communication technology. An example of this

decrease due to technology is a conversation recorded in an opportunistic observation between two lectures that revealed the two have less patience and tolerance for spelling mistakes in written communication. They expect that with technology, such as Microsoft Word software, spelling mistakes should not occur. However, the research at Business University also revealed that is some instances this decrease in patience and tolerance is not caused directly by the existence of communication technology, but rather indirectly due to the lack of use of it. Therefore, the use of communication technology is not the main reason that creates less patience and tolerance for individual styles of communicating, but rather it is the higher expectations people have for improved performance due to communication technology.

12. Increased expectations of employees

O'Connell (1988) maintains that as 'we become accustomed to the speed and accuracy of the computer, we may expect employees to have the same qualities and produce in a similar manner' (p. 481). The research at Business University revealed that there were increased expectations that employees would perform with the speed and accuracy similar to that of the computer. Several secretaries stated that more is demanded of them due to communication technology. However, since the use of technology didn't meet the expectations, the results were disappointments. Dr. Sean Rogers, the Dean, even claimed that although numerous communication technologies were introduced to the university there was not much advancement since the previous management. On one hand, he could be correct and it is possible that communication technologies did not advance Business University that much. On the other hand, he could be simply caught in his own perceptions. After all, if he expected that

communication technology achieve a certain level and it has not, then in his eyes, it has not been successful.

The same is true of the employees who say that their workload has increased due to communication technology. If they expected a certain level of help from communication technology and received less, then they are disappointed. Furthermore, if students have certain expectations of communication technology and these are not met, not only are they disappointed but they may also not recommend the university to their friends, thereby reducing enrolment. This marketing effect of communication technology, which is not a part of the framework, is discussed in the next subsection.

Additional Effects of Communication Technology

This section discusses the other effects of communication technology on organizational communication discovered at Business University. The first effect, entitled 'marketing and technology', is also relevant for the last one discussed in the previous subsection, regarding increased expectations of employees.

a. Marketing and technology

It was discovered in the research at Business University that communication technologies have a marketing effect on students. In other words, it is possible that just the existence of communication technologies in an institution is already transmitting a message to students, affecting their perceptions of the institution. If the students' perceptions of the

institution are positive ones then it is more likely they will recommend it to their friends, thereby increase enrolment to the institution. Thus, the use of communication technologies does not only aid in improving work processes, but it also helps in drawing students to the institution in question. In addition, the success of communication technologies is dependant on internal marketing of these technologies throughout the organization as well as external marketing of them to stakeholders such as potential students. If in the internal or external marketing activities it is promised that communication technologies will do too much for the various participants, then high expectations will result not only in disappointment but ultimately in the failure of these technologies as well. Therefore, it would seem that communication technology and marketing have a mutual influence on each other.

b. Paper full instead of paperless

It was expected that the use of communication technologies would result in a paperless world at the university, and not in a paper full one as the research revealed. It was shown that several members like to make paper copies of emails. One possible explanation for this is a lack of knowledge on how to save materials electronically in an organized fashion. Another could be simply old habits because it is hard to not have a paper copy if one is used to working for years with paper. After all, as noted on page 68, an information system does not necessarily warrant the use the computer and can be manual, using paper and pencil technology (Lay et al., 1993; Laudon and Laudon, 1998).

c. Fire and hire

The introduction of communication technology at Business University resulted in not only structural change, where new functions such as the system managers were inserted to the university, but also personnel change, given that some people were fired and others hired. It could be argued that firing employees who do not have the necessary communication technology skills is a legitimate solution when wanting to introduce communication technology. As noted in the literature review (page 110), the cost of new communication technology introduced in an institution of higher education is not just an economic one as there are also social and psychological costs that although are not easily quantified must nevertheless be incorporated in the decision-making process (Cascio, 1987). However, the research revealed that although Marcus claimed there was a strategic plan for implementing communication technology, no such detailed written plan actually existed. Hence, the social and psychological costs were not fully considered when deciding how to implement communication technology at Business University. This is clearly demonstrated since the firing and hiring of employees who could not adapt to communication technologies created an unstable situation, which put extra pressure on existing employees. It also had an effect on informal training.

d. Informal training

According to both John Hall and George Miller, the system managers, the organized formal training on the subject of communication technology at the university was not sustained over time. Thus, since no formal training

on communication technology exists, it was witnessed several times that secretaries teach each other and lecturers teach students during the break. This could be regarded as a positive process where informal communication is complementary to formal communication. However, this is not really a positive process since it is important that training be carried out in any field by a professional to ensure that it is not only efficient but that mistakes are not taught as well. If a secretary has found a way that works but that is highly inefficient to use an email for example and this is taught to another secretary, then the inefficiency is doubled. Furthermore, an employee is being paid for a certain type of work. For instance, if a secretary who has some knowledge in communication technology is explaining to another how to use the Outlook to schedule a meeting, he or she is not doing the job they were hired for. In this the informal training has disrupted the work in the short term, in addition to possibly creating bad habits in using technology for the long term. From this, the importance of formal training in implementing communication technology can be clearly understood (as will be discussed in the final chapter of the thesis when a model for implementing technology will be offered).

e. The damages of technology

The study at Business University revealed that communication technology may be harmful to certain processes at the university, such as the learning process itself since students play with the computer in class instead of listening or an employees sitting in front of the computer and playing computerized games. Therefore, in implementing communication technologies such scenarios must be taken into consideration and how to

handle them if they occur. Again this is something that the management of Business University gave little attention to. Another issue to consider when implementing communication technology is the law.

f. The law and technology

It was shown (see page 114) that 'government laws and regulations are a frequent impetus for change' (Robbins and De Cenzo, 1998, p. 268). For example, the Protecting Privacy and Information Security Law which stipulates that a large data warehouse must be registered (The Public Council for Protecting Privacy, 1999). At Business University, this law caused senior management to act by taking all the printers and the hard disks from the marketing department in order to protect the database, since they were afraid that employees could print out the lists and take them outside of the university which is illegal. This action, however, without communicating it to anyone in the marketing department, including its manager Bill River, resulted in serious damage to the working relationship. Senior management acted due to pressure and not due to thought. Several things can be learnt from this. First of all, when implementing communication technology, the law may be beneficial or harmful but it cannot be ignored. Thus, the law must be continuously checked for updates. In addition, implementation plans must be prepared in advance in order to prevent hasty actions that might have unwanted consequences. Consequently, the last part of this chapter will discuss implementation issues.

Implementing Communication Technology

Reviewing the previous subsection entitled 'the law and technology' reveals that senior management has made numerous mistakes in implementing technology. In addition, the fact that senior management at Business University has made serious mistakes in the implementation process could also be concluded from other sections as well. Furthermore, the findings chapter ended with a conclusion that at best Business University achieved only moderate success in its implementation of communication technology. Consequently, this subsection of the discussion chapter will attempt to reveal the causes underpinning this moderate success, as suggested by the third subsidiary research question:

Analyzing the implementation process of communication technology at Business University, what can be learnt? What did senior management do right and what did they do wrong in implementing technology?

Therefore, to address the issues raised by this question, the following subsection will first of all examine the subject of computer/information literacy which could be the cause of the relative lack of success of senior management in implementing communication technology. Secondly, a discussion on senior's management commitment in implementing communication technologies will take place. Finally, this section will conclude by examining both the positive and the negative actions of senior management in implementing communication technology. This will set the stage for developing an implementation model of communication technology in the conclusions and recommendations chapter of this thesis.

Computer/information literacy

The senior managers of Business University could argue in their defence that they inherited an organization with computer/information illiterate personnel and that this illiteracy is largely to blame for many of the implementation problems. For example, Kent, commenting on computer/information literacy, noted that:

> *The level is very low. They are still into manual calculations instead of a calculator that costs $10. Maybe I exaggerate a bit but their level is really low in computers.*

Since most of the secretaries are over fifty years of age, it would seem that the research at Business University suggests that age and computer/information literacy may be connected, as expressed in the following typology:

Computer literacy	Younger person	Older person
High	[1] **Young Smart User** (Common) A younger person with a high level of computer/information literacy	[2] **Old Smart User** (Uncommon) An older person with a high level of computer/information literacy
Low	[4] **Young Dumb User** (Uncommon) A younger person with a low level of computer/information literacy	[3] **Old Dumb User** (Common) An older person with a low level of computer/information literacy

Age

Figure 5.6: Typology of Computer Literacy vs. Age

In an initial examination of this typology (Figure 5.6), it makes sense. An example of quadrant 1 labelled 'Young Smart User' could be Davis, a secretary in her late twenties, who was shown to have a high level of computer literacy both in her interview and in observations. Another example of this quadrant could be Stone and Anderson, two academic consultants in the marketing department both in their mid twenties, who developed for their department several computer programs for telemarketing. Even the two system managers, Miller and Hall, are in their mid twenties and are highly computer literate.

Reviewing quadrant 3 labelled 'Old Dumb User', it is easy to discover several participants in the research that have a low level of computer/information literacy. For example, Daft is in her mid fifties and was shown to be computer/information illiterate not only in her interview and in observations, but also in comments from students on her (such as those by the student Rich who wished she would learn to use email). Furthermore, the research at Business University revealed that many of the secretaries aged fifty and over, such as Robinson, Pelton, Byers or Sandra Bush, are relatively computer/information illiterate, using technology in the most basic way.

However, the problem with this typology (Figure 5.6) begins when quadrant 4 labelled 'Young Dumb User' is examined. For instance, five of the interviewed students, all in their twenties, noted that they barely use communication technology. The low use of communication technologies they did describe is very similar to that of the secretaries aged fifty and over in the previous paragraph. Furthermore, another student, only thirty years of age, specifically commented that she has no computer knowledge, nor does she work with computers.

