1989

A communications audit for the Office of Enrollment Services at California State University, San Bernardino

Elizabeth Mary Kalebu Kyeyune-Nyombi

Follow this and additional works at: https://scholarworks.lib.csusb.edu/etd-project

Part of the Organizational Communication Commons

Recommended Citation
Kyeyune-Nyombi, Elizabeth Mary Kalebu, "A communications audit for the Office of Enrollment Services at California State University, San Bernardino" (1989). Theses Digitization Project. 495.
https://scholarworks.lib.csusb.edu/etd-project/495

This Thesis is brought to you for free and open access by the John M. Pfau Library at CSUSB ScholarWorks. It has been accepted for inclusion in Theses Digitization Project by an authorized administrator of CSUSB ScholarWorks. For more information, please contact scholarworks@csusb.edu.
A COMMUNICATIONS AUDIT FOR THE OFFICE OF ENROLLMENT SERVICES
AT CALIFORNIA STATE UNIVERSITY, SAN BERNARDINO

A Project
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Special Major

by

Elizabeth Mary (Kalebu) Kyeyune-Nyombi
March 1989
A COMMUNICATIONS AUDIT FOR THE OFFICE OF ENROLLMENT SERVICES
AT CALIFORNIA STATE UNIVERSITY, SAN BERNARDINO

A Project
Presented to the
Faculty of
California State University,
San Bernardino

by
Elizabeth Mary (Kalebu) Kyeyune-Nyombi
Winter 1989

Approved by:

Dr. Walter Stewart, Acting Chair
Information & Decision Sciences

Dr. Javad Varzandeh, Professor
Information & Decision Sciences

Dr. Dorothy L. Mettee, Professor
Communication
# TABLE OF CONTENTS

## INTRODUCTION AND BACKGROUND

- Function of the Office ........................................... 1
- Personnel ................................................................ 2
- Nature of Communication Problems in this Office .......... 2
- Statement of Purpose and Objectives ......................... 3
- Research Questions .................................................. 3

## METHODS

- Research and Documentation for the New Telephone System .... 5
- Face-to-face Interview .............................................. 5
- Consultation ................................................................ 6
- Observation .................................................................. 6
- Communication Questionnaire ..................................... 6
- Survey Instrument .................................................... 8

## DISCUSSION OF RESULTS AND FINDINGS

- Description of The New Telephone System .................. 9
- Voice and Data Switching Systems ............................. 13
- System Architecture ............................................... 14
- Network Analysis and Advantages ............................. 16
- System Operation and Description .............................. 22
- New Telephone System Benefits ................................ 25
- Management Expectations of the New Telephone System .. 25
- Employee Perception of the Communication Processes and Climate ......................................................... 26
  - Observations .......................................................... 26
LIST OF FIGURES

Figure 1 - Example of a Communication Channel Interoffice Signaling Network

Figure 2 - Communication Channel and Common Signaling Channel

Figure 3 - NEAX2400 IMS Architecture

Figure 4 - Network Specifications

Figure 5 - The outside view of Dterm 16 button set
INTRODUCTION AND BACKGROUND

California State University, San Bernardino (CSUSB) opened in 1965. For the twenty-three years since that date, this university has subscribed to the services of American Telephone and Telegraph Company for its communication needs. However, over the years, the telecommunication needs have grown due to both the growing student population and the growing telecommunications technology. For example, the old system was inefficient in that it lacked the necessary functions of today's integrated communications systems such as unlimited expansion, video distribution network for some offices, data communication without the use of modems that rendered it very expensive, flexibility of expansion, teleconferencing without operator assistance, to name a few. As a result of the university growth, and technological needs, the university decided to buy a new telecommunications systems using American Protection Inc. (API) of National Electrical Corporation of America (NEC America).

This communication audit will be conducted for the Office of Enrollment Services because of the nature of this office's duties and services to the student body and to the University.

Function of the Office

The Office of Enrollment Services functions as a recruitment center for the university. The major tasks
assigned to this office are:

1. The development and implementation of marketing strategies for selected student populations including international students, military, disabled, and re-entry adult students.

2. The analysis of the University's outreach service area to determine market penetration and yield.

3. The development and implementation of recruitment program targeted at high school seniors with exceptional abilities in specific academic performances areas.

4. The development of a means to automate and maintain prospective students data-base file.

Personnel

There are approximately 150 employees in the Office of Enrollment Services. The management of this office is the responsibility of Mr. Don Kajcinskie, the Associate Vice President of Enrollment Services.

