

# The new media environment in Asia : implication for communication education and training : the Indonesian case

Naswil Idris

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**The New Media Environment In Asia : Implication For  
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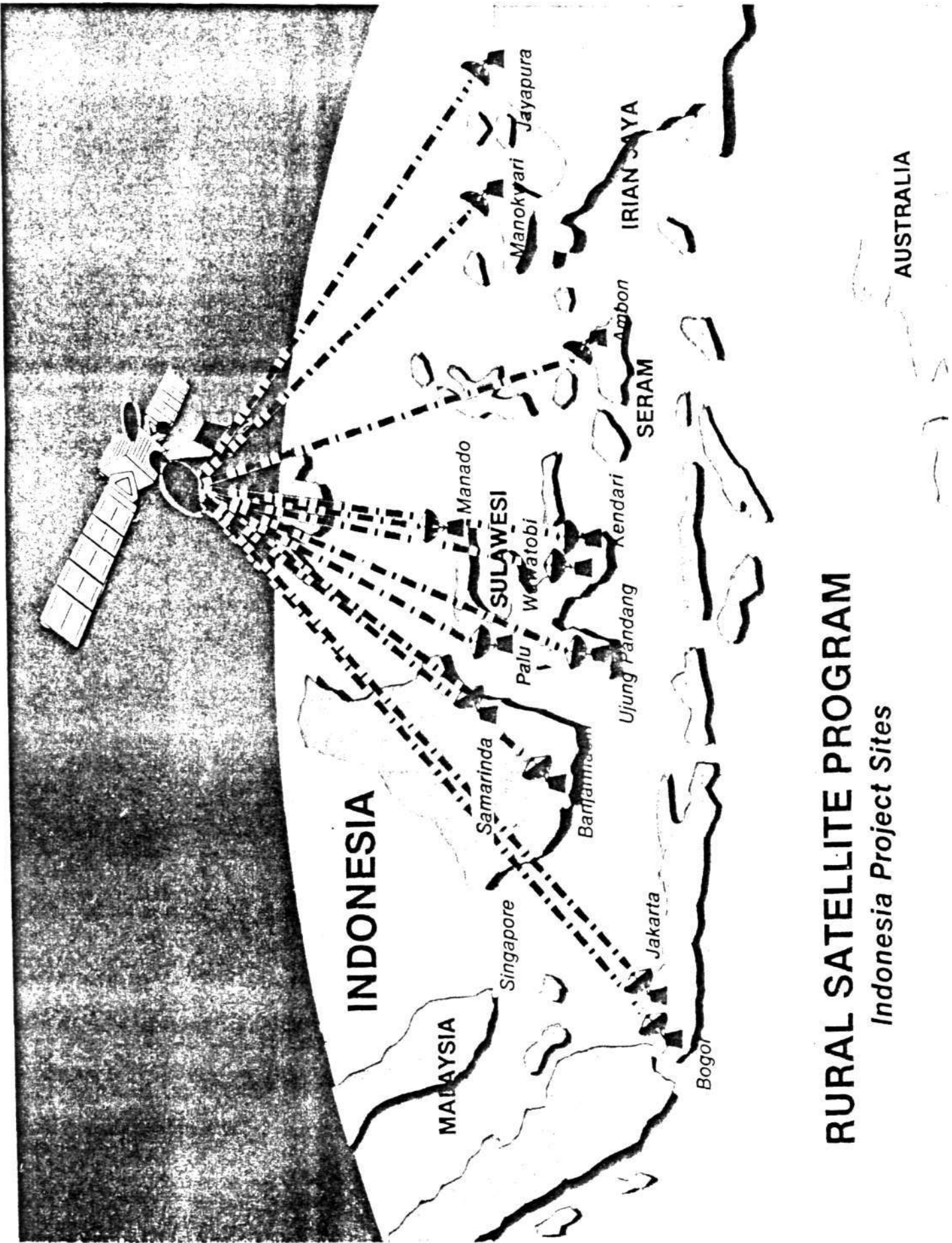
**By**

**Naswil Idris**

# **THE NEW MEDIA ENVIRONMENT IN ASIA IMPLICATION FOR COMMUNICATION EDUCATION AND TRAINING: THE INDONESIAN CASE**

**BY: NASWIL IDRIS**  
*Head of Communication Department*  
**UNIVERSITAS TERBUKA**  
*(The Indonesian Open Learning University)*  
*Jakarta, Indonesia*