In addition, the 'Old Smart User' (quadrant 2 in Figure 5.6) is not uncommon at Business University. Marcus is fifty and he has no computer/information literacy problem, and is even considered a smart user when compared to much younger people at the university. Moreover, Dr. Ellis, who is sixty years old, didn't use communication technology in the time of the old regime and started to use it gradually during the reign of the new regime, achieving a high level of computer/information literacy. This was due to the training efforts of Miller and Hall, who he stated 'are a blessing from heaven'. Thus, although age has some influence, the critical variable that was discovered is training, as illustrated in the typology below:

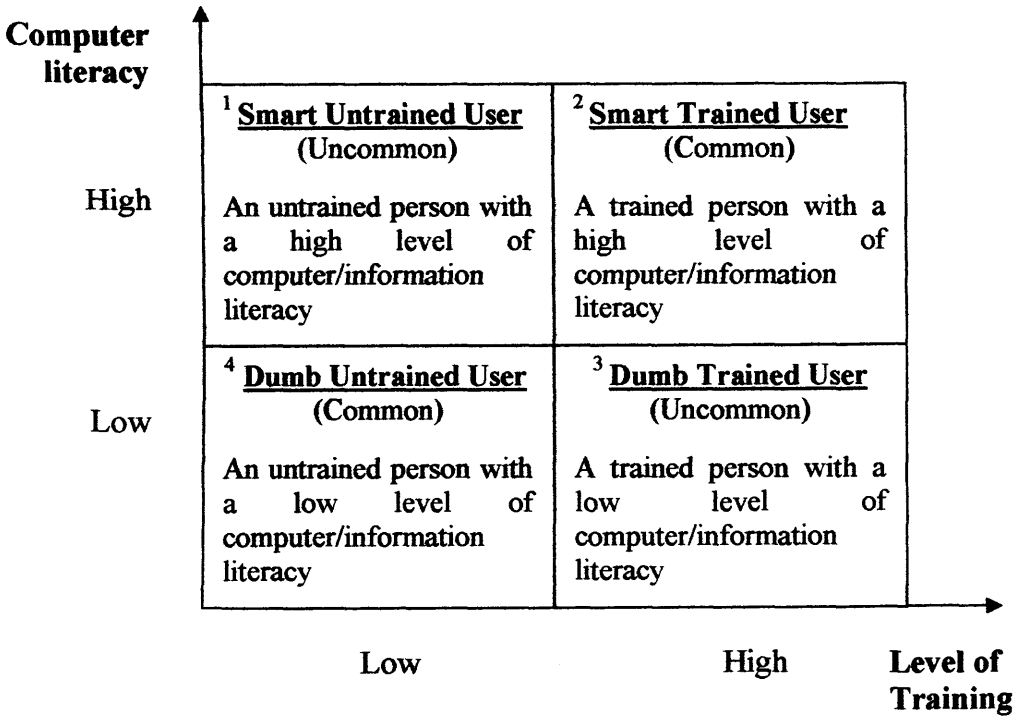


Figure 5.7: Typology of Computer Literacy vs. Level of Training

The evidence collected at Business University revealed that a 'Smart Untrained User' (quadrant 1) is uncommon, since the research did not

discover anyone who has completely learned computers on his or her own. All smart users at the university fell into quadrant 2 labelled 'Smart Trained User' regardless of their age. For example, Marcus was an engineer, while Dr. Ellis received personal training from the two system managers, Miller and Hall, who in turn were certified PC technicians and network administrators.

Of the sixteen students interviewed, ten (62.5%) fell under the category of the 'Smart Trained User', with four of the ten being around forty years old. All of these ten students had training in technology before coming to the university, with eight having practical engineer degrees, one being a certified PC technician and one working in the field of computer software, specialising in ERP (Enterprise Resource Planning) and CRM (Customer Relationship Management) packages. The six remaining students (37.5%), all between twenty to thirty years of age, fell under the category of the 'Dumb Untrained User' (quadrant 4). None had any training in technology before or during their studies at the university.

The only person that might be considered fitting the category of the 'Dumb Trained User' (quadrant 3) is Daft. It was revealed that Daft barely uses the computer but on the other hand has taken courses in computers. In her interview on Garrison's time (she was a secretary then), she said that she had taken computers courses in the past and for that reason did not take any of the courses Garrison offered to the secretaries on this subject at that time. However, being fifty-five years old, with all the changes in personnel that were taking place during the time of the interview, it is possible that she was afraid that she would be replaced, as others were, if she said that she was not trained. Thus, there is the

possibility that she actually falls into the category of the 'Dumb Untrained User' (quadrant 4) and not the 'Dumb Trained User' (quadrant 3).

Therefore, it can be concluded from this discussion that although age should not be completely discounted in its correlation to computer/information literacy, the main reason for computer/information illiteracy should not be overlooked: lack of training. In many cases, this lack of training is the explanation why an older person is not very computer/information literate when compared to a younger person. For example, there were no PCs when people who are today in their fifties were in their twenties. The young generation, on the contrary, has the advantage of growing with the computer, and thus many young persons become highly computer/information literate.

Nevertheless, this does not mean that older people cannot be trained on communication technology. After all, since the various employees of the university were not required to be high skilled programmers but just to be end-users, they did not need years of studying numerous courses in computer science. What they did need is some sort of organized formal training, which they did not receive at Business University. To have such training entails senior management deciding on and supporting training programs. The importance of commitment to learning in was discussed in the literature review (see pages 126-127). The lack of actions by senior management in supporting training is thus one of the main reasons behind the low success in implementing communication technology and not the age of the employees. Therefore, the following section will elaborate on implementation issues, starting with senior management's commitment to implementing communication technology.

Senior management's commitment

As discussed in detail in the literature review chapter (pages 107-108, 126-127), one of the key ingredients in the successful initiation and implementation of communication technology is committed senior management who understand the importance of creating vision and are committed to learning. According to the material on senior management's commitment in the literature review the following subsidiary research question was created for the findings chapter:

To which extent did creating vision and commitment to learning exist in this technological change process?

Responding to this question (see pages 238-239) resulted in the conclusion that the senior management of Business University was not fully committed to communication technology as summarised below:

- Creating vision - Marcus did create a vision, including hanging on the wall 'The Quality Convention' that stated that the vision is 'to put the university, its managers and employees at the forefront of scientific and technological innovation'. Marcus also demonstrated his commitment by setting an example himself as a smart user who is dedicated to the implementation of communication technology.

- Commitment to learning - Here, however, the senior management headed by Marcus failed since most participants in the research stated that they did not receive the needed formal training on communication technology.

The issue is why did the necessary training not take place? One possible explanation is that senior management may have felt that there was no need for training due to their dismissal of employees from the period of the old regime and their brining in of new ones. Marcus referred to these new employees as 'a new generation, younger, more accessible to the subject of communication technology' (see page 241). An example of such an employee was the secretary Anna Davis, who was in her late twenties. Since she had a substantial background in technology, she was immediately given the responsibility for the students that study computer science.

However, an alternative explanation of the reasons behind the lack of training in communication technology at Business University is the very subject of this thesis: communication. Various members interviewed, such as the lecturers Porter and Kent, the Head Caretaker, Gray and even the former senior manager, Garrison, repeatedly complained that 'Richard [Marcus] doesn't know to listen' to quote Garrison. Since communication is a two-way process, Marcus was possibly not receiving the needed feedback from the people at the bottom of the organizational structure. As Marcus noted himself, his perception of communicating with everyone was in reality communicating only with managers (see page 231).

With all the dismissals, including of managers, it is possible that none of the managers wanted to present a problem in their own department of computer/information illiteracy and, as a result, painted a prettier picture regarding the need for training on communication technology at the university. Furthermore, even if it is argued that Marcus does listen, it is highly improbable that an employee who is not a manager would approach Marcus with a demand to receive training. This is especially due

to that employee's fear of dismissal, having seen senior management replacing so many computer/information illiterate personnel. Mary Ford expressed this fear when she said that secretaries are 'elderly women that are threatened all the time [by senior management] that they will be replaced by young women' and even added that they are so scared that they stay 'extra hours at their own expense' (see page 257).

Therefore, it can be seen that in the context of training, two-way communication was an essential tool which was overlooked at Business University. What remains to be considered is whether there were other major problems in senior management's strategic decision to implement communication technology at the university. Therefore, the final subsection of this chapter will examine both the positive and the negative actions of senior management in implementing communication technology.

Implementation actions of senior management

In order to present both the positive and the negative actions of senior management in implementing communication technology at Business University, the following four basic elements of strategic management will be used as a framework: (1) environmental scanning, (2) strategy formulation, (3) strategy implementation, and (4) evaluation and control (see pages 113-121). Each element will include a discussion that integrates the evidence collected at Business University with the relevant material from the literature.

1. Environmental Scanning

Environmental scanning includes both external analysis as well as internal analysis (Wheelen and Hunger, 1995). Therefore, it is important to examine how senior management undertook this endeavour.

External analysis – When Marcus was asked how they approached external analysis, he noted:

> *The considerations [which technology to purchase] were based mainly on a market survey and a location of alternatives by Wilkins, George [Miller] and John [Hall].*

Wilkins corroborated the undertaking of a survey. However neither he nor Marcus - or any one else including the system managers - could produce a past written report on this subject. Therefore, although scanning the environment for alternatives was undertaken, there was no documentation of this. (This lack of documentation will be shown to be a reoccurring problem throughout the implementation process of communication technologies.) In addition, as Marcus commented that 'considerations were based mainly on a market survey and a location of alternatives', he is implying that there were other considerations. It was noted that external pressures to implement communication technology include the emergence of a new technology, legislative actions, competitors' implementation of communication technology, and even economic, social and educational pressures (see pages 114-115). However, in Israel, one more unique pressure for the implementation of communication technology was found to exist: the security situation. Marcus addressed this issue when he remarked that 'lecturers from abroad do not come to be hosted by us here in Israel, as was the case previously when the security situation was

calmer' (see page 235 for full quote). Thus, videoconferencing became a necessity, resulting in internal resources being allocated to this end.