Nature of Communication Problems in this Office

The following is a list of of the current telecommunication problems in this office:

1. The current GTE (General Telephone Electronics) system, which has been the telecommunications services used by the university ever since it opened, was found to be inefficient and could no longer meet the overall needs of the University, particularly the needs of the Office of Enrollment Services.
2. A more efficient telecommunications system with the most modern technology equipment was needed in order for the recruiters from this office to effectively recruit students.

3. The current GTE centrex system does not allow data communications without the use of expensive modems.

4. Direct calling and teleconferencing can only be accomplished with the current GTE system via telephone operator assistance.

Statement of Purpose and Objectives

The purpose of this audit is to examine the new communications system at CSUSB from both the user and the managerial point of view and to determine how to improve and enhance communication and production in the Office of Enrollment Services at CSUSB, and to enable management to make better planning decisions.

This study will include an analysis, evaluation and documentation of the internal communications requirements of the Office of Enrollment Services at California State University, San Bernardino.

Research Questions:

The study will focus on the following questions:

1. What are the general description, design, and network of the new telephone system?

2. What are the benefits of the new telephone system?

3. What are management expectations of the new telephone system?
4. What are the employee perceptions of the current communication process and climate in the Office of Enrollment Services?

5. What is the effectiveness of the telephone training?
METHODS

In order to begin the audit process, an interview was conducted on September 27, 1988, with Mr. Don C. Kajcienski, Associate Dean of Enrollment Services, at CSUSB to request authorization for a Communication Audit to be conducted in the Office of Enrollment Services. Mr. Kajcienski authorized the audit to be conducted in conjunction with the installation of the new communications system, and he offered his assistance in any way necessary. He wrote a memo to all individuals who would be interviewed for the audit requesting their assistance in the project. (See appendix)

The following are the data-gathering methods used for this study:

Research and Documentation for the New Telephone System

The research and documentation of the general description, networking, and system operation for the new telephone system was obtained from the NEC America manual, NEAX2400 series manual, and the Staff Development Training manual for CSUSB.

Face-to-face Interview

The purposes of the meeting with Mr. Kajcienski on the 27th of September were both to get permission to conduct the audit and to ascertain management expectations of the new telephone system.
Consultation

This method included information-gathering consultations with the people who were most actively involved in the implementation of the new telephone system. This included:

1. The men and women who were in charge of installing the new telephone system.

2. Employees of the office of Enrollment Services.

3. The university's telecommunications officers.

4. API trainers.

5. The secretary at API.

Observations

In order to gain information about the reactions of the trainees to the training provided, selected subjects from the Office of Enrollment Services were observed during meetings and training sessions.

Communication Questionnaire

The communication questionnaire was designed to ascertain employee opinion regarding several aspects of the communication processes in the Office of Enrollment Services and to use it in a study of the new telephone system. These aspects included information flow, employee involvement, communication channels, communication climate, demographics, and training.

The techniques used in this questionnaire were from Seymour (1983).
The first questionnaire was administered to survey the general perception of the current communication climate in the office. The purpose of the second questionnaire (Survey Instrument) was to determine the effectiveness of the new telephone system training. Goldhaber (1984).

Both questionnaires were delivered to the individuals via intercampus envelopes. Another envelope was attached to each survey to facilitate the return of the completed questionnaires.

The research questionnaire for this survey was divided into four sections. The first section measured the respondent's perception of informal information given and received on the job and consisted of eight questions. The second section pertained to the communication channels used on the job and consisted of five question. The third section was on general demographic; this section consisted of eight questions. The fourth and final section asked for information on the actual training received for the new telephone system and consisted of eleven questions. The numbering of the questions in section four (the training section) is not consecutive with the numbers in the previous sections because of the need to emphasize this section.

The scale used for the survey was a Likert-type scale ranging from 1 to 5, with one ranked highest. Room was also provided for additional comments. The respondents were asked to circle a number on the given scale and that which
most closely represented their opinion. The total number of questionnaires distributed was twenty.

The data gathered from the survey was analyzed, and the results are included in the following section on findings.

The Survey Instrument

The instrument was designed to measure the employees' expectations of the new telephone system, whether or not these expectations were met, and whether or not the training for the system was seen as adequate.

In order to maintain consistency, this instrument was also designed with the same Likert-type scale.
DISCUSSION OF RESULTS AND FINDINGS

Data were gathered and analyzed. Findings for the different research questions follow:

Description of The New Telephone System

The NEAX2400 IMS (Nipon Electronic Automatic Exchange 2400 series Information Management System) to be used at CSUSB, is an Intelligent Digital Communications controller that offers all the functions and services of an Advanced Private Branch Exchange and can provide various integrated information services. The innovative modular hardware and software design allows the NEAX2400 IMS to serve the whole campus efficiently.