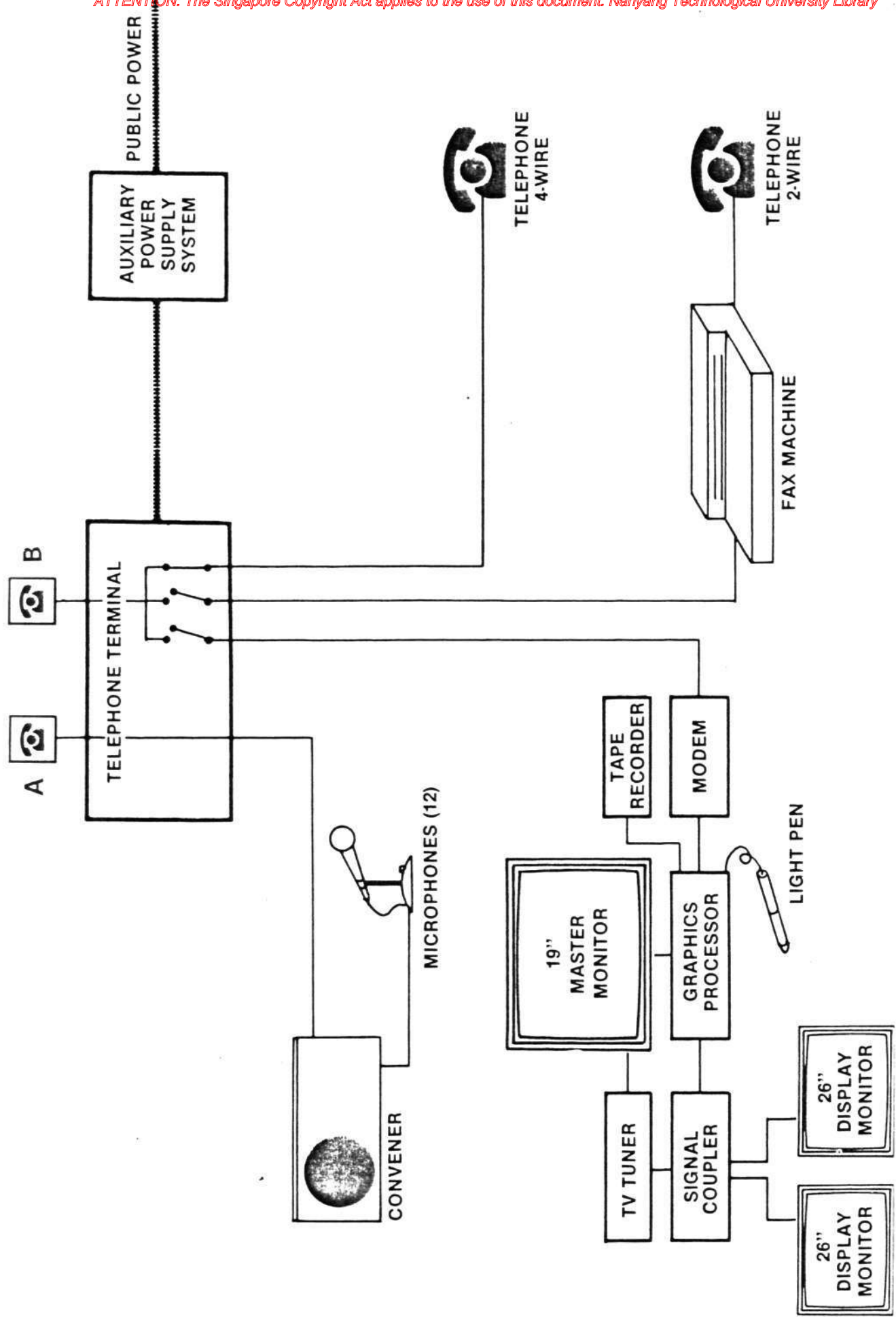
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July 16-18, 1992