Internal analysis – According to Robbins and De Cenzo (1998) internal pressures for change usually originate from the internal operations of the organization. The need for communication technology did come from the operations of the institution at Business University. Marcus, when arriving to the university quickly realized this need (see page 227):

> *In end of 1999 I started my post and the first question that I asked was "how many students learn here?" One day went by. Another day went by. They stood on the shelves and counted files. File by file and they counted twice. It took them two and a half days to answer the question how many students are here.*

2. Strategy Formulation

Once the need, from both external and internal forces, for communication technology became clear, a technology plan needed to be written. There are different views on how to write such a plan (see pages 115-116 for a fuller discussion). Pearce and Robinson (1991), on one hand, maintain that a strategic plan provides a framework for managerial decisions, without precisely detailing all future deployments of people, finances and materials. Glenna and Melmed (1996), on the other hand, argue that for successful implementation of communication technology the technology plan must be a detailed one, considering aspects of funding, installation and integration of equipment, including the ongoing management of the technology. Therefore, Glenna and Melmed (1996) suggest that one of the key factors in successful implementation of communication technology is a detailed technology plan expressing a clear vision of the objectives of the technology integration.

Marcus maintained both in his interview and re-interview that a strategic plan based on the vision was developed, although he couldn't 'remember if it was documented' (see page 240). However, Wilkins and Miller contradicted him, noting that no strategic plan was created for the implementation of communication technology and indeed no such plan was found. Therefore, comparing this evidence to the views from the literature in the previous paragraph, the question was not whether a general plan or detailed plan should be written, but rather why wasn't a plan written at all and how did this affect the implementation of communication technology.

3. Strategy Implementation

Carter et al. (2001) describe the adoption of technology to include the stage of developing capabilities for using the innovation, such as training and/or hiring personnel, or physically acquiring the innovation. However, as discussed earlier in this chapter, formal training almost did not occur at the university. Hall, speaking as one of the system managers responsible for communication technology, told that training 'in its planning was organized, but actually it didn't take place, starting but not continuing'. Hiring and firing personnel did take place. Wilkins maintained that part of the implementation of communication technology 'involves replacing employees'. However, this was done in an unorganized manner, since there was no detailed plan who to replace and when. This created an unstable situation with many employees afraid of being dismissed. Furthermore, several technologies were not purchased due to lack of budget (see page 241). All these problems made institutionalizing communication technology at the university difficult.

For an innovation to succeed and to be sustained over time, it must be institutionalized (Miles and Louis 1986). However, to achieve institutionalization requires great efforts on behalf of a university, including 'individual faculty members, administrators, and students' (Martorana and Kuhns, 1975, p. 110). With no formal training, employees being constantly replaced and lack of budget, the reasons for the moderate success at best of communication technologies (see page 289) become more apparent. This is even clearer when the lack of evaluation and control of communication technology is discussed.

4. Evaluation and control

In higher education technology programs are increasingly being asked to evaluate and justify high-dollar equipment purchases of communication technologies (Hall, 1996). With no written strategic plan, it was not possible for senior management to compare planned actions to actual actions, and thus evaluate the performance of communication technology at the university. In addition, with no ongoing monitoring of implementation, it was not possible to use the evaluation of the success of a strategic process as 'an input for future decision making' as Pearce and Robinson (1991, p. 3) suggest. Therefore, the building of a theoretical model on the implementation of communication technology took into account issues regarding evaluation and control. It also considered aspects of environmental scanning, strategy formulation and strategy implementation, as will be presented in the next chapter of this thesis, conclusions and recommendations.

Chapter 6 – Conclusions and Recommendations

> *The most important aspects are that recommendations should:*
> *a. be clearly derived from the data; and*
> *b. be practical (i.e. capable of implementation).*
>
> (Robson, 1993, p. 421)

In concluding the thesis and offering recommendations, this remark by Robson was instrumental in focusing the chapter. The chapter itself will address the theoretical issues raised by the following key research question:

6. What possible relevance does this research have for other organizations of higher education?

Understanding the first part of Robson's comment focused this chapter in ensuring that any theoretical conclusions are clearly derived from the findings collected at Business University. The purpose of this thesis is create something that in addition to having roots in both theory and in the actual research conducted at the university is straight forward enough to be of some practical use. Therefore, with this in mind, the following subsidiary research question was approached:

Can a theoretical framework/model on the implementation of communication technology, based on the case study, be formulated?

Accordingly, it was decided to attempt to develop a practical model that would seek to aid managers in institutions of higher education to implement successfully communication technology in their own organizations. Therefore, first of all, the themes of this research will be revisited and recommendations will be given in their context. After that, in creating this model, it was of course understood that no theoretical

framework can cover the entire complex scope of implementing and institutionalizing communication technologies in organizations of higher education. Indeed, if such a model existed, it would be claiming an ability to generalize, which is something this case study at Business University had never intended nor promised to achieve.

Furthermore, analytic generalization, in which 'a previously developed theory is used as a template with which to compare the empirical results of the case study' (Yin, 1994, p. 31), was also not fully possible. This was due to the fact, which was demonstrated in the literature review chapter, that the effects of communication technology on organizational communication have hitherto received little attention in previous researches in higher education. Consequently, another complementary method of generalization was needed in building a theoretical model on the implementation of communication technology: 'fuzzy generalizations' (Bassey, 1999, p. 52).

> *A fuzzy generalization carries an element of uncertainty. It reports that something has happened in one place and that it may also happen elsewhere. There is a possibility but no surety. There is an invitation to 'try it and see if the same happens for you'.* (Bassey, 1999, p. 52)

This form of generalization has the advantage for the study at Business University of allowing the research on the subject of the effects of communication technology on organizational communication to be cumulative, since fuzzy generalizations enable other researchers to replicate the study and, if necessary, to amend the fuzzy generalizations (Bassey, 1999). Thus, fuzzy generalizations were selected as the main method of generalization in the theoretical model in this chapter.

Once the model was complete it was possible to evaluate in retrospect what this case study at Business University contributed to the field of communication. This evaluation will be presented, including what this author would have done differently having the hindsight at the end of the research and what others may learn from this in undertaking similar research projects.

The next section of this chapter will identify the following three major areas of further research:

1. Continue researching institutions of higher education on the themes found in this research,
2. Examine the effects of Auto-ID on higher education, and
3. Research the importance of English in communication technology.

Finally, this chapter will conclude the entire thesis with a short postscript.

RECOMMENDATIONS

This section will focus on recommendations in the context of the themes offered in the discussion chapter. It is important to note that, although these recommendations offer generalizations, these are fuzzy generalizations which do not claim to fit every situation. Thus, this section will also discuss which of these recommendations could be relevant to those from other, and perhaps very different, cultures and which they should treat with caution. The first recommendations are within the framework of the twelve effects of communication technology on organizational communication. Then, other recommendations will be

put forth in the context of the additional effects that were discovered at Business University. Finally, recommendations regarding implementation issues will conclude this section, laying the foundation for a model for implementing communication technology that will be presented in the subsequent section of this chapter. Therefore, below are the recommendations within the framework of the twelve effects of communication technology on organizational communication, starting with the first one entitled 'Speed'.

1. Speed

Although communication technology (such as email) enables message transmission that is technologically faster than transmission by traditional communication media (mail or fax), it does not mean it will be actually faster than traditional means, as was concluded from several cases from the study at Business University. These cases demonstrated that, in the end, communication is between people. A person, for example, may choose not to answer an email, thereby making the 'speed' ability of the technology irrelevant. Therefore, in any culture, it is recommended to find the style of communication of the person one is communicating with, and then decided with which communication channel to communicate with that specific person.

For instance, as noted in the findings chapter (see page 269), Anna Davis, one of the secretaries, said that 'answers by email are received a lot faster from the home campus than from a fax, sometimes even immediately'. This means that the home campus personnel she communicated with had a tendency towards electronic communication. However, it is possible

that since she was communicating with another culture, in certain cases electronic communication would not be appropriate. Consequently, it is recommended not only to find out the preferred communication channels of the receiver, but also, in context of the dual-capacity model, which channel carries which symbol. If in a certain culture only a telephone is acceptable in particular situations, then although it is technologically possible to send a faster message by email, the telephone should be used.

2. Distance

At Business University, modern communication technologies (such as email or videoconferencing) were found to be used mainly in communicating with the distant home campus. However, it was also discovered that some employees of the university still use traditional means of communication (such as the telephone or fax). Although there are several explanations for this, it was found that the main reason not all participants use modern communication technologies was their computer/information illiteracy. Therefore, if the preferred means of communicating among geographically dispersed participants is communication technology, management should verify that all members are skilled in its use and if not offer the proper training. (The importance of training in implementing communication technology will be discussed later in this chapter.)

3. Asynchronous communication

Asynchronous communication, with the introduction of email, did occur in a variety of situations at Business University, including

correspondence by email of various lecturers and secretaries with the home campus. However, the research also revealed that asynchronous communication between students and lecturers, whether local lecturers or ones from abroad, was low. It seems that most of the local lecturers did not give out their emails to students. Moreover, the asynchronous communication with lecturers from the home campus was not effective with lecturers from abroad not returning email messages. Therefore, the recommended solution, for both the local lecturers and those from the home campus, is procedures.