The communications system used at California State University, San Bernardino, is a National Electrical Code America (NEC America). This system uses Integrated Services Digital Network (ISDN); therefore, it is an Intelligent Digital Communications Controller System that offers all the functions and services of an advanced private branch of exchange and is capable of providing various integrated information services. The user has access to over 20 service features that enhance user productivity, reduce operating costs, and improve communication efficiency. The system's innovative modular hardware and software designs allow it to serve a large number of ports. Thus this Information Management System has the ability to be expanded from its present service capacity to a higher service
capacity, even to its maximum capacity, by using the existing hardware. This unique expansion capability allows the system to grow in a cost-effective manner as the user's requirements expand.

By serving as the controller of an integrated information network, the NEC Information Management System is able to integrate and enhance all forms of advanced information processing and management services. This system features combinations of both voice and data, and store and forward. Although these are the two features at California State University, San Bernardino, at the present time the system is well equipped for any additions should a need arise for additional features.

In order for NEC America to meet the growing demands of the campus, and to enhance their services to CSUSB, the company has developed a Common Channel Interoffice Signaling (CCIS) Network, using the NEAX240 IMS series. (See Figure 1.)

The CCIS allows data relating to service features and station and trunk status to be exchanged between nodes at a high rate of speed 64 Kilo bytes per second (Kpbs). Figure 2 is a diagram of nodes similar to those used by NEC America at CSUSB. The enclosed map indicates the floor plan of the offices under Enrollment Services, the office in which the audit will be conducted.

Fault messages from all nodes can be directed to one
FIGURE 1

Signaling Network
Example of a Common Channel Interface

Voice/Data link

Signaling link
Figure 2

Communication Channel

Common Signaling Channel
centralized node. A centralized attendant is not required at each node in the network, since attendant services can being provided to multiple nodes from one or more central locations.

Because network signaling is carried over separate signaling links, more efficient use of the network can be made possible via network trunks and thus reducing the number of trunk circuits required to provide a specified traffic capacity.

Alternate routing provides the CCIS network with maximum reliability. Should the signaling link between two nodes fail, signaling is sent over as alternate route, via another node, without loss of service. Directly connected redundant links can also be provided to assure the reliability of the network. The floor plan for the telephone cables is in the appendix.

The new system will reduce personnel because of the systems centralization capability. It also reduces hardware through better utilization of trunking facilities.

**Voice and Data Switching Systems**

This IMS supports advanced applications such as Remote Switching, Electronic Tandem Networking, Centralized Attendant Service, Direct Digital Interface, and others. The system has a non-blocking architecture and distributed processor control hierarchy which are designed to support traffic and control the load generated by voice and data.
switching. Station users can perform simultaneous voice and data transmission (at speed up to 56Kbps) over universal 2-pair wiring without the use of modems. Proprietary "Digital Instruments" (Dterm) may be provided to increase system flexibility and eliminate the need for conventional multiple line stations with their associated control equipment and cable plant requirements. The control, network and interface portions of the IMS can accommodate features, services and specific applications.

System Architecture

The NEAX2400 IMS architecture consists of three major functional components. They are: Distributed Controller, Digital Switching Network, and Port Interface. (See Figure 3.)

The Distributed Controller is composed of distributed multi-processing units, generic memory, data base instructions, system interface, and interface ports for the system.

The Digital Switching Network consists of a nonblocking digital time division switch, allowing all ports to be used simultaneously.

The Port Interface provides access to the public and private network for various types of terminal devices, including digital and analog telephones, data terminals, computers and subsystems such as Voice Mail Systems, Data Switch Networks, wide band Local Area Networks, Packet
Switches, and related communication and information services.

**Network Analysis and Advantages**

The Network Specifications figure shows who is talking to whom within Enrollment Services. They identify opportunities and problems such as communication nodes and bottlenecks. They focus on interactions between people. (See Figure 4.)

The NEAX 2400 IMS provides a unique set of advantages to users who quest for an advanced information system that is both flexible and dependable. Through the use of state-of-the-art computer controlled telecommunications technology, NEC is able to provide the following advantages.

NEAX2400 IMS at CSUSB offers 20 features which enhance user productivity, reduce operating costs, and improve communication efficiency. In addition, the control, network and interface positions of the NEAX2400 IMS can accommodate features, services and subsystems as required by specific applications.