# RURAL SATELLITE PROGRAM

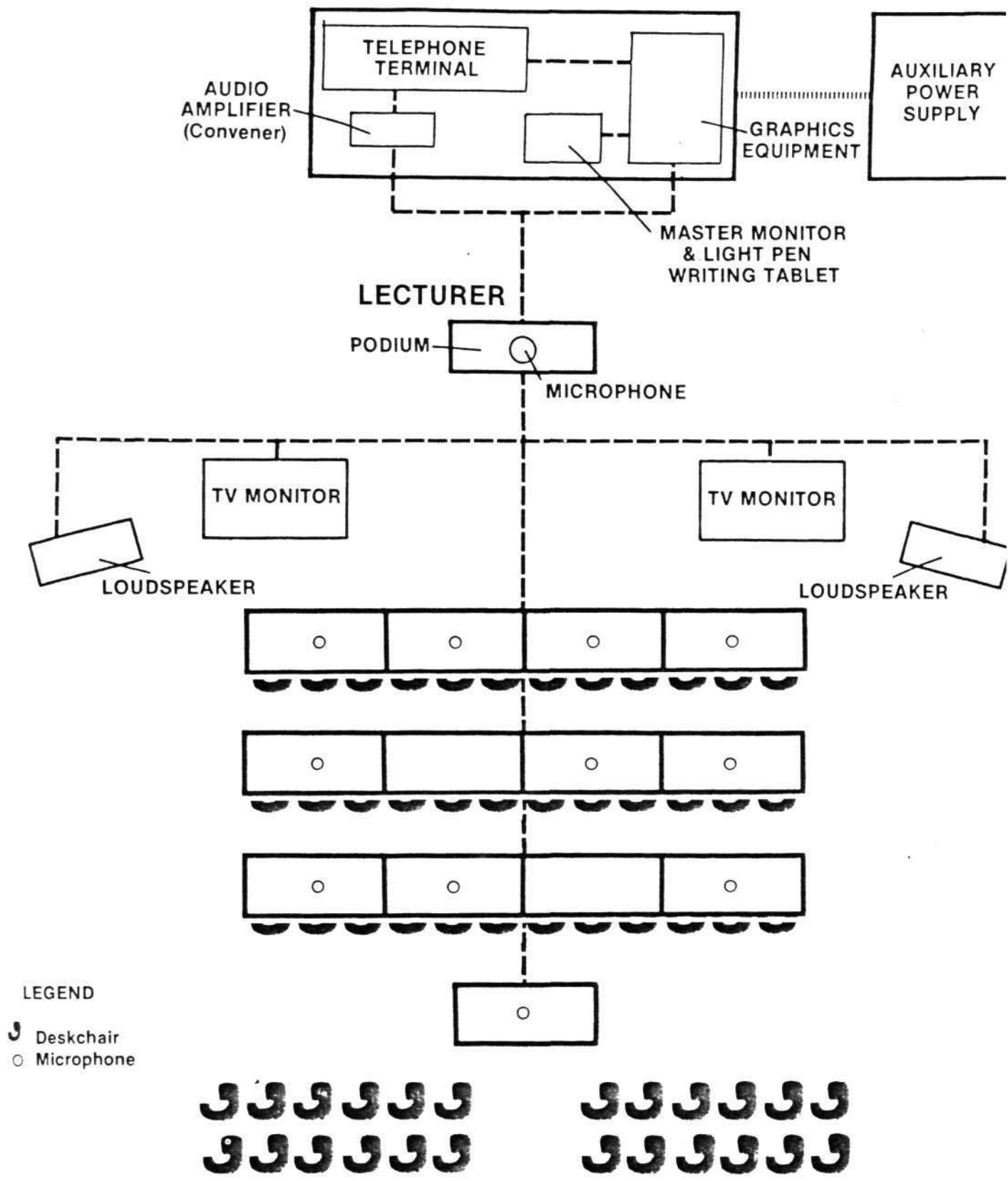
*Indonesia Project Sites*

AUSTRALIA



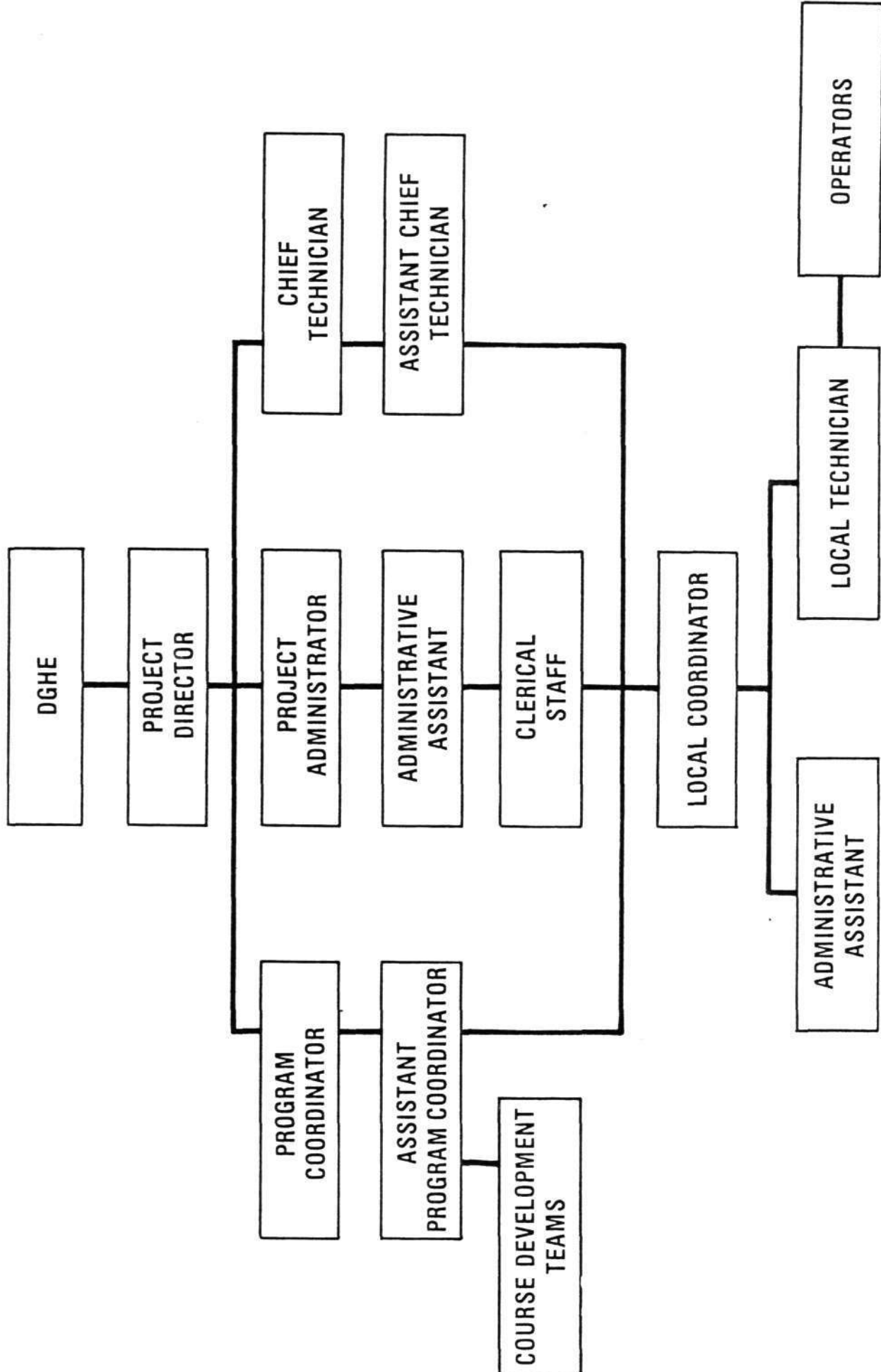
LAYOUT OF CLASSROOM EQUIPMENT  
IN INDONESIA





TYPICAL CLASSROOM  
INDONESIA PROJECT

SISDIKSAT MANAGEMENT STRUCTURE



#### Abstract:

The availability of new media in Asian Countries can contribute to the accessibility of educational information in the society to solve educational problems both in rural areas (lack of teachers) and urban areas (lack of time). Educational information should be made available for participants (consumers) who do not have chances to join the conventional education/training. The new media can reduce classroom meetings between participants and tutors (teachers). Hence, the cost of the classroom meetings could be reduced substantially.

Communication satellite technology in Asian Countries will contribute to the accessibility of educational information to rural and urban areas through several media. New media should be developed by communicators and educators together in Asian Countries. New Media are not necessarily replacing older media. Rather, they are supplanting and complementing them by providing otherwise inaccessible or costly communication services.

#### INTRODUCTION

Choice will underlie the learning process in the age of telematics. The learner of the future will be able to choose: when he or she wants to learn, where he or she wants to learn, and how he or she wants to learn. These choices imply that the future learner will become an increasingly active participant in the learning process ... The model of the active learner involved in his own learning process will replace the model of the passive learner receiving gems of transmitted knowledge (Ryan, 1981: 317).

Everett Rogers in his book 'Communication Technology: The New Media in Society', defined Communication technology as the hardware equipment, organizational structures, and social values by which individuals collect, process, and exchange information with other individuals. Certain communication technologies go back to the beginning of human history, such as the invention of spoken language and such written forms as the pictographs on the walls of caves. Mass media technologies (with at least the potential for reaching a mass audience) date from the clay tablets of such early civilizations as the Sumerians and Egyptians. In the decades that followed, such electronic media technologies as film, radio, and television became important. These mass media technologies are mainly unidirectional, allowing one or a few individuals to convey a message to an audience of many. During the 1980s, a different kind of communication technology became important, and it facilitated the exchange of information on a many-to-many basis through computer-based communication systems. Whether you call it 'the new communication technologies', 'the new media', or 'interactive communication', it is obvious that a very basic change is occurring in human communication (Roger, 1986).

All communication technology extends the human senses of touching, smelling, tasting, and (especially) hearing and seeing. Such extensions allow an individual to reach out in space and time, and thus obtain information that would not otherwise be available.