Procedures mean that each lecturer should receive instructions that include to hand students his or her email, to tell students when they are the allowed to send a message and to inform them how soon an answer will be returned. These procedures should be identical for each lecturer. For example, all lecturers should guarantee that an electronic answer will be within 48 hours. This creates standardisation and avoids the lack of standardisation witnessed at Business University where students complained that only a few lecturers give out their emails. Although these lecturers received positive feedback from the students by giving out their emails, the university's overall image was damaged since it was inconsistent. (This relationship of communication technology and marketing will also be discussed later in this chapter.) In addition, it is management's responsibility to assure these instructions are carried out to the letter. This is a problem more typical of Israel, but perhaps less so in different cultures such as Japan where not only is co-operation an everyday part of work, but also absolute loyalty is expected in certain work relationships (Hendry, 1987). Therefore, it is more likely that in Japan instructions will be carried out simply because they were given.

4. Addressing messages

Managers at an institution of higher education should send an email message to keep their people informed of the latest developments in a reassuring way, but this must not be done in a sporadic fashion, as was the case at Business University. A message that is sporadic may create pressure, since the receiving member is getting only partial inconsistent information. It is therefore recommended that the email message will be sent at regular intervals, such as every week or every month. However, this recommendation may not apply to cultures where either it is not acceptable that management updates employees or to cultures where an email update, in context of the dual-capacity model, symbolizes an insult to receiving employees who perhaps expect another form of communication when being updated.

5. New memory, storage, and retrieval features

At Business University it was found that although communication technology did improve the handling of information, such as students' grades, the computerized communication system was not yet complete and thus not all participants were satisfied with it, since they expected computerized online information. Therefore, it is recommended in any culture to inform all relevant stakeholders, including students, on the status of the system in order to create realistic expectations and avoid disappointments. (An increased expectation of employees due to communication technology is the twelfth effect within the framework that will also be addressed later in this chapter.)

6. Cues

Since at Business University, it was discovered that there is dissatisfaction with videoconferencing because it lacks some of the traditional cues that exist in a face-to-face lecture, it is recommended to ensure that each videoconference session includes an element of face-to-face lecturing. For example, since the Israeli law stipulated that at least 30% of the lectures must be conducted by lecturers from the mother institute (as already discussed both on pages 11 and 218), each class could be composed of a 30% videoconference session given by the lecturer from the home campus and a 70% face-to-face lecture by the local Israeli lecturer. Such a situation could increase students' satisfaction, since most of the lecture is face-to-face with more traditional cues. It is however important to recall that the planned focus of this research at Business University was not on the effects of technologies on the instructional aspects of a university (as discussed in the literature review on page 80). Therefore, this is a specific recommendation which might not be relevant not only to another culture, but also to another Israeli institution of higher education.

7. Decrease in face-to-face communication

At Business University, it was found that although there has been a decrease in face-to-face communication due to existence of communication technology, it has not been a substantial one. This is due to the fact that, in accordance with the dual-capacity model, most of the interviewees reported that face-to-face is essential in certain situations, especially conflicts. As discussed in the literature review (see page 95),

researches have shown that face-to-face channels are preferred over other communication channels in conflict management. Therefore, face-to-face communication is recommended in conflict management. However, how to conduct this face-to-face conflict management is very different from culture to culture. For example, in Japan where there is a 'difference between *tatemae* or public behaviour, and *honne*, or one's real feelings' (Hendry, 1987, p. 42), conflict management will be carried out in much different manner than in Israel.

8. 'Short-circuits' in informal messages

Both the research at Business University and several studies in the literature review demonstrated that communication technologies do not create 'short-circuits' in informal messages, and may even increase informal communication, thereby improving problem solving. Therefore, since communication technology cannot be disconnected from informal communication, it is recommended to use it also in less formal ways. For example, an email may be used to send an informal humorous message, such as the one Emily Pelton, one of the secretaries, received from Sam Ford, the academic manager. However, Booher (2001) recommends to be wary of humour in electronic communication because it lacks the body language that exists in face-to-face communication. Furthermore, she adds that the rules of business and social etiquette still apply when communicating by technological means (Booher, 2001). Therefore, since these rules are different from culture to culture, it is recommended to be careful when sending, for example, an informal humorous email message to another culture.

9. Impaired decision-making

The research at Business University revealed that communication technology may assist decision-making. For example, some emails were forwarded to more than one participant, preventing in this fashion ambiguity in interpreting information. However, this forwarding of emails was not caused by any formal procedures but rather due to the common sense of the senders. Consequently, in order to improve decision-making, it is recommended to develop formal procedures of how to send an email, including to whom else to forward it. Although these formal procedures will be different from culture to culture, as well as from one company to the next, they must nonetheless be created and not left to the common sense of employees as was the case at Business University.

10. A loss of trust

The study at Business University revealed that the loss of trust at the university was caused mainly by senior management not listening to those under them and not due to communication technology. Therefore, in any culture, it is recommended that managers continuously carry out two-way communication, whether by means of communication technology or not, formally or informally, since it is essential in building trust. How this two-way communication will be actually undertaken will of course differ from culture to culture.

11. Less patience and tolerance

The research at Business University found that there was less patience and tolerance in the organization for individual styles of communicating

not only due to the use of communication technology, but also sometimes to due to the lack of use of it. It was noted that the main reason that creates less patience and tolerance for individual styles of communicating is the higher expectations people have for improved performance due to communication technology. Therefore, in any culture, it is recommended for an institution of higher education to research into the expectations that its stakeholders have of communication technology and ensure that the institution is meeting them (or at least working towards meeting them).

12. Increased expectations of employees

The research at Business University revealed that there were increased expectations that employees, such as secretaries, would perform with the speed and accuracy similar to that of the computer. However, since the use of technology didn't meet their expectations, stakeholders were disappointed. Therefore, since here too, in similar manner to the previous paragraph entitled 'Less patience and tolerance', the problem is that of expectations, it is also recommended to research into stakeholders' expectations of technology and ensure that the institution is meeting them. This is especially true of students who will not only be disappointed if their expectations are not met, but may also not recommend the university to their friends, thereby reducing enrolment. Consequently, it is recommended, in any culture, to research and analyse students' expectations and perceptions of communication technology, and change either the technology or the expectations to create satisfied customers. Recommendations on this marketing effect of communication technology will be given in the next section of this chapter entitled the 'Additional Effects of Communication Technology'.

Additional Effects of Communication Technology

This section offers recommendations in the context of the other effects of communication technology on organizational communication discovered at Business University. The first recommendations are given on the subject of marketing and its relationship to communication technology.

a. Marketing and technology

It was discovered in the research at Business University that communication technologies have a marketing effect on students, i.e. students' perceptions of an institution of higher education are influenced by the existence of communication technologies in that institution. Therefore, to ensure that students have a favourable perception of the institution and will endorse it to their friends, it is recommended, in any culture, to consider which communication technology to introduce first so as to have a positive marketing effect on students. For example, it was discovered in the interviewees that at Business University students valued the computers at the library but felt more are needed there. In the observations this was confirmed, since the six computers in the library were nearly always occupied. Therefore, adding several computers there would increase satisfaction immediately, while adding computers in finances, for instance, might improve work processes but, since students have relatively low contact with finances, it would probably not affect satisfaction. In addition, as noted in the previous chapter (see page 346), the success of communication technologies is dependant on both internal and external marketing of these technologies to all stakeholders including

potential students. Therefore, a marketing plan should be written on how to market communication technology throughout the institution.

b. Paper full instead of paperless

It was expected that the use of technology would result in a paperless world at Business University, and not in a paper full one as the research revealed, with several members even continuously making paper copies of emails. Therefore, it is recommended for senior management to lay out guidelines which materials must be kept also on paper, such as documents required by law, and which must be recorded electronically. Employees must be continuously reviewed to ensure they are upholding these guidelines. Even senior management must then uphold these guidelines, unlike at Business University where Paul Wilkins, the most senior vice-president, kept paper copies himself while at the same time wishing that more information was available online. As noted earlier in this chapter, how much employees adhere to offered guidelines or instructions depends also on culture.

c. Fire and hire

The introduction of communication technology at Business University resulted in personnel change, including both the firing and hiring of employees. This firing and hiring created an unstable situation, which put extra psychological pressure on existing employees. Consequently, it is recommended that personnel change, if needed, will be conducted in an organized manner with employees understanding on what it is exactly they are being measured. In this way if an employee is dismissed, he or

she will know why. However, it is important to note that dismissing employees does not create loyalty to an organization. Japanese companies 'seek to foster company loyalty before specific skills, for if the business of the company undergoes drastic change, they might expect their employees to turn their hands to quite different occupations' (Hendry, 1987, p. 136).

d. Informal training

Due to the lack of formal training on communication technology, informal training was revealed at Business University. As discussed in the previous chapter (page 348), informal training may disrupt the work in the short term while possibly creating bad habits in using technology for the long term. Therefore, informal training is not recommended as an alternative to formal training on the subject of communication technology. Training, in any type of culture, must be a planned formal activity that is carried out continuously. If it is not a reoccurring activity, then informal training will increase due to the needs of employees, and the problems connected to informal training will resurface.

e. The damages of technology

At Business University it was revealed that communication technology may be harmful to certain processes such as students playing with the computer in class instead of listening or employees playing computerized games instead of working. These harmful activities are very dependant on the culture. In a more disciplined culture, such as Japan where the importance of discipline is emphasized even in school (Hendry, 1987),

employees using the computer to surf on the Internet or to play computerized card games is less probable than in another less disciplined society. However, in any culture, management should ensure that the possibility for such harmful activities does not exist, including sporadically inspecting employees' computerized activities. This inspection should be done in a respectful manner, with employees knowing that their work on the computer will be reviewed. What is considered 'a respectful manner' depends highly on the culture of the organization.

f. The law and technology

Since government laws and regulations may affect the need to implement communication technology, it is recommended to constantly review not only existing legislation, but also to find out which future laws are intended to come out and when. Planning ahead how to react to each law will prevent hasty actions, such as Business University's senior management reacting to the Protecting Privacy and Information Security Law by taking all the printers and the hard disks from the marketing department in order to protect the database. Since this action was done without communicating it to anyone in the marketing department, including its manager, this resulted in serious damage to the working relationship. Therefore, in any culture, it is recommended to review legislation and prepare implementation plans in advance in order to prevent hasty actions that might have unwanted consequences. Further recommendations on implementations are offered next.