Innovative modular hardware and software design allows the NEAX2400 IMS to efficiently serve from under 64 ports. Modularity gives the system the ability to be expanded from its minimum configuration to its maximum capacity as the need arises. This unique expansion capability allows the system to grow in a cost-effective manner as the campus requirements expand. The initial system investment is
### Network Specifications

<table>
<thead>
<tr>
<th>TYPE OF NETWORK:</th>
<th>Main-Satellite Network</th>
<th>Main-Remote/Campus Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUMBERING PLAN:</td>
<td>Office Code: Three digits&lt;br&gt;Sta. No: Four digits (Closed numbering system)</td>
<td>Office Code. First one or two digits of Station Number. Sta. No: Max. five digits</td>
</tr>
<tr>
<td>NETWORK SIZE:</td>
<td>Large (Nationwide)</td>
<td>Small (PBX Premises/Medium (Local Area))</td>
</tr>
</tbody>
</table>

Figure 4
protected through growth capability.

Through employment of state-of-the-art technology in the system circuity design, NEC has been able to reduce power consumption. As a result the current consumption of the system has been reduced to 60% of that of any conventional electronic PBX system. This energy saving oriented system design allows for the use of much smaller capacity main power equipment and air conditioning equipment. In parallel with the energy savings, the space requirement for the system has been reduced to one third when compared with that for a conventional electronic PBX system.

In a conventional switching system, various kinds of equipment are mounted in a cabinet group and are connected to each other by use of connecting cable. The NEAX2400 IMS, however, utilized a building block modular design. When installing the system, the required blocks are placed on top of each other in a building block formation and interconnected by flat cables.

The NEAX2400 IMS employs a "Universal Port" architecture that has the flexibility to accommodate station terminal equipment, trunks and adjunct processors. This universality allows the NEAX 2400 IMS to maximize slot space utilization and lower expansion costs.

The basic design philosophy of the NEAX 2400 IMS is to provide redundant capacity for all critical circuity such as
processors, control circuitry, memory, switching network and
power. By providing this redundancy, NEC is able to offer a
highly reliable system with an extremely high grade of
maintainability and sophisticated trouble diagnoses. The
NEAX2400 IMS has all the inherent reliability required to
control a total network integration service. It is
important to note that system redundancy is not available on
the smallest NEAX2400 IMS configuration.

The NEAX2400 IMS is designed and manufactured to
provide the highest level of system reliability. The
NEAX2400 IMS is designed with such features as: remote
maintenance, distributed call processing, error-correcting
memory, equipment redundancy (except on the smallest
configuration), battery backup, self-testing and automatic
system alarm indications to ensure unsurpassed reliability.
In addition, only the finest components have been used. In
addition, through the employment of LSI and custom LSI
technology the number of component parts has been greatly
reduced, thus lessening possible failures and insuring
continuous operation.

The NEAX2400 IMS attendant console is compact, desk top
unit equipped with non-locking keys and Light Emitting
Diodes. The LED's provide continuous information relative to
the status of calls in progress. The display will provide
station and trunk identification, class of service and the
number of calls waiting. The attendant console also
provides a flexible busy lamp field and digital clock.

In addition to supporting conventional station equipment, the NEAX2400 IMS can be equipped with the Dterm series digital electronic multi-function terminals. The Dterm terminals are intelligent microprocessor controlled terminals, which enhance the feature capabilities offered by the system and provide the service of conventional "key" telephones over 2-pair wiring. The Dterm instrument may be equipped with an interface adapter to allow simultaneous voice and data switching, without compromising the voice communication system.

Because the NEAX2400 IMS utilizes preassembled modules and plug-in type circuit packs, it is easy to install. Wiring connections, both internal and external, are made through simple to use standard plug-ended cables. In addition, with each unit and system having been fully factory tested prior to shipment, potential obstacles to easy installation have been held to a minimum. Furthermore, in the case of the Single Interface Module (SIM) configuration, Default Data architecture has been employed to simplify installation.

Because the system is constructed with first quality components, reliability is high and operation is trouble free. However, should a minor fault occur, the self diagnosing programs will detect the fault, and automatically make the needed corrections. If the problem is beyond the
internal correction capabilities of the system, the self diagnosing programs will automatically print the nature of the fault and the involved unit is identified on the man-machine interface equipment. The faulty plug-in unit can then be quickly replaced with little or no interruption of service.

The NEAX2400 IMS provides the ability of flexible numbering assignment to meet all forms of network integration service.

Because the NEAX2400 IMS utilizes a stored program control, performance enhancements and new features can be easily incorporated by simple changes in software. The NEAX2400 IMS is upgradeable by utilizing the most current software release and, when necessary, additional hardware. This means that the system will not become obsolete.
System Operation and Description

There are two kinds of NEAX2400 telephones at CSUSB as shown in Figure 5. One is the single-line voice telephone, and the other is the multi-line voice telephone. Both of these operating in almost the same way except that the multi-line voice telephone has two lines. Most executives have multi-line voice telephones. Faculty has single-line voice. Both telephones have the same capability. Thus either can be used as a stand-alone station or with a Centrex or PBX (Private Branch Exchange) system.