In the past, the basic division of the scholarly field of



communication has been a dichotomy on the basis of channel: interpersonal channels, which involve a face-to-face exchange between two or more individuals, versus mass media channels, all those means of transmitting messages such as radio, television, newspapers, and so on, which enable of source of one or a few individuals to reach an audience of many. This classification is mainly on the basis of the size of the audience, with interpersonal channels reaching from one individual up to a small group of fifteen to twenty. Now, scholars recognize a third category, "machine-assisted interpersonal communication" (Rogers, 1986), that has certain qualities of both mass media and interpersonal channels yet is different in several important ways from either one. An example of such machine-assisted interpersonal communication is the telephone; it does not fit into either category of mass media or interpersonal channels because it is neither face-to-face nor one-to-many. Examples of newer communication technologies are: teleconferencing networks, electronic messaging systems, computer bulletin boards, and interactive cable television.

## CHARACTERISTICS OF NEW MEDIA

### a. Interactivity

Rogers (1986) also mentioned that all of the new communication systems have at least a certain degree of interactivity, something like a two-person, face-to-face conversation. Interactivity is the capability of new communication systems (usually containing a computer as one component) to "talk back" to the user, almost like an individual participating in a conversation. The new media are interactive in a way that the older, one-to-many mass media could not be; the new media can potentially reach many more individuals than if they were just face-to-face, although their interactivity makes them more like interpersonal interaction. So the new media combine certain features of both mass media and interpersonal channels (Rogers, 1986).

Interactivity is a desired quality of communication systems because such communication behavior is expected to be more accurate, more effective, and more satisfying to the participants in a communication process. These advantages usually come at the cost of more communication message exchanges and the greater time and effort required for the communication process (Rafaeli, 1984).

So the most distinctive single quality of the new media is their interactivity, indicating their basic change in the directionality of communication from the one-way, one-to-many flow of the print and electronic mass media of the past century. In interactive communication systems, the individual is active rather than completely passive or reactive.

b. De-massified

The new media are also de-massified, to the degree that a special message can be exchanged with each individual in a large audience. Such individualization likens the new media to face-to-face interpersonal communication, except that they are not face-to-face. The high degree of de-massification of the new communication technologies means that they are, in this respect at least, the unlike of mass media. De-massification means that the control of mass communication system usually moves from the message producer to the media consumer (Williams, 1988).

c. Asynchronous

The new communication technologies are also asynchronous, meaning they allow for sending or receiving a message at a time convenient for an individual rather than requiring all participants to use the system at the same time. For example, say that an electronic message is sent to you on a computer teleconferencing network; you may receive it on your home or office computer whenever you log-on. Unlike a telephone call, electronic messaging systems avoid the problem of "telephone tag", which occurs when you call someone who is unavailable, then when they return your call you are unavailable, etc. Only about 20 percent of business calls directly reach the individual being telephoned. In new communication systems, the participants do not need to be in communication at the same time. The asynchronicity of computer-based communication means that individuals can work at home on a computer network and thus make their workday more flexible. The new media often have the ability to overcome time as a variable affecting the communication process (Rogers, 1986; Williams, 1988).

According to Rogers, three basic types of communication channels are distinguished in the following table.

Main Characteristics of Interpersonal, New Media (Interactive), and Mass Media Communication Channels.

Characteristics of Communication Channels	Face-to-Face Interpersonal Communication	New Media (Machine-Assisted Interpersonal) Communication	Mass Media
1. Message flow	One-to-few	Many-to-many	One-to-many
2. Source knowledge of the audience	Source has knowledge of the receiver as a single individual	Source may have a great deal of knowledge of the other participants in an interactive system.	Source is a media organization with little knowledge of the receivers
3. Segmentation	High (de-massified)	High (de-massified)	Low, the same message is transmitted to everyone (massified)
4. Degree of interactivity	High	High	Low
5. Feedback	Plentiful and immediate	Somewhat limited; may be either immediate or delayed	Highly limited and delayed
6. Asynchronicity (ability preserve to the message)	Low	High for most types of the new media	Low, but high for some media, such as books and newspapers
7. Socio-emotional versus task-related content	High in socio-emotional content	Low in socio-emotional content	Low in socio-emotional content



8. Nonverbal band	<sup>ST</sup> Lost of nonverbal communication	Some new media provide nonverbal communication	Visual mass media provide much nonverbal band; audio mass media do not
9. Control of the communication flow	Potential for equal control by the participants	Potential for equal control by the participants	Little control by the receivers of the mass media

#### NEW MEDIA, SOME EXAMPLES

a. Teleconferencing is a small group meeting held by interactive electronic communication among three or more people in two or more separate locations. The three main types of teleconferencing are video teleconferencing, audio teleconferencing, and computer teleconferencing.

b. Teletext is an interactive information service that allows individuals to request frames of information for viewing on a home television screen; these frames are transmitted in the vertical blanking interval of a conventional television broadcast signal. The lines of information for teletext are located above the picture seen on a television screen. Each of several hundred frames can be chosen by an individual via a keypad and, after decoding, viewed on a television receiving set.