RECOMMENDATIONS REGARDING IMPLEMENTATION ISSUES

The following concluding recommendations, presented in the framework of the four basic elements of strategic management, focus on how to increase the chances for successful implementation of communication technology:

1. **Environmental scanning** that includes both external analysis and internal analysis must be carried out in detail before any communication technologies are introduced to an institution of higher education. The scanning must be documented in a report.

2. **Strategy formulation** must also be translated to a written report. It is preferable that this will be a comprehensive document on all aspects of implementing communication technology in an organization such as an institution of higher education.

3. **Strategy implementation** should be aiming at institutionalizing communication technology. This means that the implementation should be viewed as a marathon and not a sprint. Therefore, senior management must continuously give support to various issues such as training, which the evidence from the research at Business University has shown to be critical to the success or failure of communication technology.

4. **Evaluation and control** must not only be constantly carried out but it should also be recorded. Today there are various technological means to achieve this, such as the Microsoft Office Enterprise Project

Management (EPM) Solution which allows monitoring and analyzing consistently project information across an organization (Project Hosts, 2004).

Although these recommendations are relevant to any culture, some of them will be easier to implement in certain cultures while others easier to implement in other cultures. For example, the research at Israeli Business University discovered that there was a lack of formal documentation regarding the implementation of communication technology. In other cultures there may be a higher tendency to document, such as in Japan where even ideas and proposals are circulated by a written system allowing everyone to participate (Hendry, 1987). This Japanese participation in decision-making also influenced the model for implementing communication technology. This model, which was created on the basis of the various recommendations offered previously in the last section, will be introduced subsequently.

Model for Implementing Communication Technology

In this section of the conclusions and recommendations chapter, a theoretical model for implementing and institutionalizing communication technology in higher education will be offered. Although the following model is a generalization, it is a fuzzy one, i.e. it is not claimed here that this is an absolute model, but rather that the model 'carries an element of uncertainty' (Bassey, 1999, p. 52). Below is the fuzzy model for implementing communication technology:

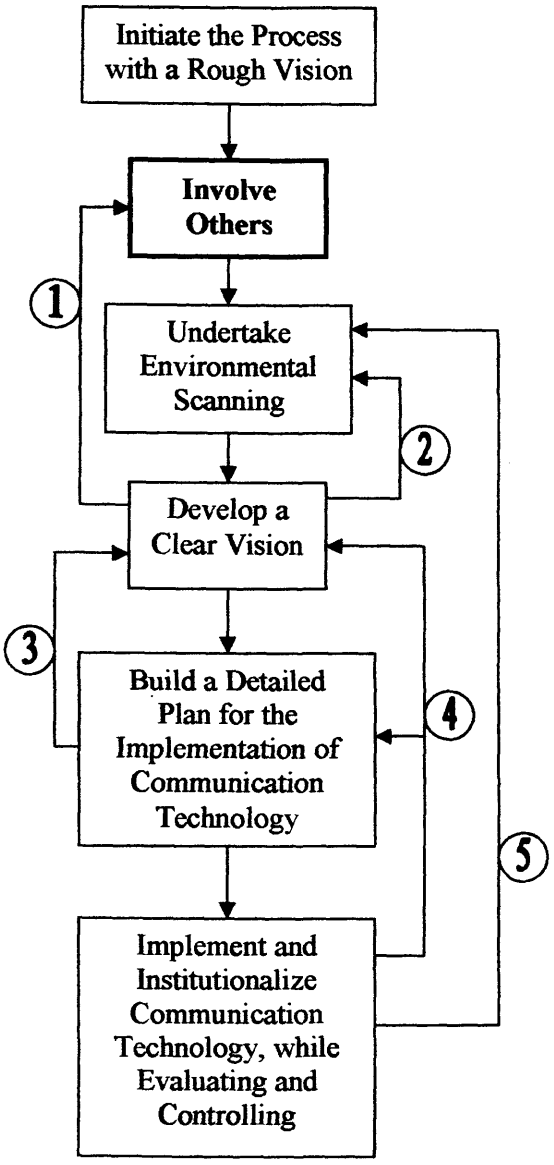


Figure 6.1: Model for Implementing Communication Technology

Reviewing the model (Figure 6.1), it can be seen that it begins with 'Initiate the Process with a Rough Vision'. It is the responsibility of the top senior manager to initiate the process, as Marcus did at Business University. The vision is at this stage is a rough one, i.e. there is an understanding that modern communication technology can improve several areas in the institution, but not exactly where the institution should be in the future in terms of communication technology. To make the vision clear, the next stage is entitled 'Involve Others'. This is the

most critical aspect of the model (and for this reason it is emphasized in the model).

'Involve Others' means that implementing communication technology is done with the cooperation of various managers and employees in the institution. Although the vision must be communicated to all the members of an institution, not every member can or needs to be involved in developing this vision. A committee or team, lead by the top person of the institution, on the subject of communication technology can be formed. Nevertheless, it is important that such a committee or team includes not only managers in the process but employees as well. At Business University only senior management, namely Marcus and Wilkins, decided on the change process. Their lack of involving others, even other managers, resulted in unnecessary resistance to implementing communication technology. Therefore, getting others involved throughout the process creates ownership as well as improving actual decisions due to information being received from various personnel that will actually use the technology. Once the committee or team is in place, then the process of creating a clear vision of communication technology can begin by undertaking environmental scanning.

The next stage recommends: 'Undertake Environmental Scanning'. This includes examining both external and internal forces. This examination is carried out by the committee or team members. This stage must not only include a formal collection of information but also informal communication with the various members of staff. The advantage now that those involved in the planning are also employees themselves is that it will be easier to obtain informal information, such as how employees

really feel about the process of implementing new communication technology. This will enable to develop a vision that is clear to employees and therefore reassures them.

Once environmental scanning is complete it is possible to 'Develop a Clear Vision', which is the next stage of the model. A clear vision means that it is understood by anyone who reviews it. For example, saying that the vision is 'to put the university, its managers and employees at the forefront of scientific and technological innovation' (as Richard Marcus did in 'The Quality Convention' that he hanged on the wall) is really not saying much. What does it mean to be in the 'forefront'? Is it to have the most updated communication system possible or just what is needed for daily activities? What defines a clear vision depends on who are the persons in specific institutions and on their culture. However, once the vision is developed it should be shown to several managers and employees to see if all understand it in the same way. If the vision is not clear then perhaps others need to be involved in creating it (as implied by arrow 1) or maybe environmental scanning should be undertaken again (arrow 2). Consequently, there may be several interactions before proceeding to the next stage of building a detailed plan for implementing communication technology.

It is important to note that although each stage of the process should be recorded, such as minutes of meetings in developing the vision, this is especially true of the stage entitled 'Build a Detailed Plan for the Implementation of Communication Technology'. Only a written plan can be later reviewed and improved. The plan must not only include the details of which communication technology to put where, but it must also include internal marketing of the technology to various stakeholders in

order to prevent unnecessary resistance. This planning of internal marketing may even result in changes in the vision (as suggested by arrow 3). Once planning is complete, then actual implementation can begin.

'Implement and Institutionalize Communication Technology, while Evaluating and Controlling' is the stage where communication technologies are introduced to the organization. Since in this model implementation activities are constantly evaluated and controlled (and not just reviewed at the end of the implementation process), it may require changes in either the vision or the plan (as implied by arrow 4). It is important to keep in mind that this is a long process that necessitates continuous support since the goal is not just to implement communication technologies but to institutionalize them as well, i.e. that they will become a part of the daily activities of the institution. To achieve this continuous training is necessary as well as constant evaluation and monitoring of new external and internal forces, as suggested by arrow 5. This arrow is showing that the model returns to the stage 'Undertake Environmental Scanning' which perhaps now should be regarded as 'Update Environmental Scanning' and thus it has contributed to the field of communication a never-ending implementation process of technology.

CONTRIBUTION OF THIS RESEARCH TO THE FIELD OF COMMUNICATION

One of the subsidiary research questions noted:

In retrospect, what has this research contributed to the field of organizational communication?

In the introduction it was noted that qualitative research is needed on the effects of communication technology on the organizational communication, as few have explored this in depth (Khalid, Swift and Cullingford, 2002). Lumby (2001) even noted:

> *Understanding of how the use of computerized systems is profoundly effecting communication is only just beginning to be grasped. There is and will be change. How far the change will represent an improvement in communication has yet to be researched.* (P. 106)

Therefore, the research project at Business University has attempted to address this. However, since this is still only one case study, it has begun the process where many more studies need to follow to make the research cumulative. Before recommendations for further areas of research are given, this researcher would like to share some thoughts on how to conduct research in this field, mainly due to some actions that now in hindsight would have been done differently. Although preparations before research is conducted are important, it is recommended nevertheless to begin any research as soon as possible. The collecting phase of the research took a year to begin after Richard Marcus gave his approval. There may have been some objective reasons for this, such as a need to focus the purpose of the research by reviewing the literature or even a change in supervisors, but still it was possible to start some sort of data collection earlier. The most important one was collecting documents.

This researcher waited too long before collecting documents for this study. With all the changes that would later occur, many documents were forever lost (such as Mary Ford throwing way documents prepared by her predecessor Madelyn Adler). Therefore, it is recommended to start

collecting documents as soon as possible. At the worst scenario, one will end up with a lot more unnecessary documents that can later be discarded. In addition, this researcher waited too long before beginning opportunistic observations.