This telephone system offers a combination of programming ease and ergonomic design. Due to programming flexibility, this system can serve as a DSS station, an automatic-dialing telephone, or a feature-phone. It can access custom calling services from the telephone company, and communicate with electronic services requiring tone dialing. The telephone is tone/pulse switchable while placing a call or storing a number for automatic dialing.

In a Centrex service environment, a feature is usually accessed after flashing the hookswitch and dialing a special code. With this kind of telephone, a memory button can be programmed and labeled to allow feature access by pressing one button. For example, a number can be stored in a memory location that will automatically dial and set system forwarding or call forwarding to a specific extension number.
Timed hookswitch release duration can be adjusted to any desired speed up to 900 milliseconds and 3 seconds for compatibility with the connected system. Ringer tone is adjustable to distinguish ringing at several telephones located in close proximity.

The power source is a long-life lithium battery. There are no batteries to change and no power cords cluttering the work area. A message waiting lamp signals a message at the attendant or message center. The lamp also flashes during ringing to signal an incoming call. Local hold is a standard feature. The hold is independent of system hold and can only be retrieved by other single-line telephones connected in parallel. Figure 5 shows a multiline telephone.

The 3-position ringer control switch located on the rear of the telephone is used to adjust ringing volume for high or low, or to silence ringing.

Dip Switches 1-6 located on the side of the telephone are set to control selected features. These features are: tone/pulse dialing output, hookswitch normal or timed-release operation, timed-release duration, and ringer tone frequency.
The outside view of Dtecm 16 button set.

Figure 5
New Telephone System Benefits

The benefits from the new telephone system include:

1. Teleconferencing for the individuals on/off campus to be able to talk to more than one person at a time.
2. The capability to place and receive calls without operator assistance except for users who have restriction on their telephones.
3. Remote answering of the user's telephone from another phone within the system.
4. Improvement of internal communication of this office which enhances office productivity, as well as the employees' morale and motivation.
5. Automatic timing of each call.
6. Teleconferencing without operator assistance.

Management Expectations of the New Telephone System

Mr. Kajcienkie indicated that management expected the new telephone system to enable the Office of Enrollment Services to:

1. Improve recruiting methods of the Office of Enrollment Services.
2. Enhance the present data storage and retrieval for the Office of Enrollment Services.
3. Instantly retrieve student records from the computer instantly.
Employee Perception of the Communication Processes and Climate

Results from the data gathering instruments used in this audit are summarized below.

Observations.

The observation data indicated that individuals who attended the training sessions were both excited and nervous. The new telephone system created excitement but its unfamiliarity caused nervousness. The data also indicated that some people felt self-conscious during the training sessions and did not want to ask questions. Only one woman in the observed training sessions expressed lack of understanding of the procedures and requested an instruction manual.

Communication questionnaire.

People responded quite uniformly in that they all gave similar responses to most of questions, and as a result it was hard to gather workable data from this trend. However, on two questions (question #9 on channel of communication and question #1 on training) there was variance in the responses.

The table below shows the responses from each group of questions in the survey questionnaire.
The following is a discussion of the results of the above questionnaire grouping items.

1. Adequacy of information processes. 99% of the people surveyed perceived the information flow system in this office to be effective and efficient.

2. Employee inclusion in office decision-making. 99% of the people surveyed felt that they have never been included in any decision-making for the office.

3. Channels of Communication. The response varied. (See appendix.)

4. Communication climate. There was 100% strongly agree that it the communication climate for this office is good.

5. Demographics. 98% of those surveyed are women
ranging from 35 - 42 years old.

6. Training. There was a bit a variance in question one in the section on training. (See appendix.) The rest of the responses were similar.

The Survey Instrument.

The responses from the survey instrument indicated most people still do not feel competent enough on the using the new telephone system. Most of the responses (99%) were 3.5 on a scale of 1 to 5 (see appendix).