c. Videotext is an interactive information service that allows individuals to request frames of information from a central computer for viewing on a video display screen (usually a home television receiver). The number of frames is potentially unlimited, other than by the capacity of the computer in the videotext system. Videotext requires a request channel (unlike teletext), so it is much more interactive in nature.

d. Interactive cable television provides for the sending of text and graphic frames, as well as full video pictures, to home television sets via cable, in answer to a request. The amount of content is potentially unlimited, other than by the head-end computer's capacity.

e. Computer-Mediated Communication Systems consist of a main computer that stores and processes messages content; it is connected to



users by telecommunication network. Two main types of Computer-Mediated Communication Systems are electronic messaging and computer conferencing.

f. Communication satellites relay telephone messages, television broadcasts, and other messages from one place on the Earth's surface to another. The satellites is usually placed in a geostationary orbit around the equator, about 22,300 miles from the earth's surface. Essentially, satellite transmission of television, telephone, and other information removes the effect of distance on the cost of communication. In the United States, satellites have been utilized since 1975 to distribute television programming to cable TV system; the rich variety of channel choices thus provided to American households has caused a rapid increase in the rate of adoption of cable TV (Rogers, 1986; Williams, 1988)

#### IMPACTS OF A NEW MEDIUM ON OLDER MEDIA

A new communication technology can have social impacts at various levels; the individual, group, or organization; or at the level of an industry, a sector of the economy, or society. One important issue is how the new communication technologies impact the existing mass media. Examples are how the introduction of computers has changed newspapers, how satellite transmission has speeded up the flow of international television news, and how computer editing has altered film production. These are illustrations of impacts mainly within the existing media. In addition, a new medium can compete with, or complement, an existing medium.

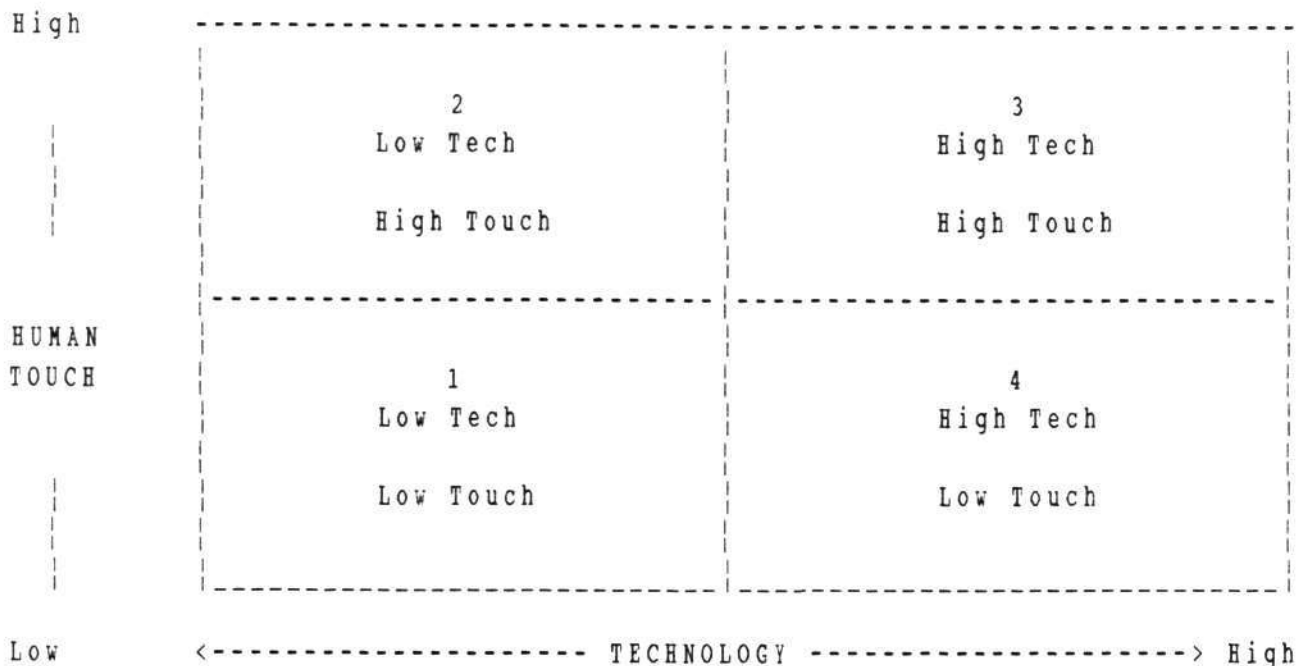
The increasing availability of communication satellites in Asian sky will increase the utilization of old and new media. Indonesia is one of the best examples in expanding telephone and TV coverage after the launching of the Palapa satellite.

#### ANOTHER APPROACH OF NEW MEDIA

Interactive Communication media is seen as having a "human touch", i.e., it is more human than other media (printed media and broadcasting), even though it is less human than face-to-face tutorial.