In the first meeting of this researcher with his new supervisor, the supervisor said: 'If it isn't recorded, it isn't data'. While preparing for the research phase, the author came upon several situations as a lecturer at Business University, which could have been recorded as opportunistic observations. Again, at worst, there could have been a greater number of opportunistic observations of which some, if necessary, could be discarded later. Therefore, although it is recommended to prepare before setting of to research further directions created by this case study at Business University, one should not prepare too long, keeping in mind that time is of essence.

FURTHER DIRECTIONS FOR RESEARCH

The last subsidiary research questions of this thesis noted:

What are promising new directions for further research created by this case study at Business University?

Three major areas of further research were identified:

1. Continue researching institutions of higher education on the themes found in this research,
2. Examine the effects of Auto-ID on higher education, and
3. Research the importance of English in communication technology.

1. Researching the themes of this research

This is a straightforward recommendation for further research. Any new researcher should examine the various themes discovered at Business University and decide which ones to research. However, care should be given to which themes are chosen since some of them are interconnected. For example, the theme 'Increased expectations of employees' is connected to 'Marketing and technology' since the expectations of stakeholders have of communication technology affect the image they have of the institution. Therefore, it is recommended that interconnected themes be researched together.

2. Researching Auto-ID in higher education

As noted earlier (page 235), various Auto-ID (automatic identification) technologies (which are a part of communication technology) were introduced to Business University. These included a computer program for managing the library with the Auto-ID technologies of optical mark recognition (OMR) scanners, magnetic library card and barcodes on books. There were even Auto-ID technologies such as magnetic cards for the employees when coming and going from the university (i.e. for hour tracking), radio frequency identification (RFID) for car parking, and even using a magnetic card for free access to an automated coffee machine. Consequently, since Auto-ID has been developing rapidly in the last few years (with new technologies in addition to barcode and RFID, such as biometrics, ImageID or Optid entering the marketplace), Auto-ID could have a significant influence on higher education and it must be researched where it can be of most use in higher education.

3. English and Communication Technology

Towards the end of the collection phase of the research at Business University, May East, one of the last students to be interviewed (the fourteenth of sixteen interviewed students) noted something that is not surprising in hindsight but was then unexpected:

> *Just maybe if they would improve our English, this would help with the computers and technology side.*

Her quote illustrates that there may be another important reason why individuals in Israel, and indeed in other non-English countries, are still computer or information illiterate: the English language itself. Since this unforeseen comment came up at a rather late stage of the research, it was not possible to re-interview and re-observe all the various selected members, of which some were no longer with Business University due to dismissals (as stated in the findings chapter). However, a rough review of the literature on the subject revealed that although the importance of English as the global language of communication and technology is widely accepted (Lysandrou and Lysandrou, 2003; Phillipson, 2001; Fonzari, 1999), the subject on the effects of English on information literacy, computer anxiety and thus on the implementation of information and communication technologies has yet to be fully explored.

It is agreed that the English language 'is not merely the mother tongue of the Anglo-Americans. It is the language of international technology' (Deodhekar, 1985, p. 6). More specifically, 'studying English in countries even where it is not used in daily speech has become a pre-requisite to professional advancement, particularly in the fields of science, communication and technology' (Baumel, 2003, p. 47) and thus

English is coveted worldwide in countries ranging from Peru (Nino-Murcia, 2003), to Estonia (Fonzari, 1999), to Turkey (Boss, 1999) and to Israel (Baumel, 2003). However, although it is known that since 'a word-based command structure is normally used to direct the execution of a program, the most serious obstacle for the acceptance and use of a computer program in another culture is language' (Peterson, 1993, p. 870), a great deal of the literature on the implementation of information and communication technologies does not address English as an essential part of implementation (Neumann and Zviran, 2001; Orgad and Oz-Madar, 2000).

Consequently, in order to understand the possible different resistances to change in the implementation of information and communication technologies, future research must not only examine the level of computer/information literacy and its relationship to computer anxiety, as was studied at Business University, it must also consider people's knowledge of English and this connection to information literacy. It should raise questions such as:

- To what extent does knowledge of English influence computer anxiety that results in information illiteracy in non-English speaking countries?
- How should English be integrated into efforts of implementing information and communication technologies in an organization, specifically in one of higher education? Could a complete theoretical model on how such implementation that includes English training be developed?
- What should be done to ensure that the level of computer oriented English remains the same as changes occur in an organization, specifically changes in personnel?

POSTSCRIPT

Raising these questions for further research is done with a sincere wish to continue in expanding the boundaries of human knowledge. After all, this research project at Business University could be someone else's literature review and, according to Neuman (1997), a 'review can emphasize how the current research continues a developing line of thought, or it can point to a question or unresolved conflict in prior research to be addressed' (p. 90). In giving those that follow questions to tackle, the author of this study on modern communication is actually communicating with them. This is not surprising, since after all, to quote once more the manager in the first page of the introduction chapter to this thesis, 'the game plan is to communicate and then communicate some more and when you have done that to communicate some more' (Lumby, 2001, p. 102).

May we always communicate!

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Appendix A - Interview Schedule for the Old Regime

The purpose of this interview schedule is to discover the general the patterns of communication in the organization prior to the change in senior management and the attitudes of the old regime to communications and communication technology at Business University. Most of the questions here are similar to the general interview schedule in Appendix B in order to allow comparisons but are in the past tense, with some specific questions that are only relevant for the former senior management.

General information themes:

- **What is your current occupation?** Which academic degrees do you have? How old are you?
- **During which years were you in the organization and what was your position (job title) there?** What were the various responsibilities of your position? Did these responsibilities include communication technologies in any way? Was this a full time job or did you have other responsibilities outside the organization?

Communication themes:

- **What do you mean by "communication"?**
- **Did you interact with others, such as staff members and students?** How do you prefer to communicate? (Face-to-face, telephone, email, memos, letters, fliers, bulletins or general reports.) Why do you prefer this type of communication? Which type do you not use? Why? At Business University, what is the

proportion of time (in %) you spent communicating versus working alone? Is this what you would wish or would you rather work in different proportions?

- **How would you describe the structure of the network of communication that existed within the organization during the time you were there?** For example:
  1. Was the manager the center of the team through which all information passed? **or**
  2. Was every person only communicating with his or her immediate organizational neighbor but not with other members of the organization? **or**
  3. Was the communication just one-way downward communication from management to employees? **or**
  4. Did everyone communicate to everyone else?

- **Did staff complain regarding the performance of the current system of communication?** Were there any requests for improvements of this system and did these include requests for communication technologies of any type?

Communication technology themes:

- **How did senior management then regard the use of communication technologies at Business University?** Was there a strategic management decision to invest (or not) in communication technology? Did previous senior management feel that there is no need to invest heavily in communication technologies in order to succeed? How did you know you were

effectively spending the right amount of money on communication technology, and that it was focused on the appropriate applications? How did you evaluate the productivity you were getting out of your communication technologies? Were the communication technologies appropriately placed in the organization? Were any activities regarding communication technologies, if any, out-sourced? Was there an executive steering committee responsible for the implementation of communication technology? If not, how was this handled?

- **What types of organizational communication technologies did you introduce into the organization?** For example, when was video conferencing introduced to this organization and why? How are these technologies employed relative to the more traditional organizational communication tools? For example, were they used more in upward communication, downward communication or horizontal communication? Were these technologies used to streamline record keeping and administrative tasks such as the handling of information regarding students' grades? How would you rate the extent of use of email versus mail delivery in the chosen institute in your time? To which extent and where did asynchronous communication exist in this institute? (For example: email to the 'mother' institute, was it synchronous or asynchronous communication?)

- **Which communication technologies did you use at the institute for your own professional needs?** Which communication technologies do you use today at you current work? Which communication technologies do you use at home? (In order to get

a better understanding of the technological background of the interviewee)

Organizational change themes:

- **How successful were your attempts to introduce modern communication technology at the university? Who supported and who resisted these developments?** Was resistance from not only employees but from some senior management as well? If so, what do you believe were the reasons of the different participants for this resistance to technological change? Did they believe this new technology might demand the inconvenience of learning new practices and even may disrupt work? How would you rate the level of employees then at the institute regarding communication technologies: low, medium or average? What were the reasons for this?

- **Who among senior management led the organizational change and implementation of communication technologies?** Was there a master strategy for the planned change? Was implementation carefully planned in advance, with meticulous attention to costs and benefits? How successful were you in gaining compliance from the participants to the planned changes? Finally, how would you rate the level of communication technologies during your period?

- **What has happened to communication and communication technology at the university since you left?** What do you feel about these developments?

- **Would you like to add anything?** Any recommendations?

Appendix B - General Interview Schedule

These are the equivalent questions that all participants (not including students or former senior management) were asked. (The objective of the interview was explained and also how might it contribute to them in the organization. It was also explained that it is not mandatory to participate.)

General information themes:

- **What is your name?** How old are you? Do you hold any academic degrees or professional certificates? What is your previous job experience?
- **What is your current position (job title) in the organization?** How long have you been with the organization? Did you hold other positions in this organization? What are the various responsibilities of your position? Do these responsibilities include communication technologies in any way? Is this a full time job or do you have other responsibilities outside this organization?

Communication themes:

- **What do you mean by "communication"?**
- **Do you interact with others, such as staff members and students?** How do you prefer to communicate? (Face-to-face, telephone, email, memos, letters, fliers, bulletins or general reports.) Why do you prefer this type of communication? Which type do you not use? Why? At Business University, what is the proportion of time (in %) you spend communicating versus working alone? Is this what you would wish or would you rather work in different proportions?