The following is a table showing the responses to the survey instrument.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Production has increased</td>
<td>3</td>
<td>99</td>
</tr>
<tr>
<td>2. Getting assistance from coworkers</td>
<td>2</td>
<td>99</td>
</tr>
<tr>
<td>3. Use trial and error (See appendix)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Got all information from training</td>
<td>4</td>
<td>99</td>
</tr>
<tr>
<td>5. Got info. from training booklet</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>6. System is just what I perceived be</td>
<td>3</td>
<td>99</td>
</tr>
<tr>
<td>7. Easy to use</td>
<td>4</td>
<td>99</td>
</tr>
<tr>
<td>8. Performs according to expectations</td>
<td>4</td>
<td>99</td>
</tr>
<tr>
<td>9. Confused about the new telephone system</td>
<td>4</td>
<td>99</td>
</tr>
<tr>
<td>10. Very satisfied with the new tel. system</td>
<td>3</td>
<td>99</td>
</tr>
</tbody>
</table>

The results of the survey instrument indicate a consistency of employee attitudes for most questions. The only notable exception is question 3 regarding trial and error learning. There is a general agreement that the new telecommunication system has had no significant affect on office productivity. Employees help each other operate the
system. Most employees felt that they did not learn enough about the new system from the training sessions. A very large percent (98%) felt that although the new telephone system has not been easy to operate it, it has met a lot of their expectations.

**Employee Perception of the New Telephone System Training**

Several people indicated that the training was not adequate to reduce their fears of operating the new telephone system. They did not feel that they had received enough training for the new system. (See table on Training in the appendix.)
CONCLUSION

The results indicate that most people looked forward to having the new telephone system operation. Although employees expressed a general dissatisfaction with the adequacy of the training provided for the new system, they are willingly attempting to learn its operation, and there should be major difficulties with the implementation of the system.

Management believes that employee morale and production will improve with the coming of the new telephone system in that every employee will have his/her own line, unlike the old system where so many employees shared the same number.

The survey indicates that information flow in the Office of Enrollment Services is effective and efficient although employees are not included in the office decision-making processes.

The survey supports that the Communication Climate in the Office of Enrollment Services is good (at 100% agreement in the survey.) However the Channels of Communication vary.

Also the survey indicates that although a very large percent (98% of those surveyed) felt that the new telephone system has not been easy to operate, it has met a lot of employee and management expectations.

Management feels that the new telephone system will reduce costs because of the many time and labor saving features designed into the system.
RECOMMENDATIONS

The recommendations for the new telephone system are based on findings and results for this audit.

1. More people should receive additional hands-on training in order to become competent and confident in the use of the new telephone system.

2. A more updated two-way intercom system be implemented for use on the voice system.

3. A detailed on-line system for the users should be available which would be a more precise guideline as to what each button does.

4. The PBX should be digital and used for specific data communication needs. Also, its capabilities should be tailored to meet and support access to multiple computing resources for users in this office.

5. An optional addition of data communication access by students residing in campus dormitories.

6. An optional gateways from departmental LANs to the various computing resources should be included.

7. An on-line directory information of system users, extension number, and location should be implemented.

8. It is also recommended that a study on the new telephone system be conducted soon after the implementation and be compared to the findings in this study for the purpose of evaluating the effectiveness of the new telephone system.
APPENDIX
The data gathering for this communications audit included interviews and consultation with representatives from API, CSUSB's Office of Enrollment Services, personnel, Office of Budget and Telecommunications. The following is a list of the names and the titles of the individuals interviewed and consulted with in preparation of this audit.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Don Kajcinskie</td>
<td>Associate Vice President, Office of Enrollment Services, CSUSB</td>
</tr>
<tr>
<td>Mr. Don. McKenzie</td>
<td>Director, Budget and Telecommunications, CSUSB</td>
</tr>
<tr>
<td>Ms. Dee Thomas</td>
<td>Assistant Personnel Director, CSUSB</td>
</tr>
<tr>
<td>Mr. Tim Baker</td>
<td>Trainer, API</td>
</tr>
<tr>
<td>Ms. Johnna</td>
<td>Executive Secretary, API</td>
</tr>
<tr>
<td>Mr. Khalil Daneshvar</td>
<td>Systems Analyst, Office of Enrollment Services, CSUSB</td>
</tr>
<tr>
<td>Mrs. Joyce Alta</td>
<td>Cordinator, Telecommunication, CSUSB</td>
</tr>
<tr>
<td>Mrs. Judith L. Haff</td>
<td>Secretary, Office of Enrollment Services, CSUSB</td>
</tr>
<tr>
<td>Dr. Dorothy L. Mettee</td>
<td>Professor, Department of Communications, CSUSB</td>
</tr>
<tr>
<td>Dr. Walter Stewart</td>
<td>Professor, Information and Decision Sciences, CSUSB</td>
</tr>
</tbody>
</table>
Date: February 10, 1989
To: All Staff in Enrollment Services
From: Don Kajcienski
Subj: Communications Audit

Elizabeth (Beti) Mary Kyeyune-Nyombi from the Office of the Systems Analyst for our department will be conducting a Communications Audit for the Department of Enrollment Services. The purpose of this audit is to improve our overall efficiency in spoken, written and any other form of communication including information processing and computing.