Kevin Smith, mentioned in his paper in AMIC Seminar (1990): "A particular medium might then be placed in a matrix showing, on the one hand, its level of sophistication and, on the other, its interactive capability". Four combinations of "Technology" and "Human Touch" emerge and it can be an interesting exercise to place the media that we use in our own systems in this matrix, with a view to determining whether the technology we are using is really providing that degree of "Human Touch" that we think our investment should yield.

## TWO DIMENSIONS OF TECHNOLOGY



(Smith, 1990, page 13)

Some examples might clarify this form of categorisation:

Square 1. LOW TECH/LOW TOUCH: text book, printed notes and lectures, tape-slide kit, home-study kits

Square 2. LOW TECH/HIGH TOUCH: audio cassette, audio vision, teleconference, teletutorial

Square 3. HIGH TECH/HIGH TOUCH: interactive radio, interactive video, computer-aided learning (CAL), electronic mail

Square 4. HIGH TECH/LOW TOUCH: one-way radio or television.

(Smith, 1990, page 13)

Such categorisation without a particular context can be no more than approximate since it is the particular way that a medium is used and the part it plays in a mix of media that will determine how much it inspires interactive learning, provides encouragement, stimulates motivation and generally "messages" the learner. Furthermore, a medium can be multifunctional".

Through interactive telecommunications, tutors and students can "message" the messages in seeking to achieving educational objectives.



## INNOVATION IN USING NEW MEDIA FOR EDUCATION AND TRAINING

### a. Virtual Classroom

The Virtual Classroom, an innovative program originating at New Jersey Institute of Technology, brings the university into the homes and work places of such students through the use of computers. Specially designed computer software electronically links the Virtual Classroom student to his or her professors and classmates. Using a microcomputer, a telephone, and a device called a modem, the student attends lectures, takes tests, receives feedback from professors, attend conferences with fellow students, and more. The advantage is that the student need not adhere to a schedule of class meetings. The student decides at what time of day he or she will review a lecture, ask a professor a question, take a test, etc. Computer messages are sent by the student and the professor at any time of day to review at any time of day.

An integral part of the Virtual Classroom project is research into the efficacy of on-line learning. Input from participating institutions is enabling researchers to gauge the effectiveness of the Virtual Classroom and to develop improved course materials.

Funding from The Annenberg/CPB Project is enabling NJIT to create a variety of teaching tools for the Virtual Classroom. The tools will be tested during their development on a range of courses taught at NJIT and neighbouring Upsala College. The new tools will give faculty members many options for controlling student work and will offer a model of how the system can be modified to support distant learners and to augment campus-based classes as well (NJIT Booklet, 1987).

### b. Project Share (Project Satellite for Health and Rural Education)

The objectives of this projects are:

- \* To establish a computer conference via satellites (INTELSAT and Palapa) for participants from universities in Indonesia (including Universitas Terbuka) and abroad.

- \* To explore the use of computer telecommunication networks (computer conferencing) as a new medium to support various academic activities such as: research, continuing education and project management.

- \* To facilitate the interchange and evolution of ideas and information over a period of time between Indonesian and academic institutions abroad in the areas of: biotechnology, medicine and computer networking.

- \* To demonstrate the establishment of computer communications via satellite between isolated communities and project centres in Indonesia and abroad.

The dedicated lines from the Indonesian sites converge in Jakarta, in the SKDP (public switch data service) network operated by Indosat (Telcom). An X.25, synchronous line at 2400 baud carries the data via a voice circuit on an Intelsat Pacific Satellite (Intelsat Project Share) to Vancouver.

From Vancouver the data travels on intergateway lines to the Teleglobe SL-10 computer in Montreal. The data leaves the SL-10 and terminates on the public Datapac network connected to the computer conferencing host (COSY) at the University of Guelph.

The reverse route carries participants using Datapac to connect to the University of Guelph to lease or retrieve information. All Indonesian communications go through Guelph. Project Share was started 1986 and terminated in 1988.

c. Experience in Open Learning Agency (OLA) Vancouver (Canada)

- \* Electronic publishing —> demand printing of learning materials.
- \* Electronic mail — all internal communications.
- \* Video teleconferencing - remote classroom having live interactive session with instructor.
- \* Electronic blackboard - interactive active computer graphics allowing live interactive communication.
- \* Slow scan video - adequate for much lecture activity.
- \* Knowledge Network - educational TV, largely through direct satellite up/downlink to remote sites.
- \* Computer conferencing - to allow student-student and student-instructor interaction.