- **How would you describe the structure of the network of communication that exists within the organization?** For example:
  1. Is there a manager that is the center of the team through which all information passes? **or**
  2. Is every person only communicating with his or her immediate organizational neighbor but not with other members of the organization? **or**
  3. Is the communication just one-way downward communication from management to employees? **or**
  4. Does everyone communicate to everyone else?

- **Are there any complaints regarding the performance of the current system of communication?** Are there any requests for improvements of this system and do these include requests for communication technologies of any type?

Communication technology themes:

- **What types of organizational communication technologies exist in the organization? Which communication technologies do you use today at your current position?** How are these technologies employed relative to the more traditional organizational communication tools? For example, are they used more in upward communication, downward communication or horizontal communication? Are these technologies used to streamline record keeping and administrative tasks (such as the handling of information regarding students' grades)? How would you rate the extent of use of email versus mail delivery in the institute? To which extent and where does asynchronous communication exist in

this institute? (For example: email to the 'mother' institute, was it synchronous or asynchronous communication?)

- **Which communication technologies do you use at home?** (In order to get a better understanding of the technological background of the interviewee.)

Organizational change themes:

- **How important, in your opinion, are communication technologies for the success of this organization?** Are communication technologies helping your work here or disrupting it?
- **How successful were the attempts to introduce modern communication technology at the university? Who supported and who resisted these developments?** (These are indirect questions to crosscheck the participant's own opinion regarding communication technologies.) Was resistance from not only employees but from some senior management as well? If so, what do you believe were the reasons of the different participants for this resistance to technological change? Did they believe this new technology might demand the inconvenience of learning new practices and even may disrupt work? How would you rate the level of employees at the institute regarding communication technologies: low, medium or average? What are the reasons for this?
- **Who taught you to use communication technologies in the organization?** How much time was spent in this task? Who now teaches new employees to use communication technologies in the organization?
- **Would you like to add anything?** Any recommendations?

Appendix C - Specific Questions

These are the specific questions that the different participants (not including students or former senior management) were asked immediately after the equivalent questions in the general interview schedule of Appendix B. There were particular questions for each of the following nine groups or individuals:

- New Regime
- Middle management: Administrative
- Middle management: Academic
- Middle management: Marketing
- Librarians
- Secretaries
- System managers
- Lecturers
- Head caretaker

New Regime

- **How do you regard the use of communication technologies at Business University?** Was there a strategic management decision to invest (or not) in communication technology? In your opinion, did the senior management before you feel that there is no need to invest heavily in communication technologies in order to succeed?
- **How do you know you are effectively spending the right amount of money on communication technology, and that it is focused on the appropriate applications?** How do you evaluate the productivity you are getting out of your communication technologies? Are the communication technologies appropriately placed in the organization? Are any activities regarding

communication technologies, if any, out-sourced? Is there an executive steering committee responsible for the implementation of communication technology? If not, how is this handled?

- **How successful are your attempts to introduce modern communication technology at the university? Who supported and who resisted these developments?**
- **Who among senior management leads the organizational change and implementation of communication technologies?** Is there a master strategy for the planned change? Was implementation carefully planned in advance, with meticulous attention to costs and benefits? How successful were you in gaining compliance from the participants to the planned changes? Finally, how would you rate the current level of communication technologies?

Middle management: Administrative

- **Did senior management consult you before implementing communication technologies in the organization?** If so, how? (I will not ask this question from other participants except middle management in order not to create antagonism towards senior management from their employees.)
- **Do you feel communication technologies have improved various aspects of your work, such as student service?**

Middle management: Academic

- **Did senior management consult you before implementing communication technologies in the organization?** If so, how?
- **Does the introduction of communication technologies in the organization improve your communication to the lecturers both**

as a service provider (preparing materials for lecturers) and a controller (quality of lecturers)?

- **Do communication technologies play a part in the academic level of the university?** If so, how?

Middle management: Marketing

- **Did senior management consult you before implementing communication technologies in the organization?** If so, how?
- **Has the introduction of communication technologies in the organization helped you in recruiting students?** If so, how?

Librarians

- **What were the main changes in the library due to the introduction of communication technologies in the organization?**

Secretaries

- **When do you call the head caretaker?** When do you call the system manager?
- **Has the workload decreased or increased since the introduction of communication technologies in the organization?**

System managers

- **How long has your position existed?** Do you need any more help?
- **What are the main problems with the users of the communication system?**
- **Are you the one responsible for teaching employees how to use communication technologies in the organization?**

Lecturers

- **Have communication technologies in the organization helped you in any way to improve your level of teaching?** If so, how?

Head caretaker

- **What responsibilities do you have regarding communication technologies in the organization?** When do you call the system manager?
- **Who uses the most communication technologies in the organization among the lecturers? The secretaries? Middle management?**

Appendix D – Students' Interview Schedule

These are the questions that only the students were asked in the study. Although the questions in the interview schedule were adapted for the students, these questions were still based on the themes of communication, communication technology and organizational change in order to allow comparisons with other participants. (The objective of the interview was explained and also how might it contribute to them as students. It was also explained that it is not mandatory to participate.)

General information themes:

1. **What is your name?** Year of studies? How old are you?
2. **Towards which degree are you studying?** Do you hold any academic degrees or professional certificates? Where do you work and what is your job experience?

Communication themes:

3. **What do you mean by communication?**
4. **Do you interact with others, such as staff members and other students?** How do you prefer to communicate? (Face-to-face, telephone, email, memos, letters, fliers, bulletins or general reports.) Why do you prefer this type of communication? Which type do you not use? Why?
5. **Are there any complaints regarding the performance of the current system of communication?** Are there any requests for improvements of this system and do these include requests for communication technologies of any type?

Communication technology themes:

6. **Which communication technologies do you use today at the university as a student?** How are these technologies employed relative to the more traditional organizational communication tools?
7. **Which communication technologies do you use at home?** (In order to get a better understanding of the technological background of the interviewee.)

Organizational change themes:

8. **How important, in your opinion, are communication technologies for the success of this organization?** Are communication technologies helping your studying here or disrupting it?
9. **How would you rate the level of employees (such as secretaries) at the institute regarding communication technologies: low, medium or average?** What are the reasons for this?
10. **Who taught you to use the organization's communication technologies?** How much time was spent in this task?
11. **Do you have anything to add on the subject or any comments?**
12. **If something comes to mind later, please tell me and I'll add it.**

Appendix E – Sample Interview Transcript

Below is an extract from the transcript of the interview with Danny Kent, one of the lecturers at the university.

14/04/02
Sunday
19^{15} - 19^{54}

General information themes:

Note: This section had identifying details and thus, to ensure anonymity, it was accordingly omitted.

Communication themes:

- **What do you mean by "communication"?**

"I teach at another university a course named 'Skills for Communication' – a mandatory course for students. In this course computers aren't taught at all. It has in it, research methods. It teaches how to gather information – to decide what are the objectives, the subjects and so on. After the last sentence at the end of the first lecture, [the students] ask for a pill for a headache."

(*) Humor. Uses humor to pass me a message.

"Everybody thinks that communication has got to be two sided. I spend 5 hours to convince that communication is one sided. When you drive in your car and there is noise, the car has transmitted information. A dog is barking like crazy – here is one-sided communication. Communication is anything you take out of your mouth. A telephone is intensive communication – it works with more senses, versus a newspaper – less intensive."

(*) This is a unique approach to communication. He has a unique view of the subject of communication, focusing on the one-sided. This is very interesting theoretical material for the doctorate.

Note: This section had several more questions and answers. It was then followed by a section with communication technology themes and a section with organizational change themes. The interview ended with the following:

Specific Questions: Tutors

- **Have communication technologies in the organization helped you in any way to improve your level of teaching?** If so, how?

"Nothing helped me as a lecturer. I bring everything with me! Has a lecturer here ever gotten a laptop? He should put a collateral check of 10,000 NIS. This is ABC!"

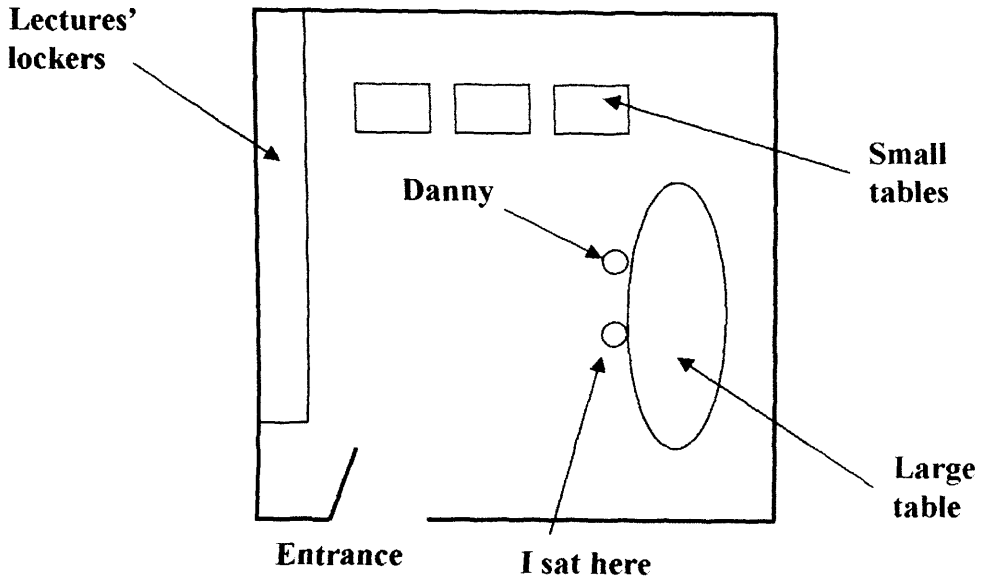
- **Would you like to add anything?** Any recommendations?