Beti will be calling upon each one of you to complete forms and questionnaires, to participate in interviews and/or focus group meetings. All information gathered from both the questionnaires and the discussions will be kept confidential and I encourage you to respond to these questions honestly. Beti will arrange interviews and focus group meetings with the supervisors to ensure minimal disruption of normal work patterns.

We greatly appreciate Beti's efforts in conducting this Communication Audit especially since we are acquiring new communication equipment.

I will emphasize that this Communication Audit is a
means of improving the way we communicate in our business and no one should feel threatened in anyway by the process. I hope that the Communication Audit results and recommendations will lead to a better and more efficient working environment for everyone.

Thank for your cooperation.
QUESTIONNAIRE

In the following questions, please CIRCLE the number which indicates your preference. With a scale of 1 being the highest, and a 5 being the lowest. For example: The instructions I receive about what to do are usually clear.

Agree strongly

Disagree strongly

1 2 3 4 5

After each question, there is a space for your comments. If there is not room, please continue on the back of the page.

Information you give and get on the job

1. The instruction I receive about what to do are usually clear.

Agree strongly

Disagree strongly

1 2 3 4 5

Comments:

____________________________________________________________________________

____________________________________________________________________________

____________________________________________________________________________

2. The quantity of information I receive is usually adequate for me to do my job properly.

Agree strongly

Disagree strongly

1 2 3 4 5

Comments:

____________________________________________________________________________

____________________________________________________________________________

____________________________________________________________________________
3. The information I receive usually arrives in time for me to do my job.

<table>
<thead>
<tr>
<th>Agree strongly</th>
<th>Disagree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

Comments: ____________________________

4. The information I receive is usually clearly expressed.

<table>
<thead>
<tr>
<th>Agree strongly</th>
<th>Disagree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

Comments: ____________________________

5. The style in which information is conveyed to me is appropriate.

<table>
<thead>
<tr>
<th>Agree strongly</th>
<th>Disagree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

Comments: ____________________________

6. I can usually provide the necessary information for others to do their jobs.

<table>
<thead>
<tr>
<th>Agree strongly</th>
<th>Disagree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

37
7. I am usually consulted on subjects about which I have information and expertise.

Agree strongly  Disagree strongly

1  2  3  4  5

Comments:

8. I am usually consulted about plans for the future of my part of the office.

Agree strongly  Disagree strongly

1  2  3  4  5

Comments:

Channels you use

Use a scale of 1 to 5. With 1 being the highest and 5 the lowest

9. The channels of communication I usually use on the job are:

Highest  Lowest

1  2  3  4  5

Face-to-face, one-to-one

Telephone
10. The channels of communication I prefer on the job are:

<table>
<thead>
<tr>
<th>Highest</th>
<th>Lowest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Face-to-face, one-to-one

Telephone

Written (memo)

Group meetings

Other (please specify)

Comments: ________________________________

___________________________________________________________________________

In the following questions, please circle the number which indicates your preference.

11. Most of the job-related information I get comes to me from my immediate supervisor.

Agree strongly Disagree strongly

| 1 | 2 | 3 | 4 | 5 |

Comments: ________________________________

___________________________________________________________________________
12. Most of the job-related information I get comes to me from my co-workers.
Agree strongly  Disagree strongly

|   | 1 | 2 | 3 | 4 | 5 |

Comments: _______________________________________________________

13. Most of the job-related information I get comes to me from people who report to me.
Agree strongly  Disagree strongly

|   | 1 | 2 | 3 | 4 | 5 |

Comments: _______________________________________________________

General questions
Agree strongly  Disagree strongly

|   | 1 | 2 | 3 | 4 | 5 |

Comments: _______________________________________________________

15. Generally speaking, I trust my co-workers.
Agree strongly  Disagree strongly

|   | 1 | 2 | 3 | 4 | 5 |

Comments: _______________________________________________________

40
16. I am satisfied with my opportunities for advancement.

Agree strongly  Disagree strongly

| 1 | 2 | 3 | 4 | 5 |

Comments: ______________________________________________________

17. I am challenged by my job.

Agree strongly  Disagree strongly

| 1 | 2 | 3 | 4 | 5 |

Comments: ______________________________________________________

18. age

over 60
59 - 50
49 - 40
39 - 30
29 - 20
under 20

Comments: ______________________________________________________

19. Time with company

more than 15 years
14 - 10 years
5 - 9 years
1 - 4 years
Less than 1 year
Comments: ________________________________

20. Education
High school
College diploma
Bachelor's degree
Master's degree
Doctorate
Comments: ________________________________

21. Gender
Male/female
Comments: ________________________________

Training

1. Do you feel that you the training for our new telephone system met your expectation?
Agree strongly Disagree strongly

1 2 3 4 5
2. Did you learn from it?