## INDONESIAN EXPERIENCES

### a. Indonesian Distance-Education Satellite System (Rural Satellite Project--SISDIKSAT)

Telephone lines have also been used for satellite communications among universities in eastern Indonesia and the Directorate-General of Higher Education in Jakarta (sponsored by USAID Washington). The system is similar to audio teleconferencing in its ability to communicate with all 12 points at the same time (Shaw, 1987).

However, in addition to voice communication, the system is also able to present still-pictures (graphics) and facsimile. Universitas Terbuka is using the system to train tutors and to tutor students at the 11 sites.

Originally this system was designed for improving the quality of 11 separate campuses spread over more than 1,600 miles in the eastern part of Indonesia. Two dedicated telephone lines through the Palapa satellites are used.

This system facilitates audio conferencing for campuses, document transmission (facsimile) such as the outline of lecturers, time schedules, very important modules, and administration documents; and audio graphic (so-called tele-blackboard) to allow full interaction between lecturers and students.

In 1986, Universitas Terbuka initiated activities to improve the quality of audio graphics. Aregon equipment for audio graphics was replaced by microcomputers. (Tietjen, 1987).

The results were very good. Graphics and data were transferred clearly; much better than by the Aregon graphics equipment. This system is still used by universities in eastern Indonesia centered in Ujung Pandang.

### b. Computer Conference Information Systems (SIKKO).

Universitas Terbuka and six other universities with the R & D Department in "Indosat" then developed a new conference system (SIKKO), for gaining access by telephone line plus modem, to link universities within Indonesia and other information centres.

This system is being used for computer conferences in the areas of medical sciences, engineering, communication sciences and agriculture as well as for electronic mail.

### c. University Network (UNInet)

Under the supervision of the Directorate-General of Higher Education Universitas Indonesia in Jakarta was developing a microcomputer network for seven universities including Universitas Terbuka. The network has been operating since 1988. UNInet is expected

to serve all public universities in the area of management of information.

d. Electronic Letter

At the present moment Universitas Terbuka in cooperation with Postal Headquarter Office is planning to use Electronic letter (Ratron) through Palapa Satellite and link down to Post Offices for interactive communication facilities in remote areas, where learning centers are located.

e. Facsimile-Machine

This simple communication technology can contribute a lot for solving the problems of distance and time in sending educational information (and feedback).

## CONCLUSIONS

Currently, the use of telecommunication for education and training has increased, particularly in the areas of printed media, educational television and radio (oneway media). Those media have been used with some success at the primary and secondary school levels, but have been even more successful in distance education programs which are mainly for higher, continuing, and professional education. New Media Innovations, such as telephone-base teleconferencing and computer conferencing systems, have successfully supported education and training in the United States, Canada, and Europe. The Rural Satellite Program Projects in Indonesia have demonstrated that teleconferencing is an efficient and effective means of delivering training and instruction over vast distances to isolated and remote audiences in order to create High Human Touch as a complement to oneway media.

In general, New Media is an effective and successful way to deliver education and training, when: according to Tietjen (1987).

- \* The instruction is relatively specialized and not easily accessible;

- \* The number of learners is somewhat limited;

- \* Interaction is important to the learning process;

- \* The students are motivated and are experienced learners;

- \* Face to face instruction is either impossible, or of low quality, or too expensive;

- \* Highly skilled teachers are not readily available locally.

Higher and continuing education have proved a fertile area for the use of new communications technology. The need for communications, staff development, and expert resources makes teleconferencing a particularly appropriate and flexible means of institutional support.



Higher education is the area in which new communication technology has made the most significant advances as an instructional support tool. New media such telephone-based or teleconferencing systems allow for two-way communications, question and answer session, discussion, and immediate responses to learner needs. Unfortunately, due to some reasons, new media have a fewer impact in elementary school levels.

While the primary media is still printed, the importance and necessity of using a variety of new Communication Technology formats is increasingly needed for all of its organizational functions, especially in having interactive communication. The experiments, demonstrations, and pilot projects using the new media mentioned above represent a practical, experimental approach to determine the most efficient means for serving its students. New media approaches also solve another very practical purpose. They provide an immediate solution to many of the usual pressing problems facing many educational institutions in Indonesia, such as lack of qualified teachers in rural areas or lack student's time in urban areas. New Media are supplanting and complementing the older media in Education and Training but not replacing them.

It seems obvious that the information challenge in the future as we try to utilize the New Media to solve the problem of communication education and training in Asian countries.

However, if the low use of new media is mainly caused by the relatively high cost, so the new question now is "Can New Media provide the same quality of communication (previous media) in a lower price?"

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Naswil Idris  
Universitas Terbuka (Open University)  
P.O. Box. 6666, Jakarta 10001.  
Indonesia. Fax: 62-21 7490147 - 7490010  
Phone: 62-21 7490158/9.  
Telex: 47498 uter ia  
Cable: uter Jakarta.