"I do not have any special comments. I think we covered everything. It's a pity that Richard doesn't turn to us for help. I just feel that we are going and losing altitude.
Tests without examiners, what should a student feel when his lecturer examines him. They just told me that."

When we stood up and got out of the lectures' room, he said:
"You know what, I'm not sure that I'll stay here!"
Why? I asked.
"I don't have the strength for all the things here! The nonsense of the army of virgins is killing me."

Comments

Place: Lectures' Room



- Overall this was a very good interview. Danny was direct as usual and wasn't afraid to say anything!
- He gave some interesting directions in the theoretical sense, such as the subject of one-way communication. I could compare this research material to the theory in the analysis chapter.
- The sitting arrangement contributed to the atmosphere and we were alone and were not disturbed in the middle.

16/05/02
Sunday
About 21^{00}

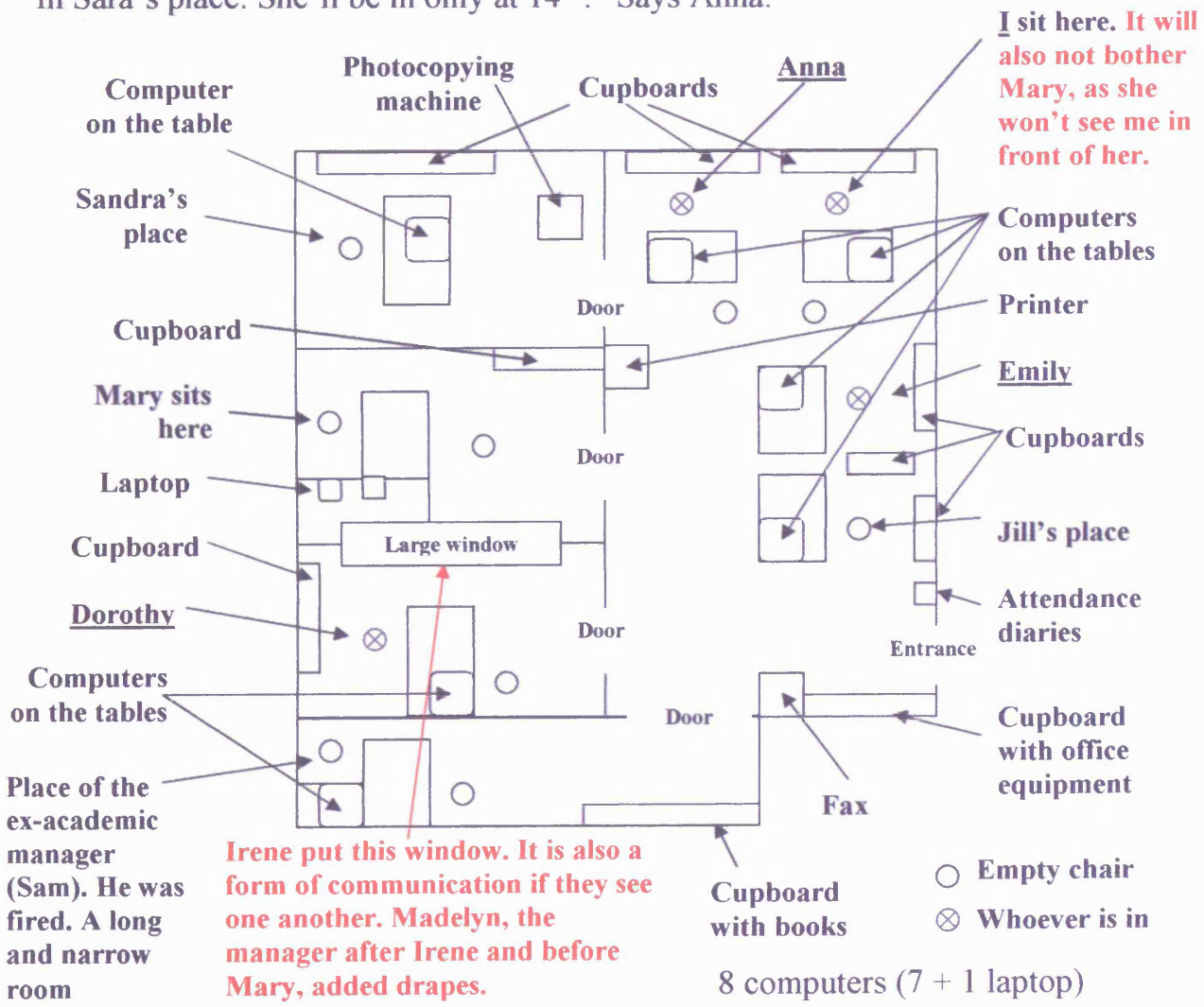
After a week of studies in the summer semester, I saw that Danny wasn't teaching. I asked Mary what's with him. I thought that maybe he simply does not teach in the summer semester. Mary answered that Danny left the university, just as he said he would. It is interesting, that like other interviews, at the end before we part, people say the most interesting things.

Appendix F – Sample of Static Observation Transcript

Below is an extract from the transcript of the static observation conducted at the secretariat.

24.04.02
Wednesday
09^{04} - 11^{00}

09^{04} I arrive at the office. The persons there are Emily, Dorothy (in her room) and Anna. I tell all of them good morning, and I ask where I could sit. "In Sara's place. She'll be in only at 14^{00}." Says Anna.



8 computers (7 + 1 laptop)

09^{07} Enters Dr. Patrick Block, a lecturer on media communication, and takes a diary.

Mary, the manager enters a second after him.

Mary: "Run quickly! You're late! You have a class!"

Patrick: "Yes, I got stuck in a traffic jam."

He takes the diary and leaves. He didn't even catch a glimpse of me.

Note: There were notes from 09^{07} to 10^{32} which were omitted here.

10^{32} Emily enters Mary's room for a moment and comes out with a piece of paper in hand. She files it.

(*) Paperwork – there is too much use of paper than email. Mary could have sent an email, thereby saving the accumulation of paperwork.

10^{40} Dorothy goes out from her room with another box of cigarettes. She goes into Mary's and they both go out of the secretariat (probably to smoke a bit).

10^{45} Emily is on the computer working slowly.
Anna is on the computer working fast.

(*) Age difference? Is the generations gap meaningful here? It is probable. I should look into this.

10^{52} Dorothy and Mary come back. "That's true." Dorothy laughs.

(*) Probably reacting to something Mary said. You don't always hear all the communication from someone.

Dorothy enters her room.

Mary enters her room as well.

$10^{\underline{53}}$

Mary goes out and comes directly to me.

"How is it going?" She asks.

"Very well." I answer.

"Great." She says and leaves.

(*) She seems to be in pressure from the observation – her body language!

I decide to end the observation. I am getting negative vibrations. I'll wait another moment in order to not go immediately.

$11^{\underline{00}}$ I bid everyone good bye and finish the observation.

Comments

- A very short observation and from the feedback Mary gave, it is better this way. It is not recommended that I undertake another such observation in the near future and maybe not at all. Mary and all the staff are in a lot of pressure, perhaps due to all the changes.
- It is important to address in the research the subject of the different telephones. There are those that are actually connected to the computer at some level. For example, a fax can also be sent directly from the computer, something that I've not seen here so far.
- The fact Mary came back displeased with the meeting with Richard insinuates that there is some sort of managerial problem. It is important to address this in some form, because it came up before in other clues in the past. It is important to check this in the re-interview of Richard.

Appendix G – List of Collected Documents

The documents collected during September 2001 up to June 2002 include various types that were categorized in the following manner:

Type of Document	Date
1. Formal documents:	
Protocol of a team meeting with the former academic manager and lecturers	January 2000
Quality treaty (created and signed by the new senior management)	November 2000
ISO 9000 Certification for providing training services	July 2001
Location study (undertaken by an external company)	March 2001
Three hardware letter orders from different managers to the system manager	August 2001
Three hardware fax proposals of suppliers sent to the system manager	August 2001
Hardware fax order sent by the system manager to the chosen supplier	August 2001
Course grade list in Hebrew and in English	August 2001
A questionnaire for students to give lecturer appraisal	September 2001
An email from the academic coordinator to a lecturer	September 2001
Emails between an Israeli lecturer and a manager in the mother institute	October 2001
An email from the academic coordinator to a lecturer	October 2001
Fax sent by secretary to the mother institute abroad	October 2001
A letter from a secretary to the top senior manager created by excel	October 2001
Two course syllabuses in English from the mother institute	October 2001
One syllabus in English from the mother institute and its Hebrew translation	October 2001
A letter to lecturers by the administrative manager and the academic manager	December 2001
Five requests by the academic manager to explain five different syllabuses	December 2001
Three hardware fax proposals of suppliers sent to the system manager	January 2002
Hardware fax order sent by the system manager to the chosen supplier	January 2002
Handout given to the students that gives the dates of a course	January 2002
Procedure for students appeal glued on the door of the locker of each lecturer	February 2002
A letter for the lecturers requesting their open days for the next semester	March 2002
An email from the academic coordinator to a lecturer	April 2002
Emails between an Israeli lecturer and a manager in the mother institute	April 2002
Goodbye letter by the academic coordinator put in the locker of each lecturer	April 2002
Article handed by a lecturer to the students during an observation	April 2002
Internet pages of the site of Business University	June 2002
Emails between an Israeli lecturer and the library of the mother institute	July 2002
2. Informal documents:	
An informal email of happy new year sent by the academic manager	October 2001
An informal memo sent by the administrative manager to a secretary	October 2001
A letter showing the financial problems of a competing university (gossip)	April 2002
An informal email from the academic coordinator to a lecturer	April 2002
Informal emails: an Israeli lecturer and a manager in the mother institute	April 2002
3. Non-written documents:	
A picture of a baby in a sink with dirty dishes found during an observation	March 2002

Table G.1: List of Collected Documents