Agree strongly
Disagree strongly

Comments:

3. Do you feel equipped now to operate the new telephone system without any fears?

Agree strongly
Disagree strongly

Comments:

4. How about the individuals who conducted the training. Do you feel they knew what they were talking about?

Agree strongly
Disagree strongly

Comments:

5. Is what they taught what you were expecting to hear?
<table>
<thead>
<tr>
<th>Agree strongly</th>
<th>Disagree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1   2   3   4   5</td>
<td></td>
</tr>
</tbody>
</table>

Comments: __________________________________________

6. Do you feel you need additional training?

<table>
<thead>
<tr>
<th>Agree strongly</th>
<th>Disagree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1   2   3   4   5</td>
<td></td>
</tr>
</tbody>
</table>

Comments: __________________________________________

7. How did you like being trained on a nonlive system?

<table>
<thead>
<tr>
<th>Agree strongly</th>
<th>Disagree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1   2   3   4   5</td>
<td></td>
</tr>
</tbody>
</table>

Comments: __________________________________________

8. Do you feel you can operate the telephones without any assistance?

<table>
<thead>
<tr>
<th>Agree strongly</th>
<th>Disagree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1   2   3   4   5</td>
<td></td>
</tr>
</tbody>
</table>

Comments: __________________________________________
9. What kind of equipment do you have?
   Single line?
   Multi line?
   Both

10. How did you like Voice Mail?
    Agree strongly                  Disagree strongly
    1  2  3  4  5

Comments:  

11. Are you able to create your own voice mail box?
    Yes/No

Your help is deeply appreciated. Please place your questionnaire in the attached envelope, seal it, and return it to Beti in Student Services Building, Room 137.
SURVEY INSTRUMENT

For the statements please use the following scale:

A. Instructions:
   1 = the highest on the scales circle the number that is most right for you.

   If you feel that the new system meets your expectations then circle 1. (You can have halves, for example 2.5)

B. Please base your response on the following statements:

1. Production has increased due to new telephone system.
   1  2  3  4  5

2. I get assistance from coworkers to be able to operate the new telephone system.
   1  2  3  4  5

3. I use trial and error from my own judgement.
   1  2  3  4  5

4. I learned all I need to know from training sessions.
   1  2  3  4  5

5. I got all the information needed from the booklet provided by the trainers.
   1  2  3  4  5

6. The new system is just what I perceived it would be.
   1  2  3  4  5
7. It is easy to use.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Mean: 4.66

Sample size: 14 (for return rate %)

8. It is performs according to what we were told it would do.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Mean: 4.66

9. I am confused about how to operate it.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Mean: 4.66

10. I am very satisfied with it.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Mean: 4.66

These are the results of the survey questionnaire giving the number of responses (rating), frequency, percentage (%), the mean, and a histogram.

QUESTION 9 - Channels of communication.
A HISTOGRAM OF THE SURVEY QUESTIONNAIRE

QUESTION 9 - CHANNELS OF COMMUNICATION
QUESTION 1 - Training

<table>
<thead>
<tr>
<th>Rating</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>43.5</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>6.25</td>
</tr>
</tbody>
</table>

Mean: 3.20

Sample size: 16 (for return rate %)

These are the results from the survey instrument giving the number of the highest an individual response on the scales, the mean and the standard deviation. (These calculations were performed on items with some response variance.)
A HISTOGRAM OF THE SURVEY QUESTIONNAIRE

QUESTION 1 - TRAINING
QUESTION 3 - Survey Instrument

<table>
<thead>
<tr>
<th>Rating</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>29.4</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>17.65</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>3.5</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>5.89</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>5.85</td>
</tr>
</tbody>
</table>

Mean: 3.40

Sample size: 17 (for return rate %)

Description of calculations

The percentage of respondents was calculated based on the number of questionnaire sent, less the number of missing questionnaires. Take 100 divide it by that number times the number of responses.

The mean was \( \mu = \frac{\text{frequency/rating}}{\text{rating}} \)

i.e. \( \mu = \frac{17}{5} \)

where \( x = \text{frequency} \)

\( N = \text{number of ratings} \)
A HISTOGRAM OF QUESTION 3 OF THE SURVEY INSTRUMENT
BIBLIOGRAPHY


