AVAILABILITY AND USE OF INFORMATION, EDUCATION AND COMMUNICATION (IEC) MATERIALS BY HEALTH WORKERS IN IBADAN METROPOLIS

BY

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DEDICATION

This work is dedicated to:

My Dear Mother. Hajja Ashta Abdul,

All people who wish and deserve me nothing but success in my chosen career

And soberly,

To the blessed memory

Of my late father

Alhaji Ibrahim Goni

ABSTRACT

H Healtducation is a major responsibility of most health facility staff. Information, Education and Communication (IEC) materials such as posters, and flipcharts, are designed to make the health workers educational role more effective. IEC materials are produced by governments, non-governmental organisations, donor agencies and private companies in large numbers on numerous current topics including nutrition, communicable diseases, and road safety. Rarely do the producers of these materials determine whether their products reach front-line health staff and whether these staff actually use the materials. The objectives of this research were to assess the availability of IEC materials in Ibadan, determine whether health staff possess the skill, training, opinions, and self-confidence to use the materials and to document the pattern of use of available materials.

The study was exploratory and cross-sectional in design. Eight of the 11 LGAs in Ibadan were selected, and all LGA health facilities in those LGAs were studied. The nearest private clinic to each LGA facility were included. A total of 93 facilities responded, wherein each functional service unit was visited, yielding a total of 195 units. At least one health worker in each unit was interviewed, and 243 (97.2%) of the 250 approached agreed to respond. An observation checklist

was used to record the availability, condition and source of IEC materials in each service unit. A questionnaire was used to determine health worker characteristics, and their experiences, skills and perceptions concerning IEC materials. A four-point checklist was used to measure poster use skills, and a 16-point scale was developed to document perceived self-efficacy in IEC material use.

A total of 899 IEC materials were found in 178 (91.3%) of the service units, while 17 (8.7%) of the units had none. There was no significant difference ($p = 0.93$) in the presence of materials in units between private clinics (91.0%) and government facilities (91.7%). The average number of materials was significantly more on average (5.5) in government units than in private ones (3.9) ($p = 0.0027$). Posters were the most common form of IEC material (69.5%). The majority of units in both public (85.7%) and private (83.5%) of units had at least one poster.

Over half of the respondents reported that they had used the materials recently, that is "today" (18.9%), "yesterday" (14.4%) or "within the week" (22.6%). Skills were tested by giving each respondent a poster for National Immunization Days and asking him or her to demonstrate its use. Using a 4-point skill checklist, the researcher found that recent use was associated with skill ($p = 0.002$), ranging from 1.3 average points for those who used materials "today" to 0.7 for people who had not used materials in the past 6 months. Different cadres also showed significant variations in skill ($p = 0.002$), with physicians averaging

1.4 points, and auxiliary nurses scoring only 0.3. The ninety-seven (39.9%) respondents who reported receiving in-service training (IST) in IEC scored significantly better (1.2 points) than those who had not (0.8) ($p = 0.00002$).

A greater proportion of those who had IST (28.9%) report they had used IEC materials "today" compared with those having no IST (12.3%) ($p=00008$). A 16-points self-confidence scale was developed. A significantly higher mean self-confidence score was attained by those who reported use of materials "today" (13.4) compared to those who had not used materials in the past 6 months (11.6) ($p = 0.00003$). Less than half of the respondents 108 (44.4%) said that their co-workers encouraged them to use IEC materials. Thirty four (37.9%) of those who used IEC materials "today" reported encouragement, compared to 10 (12.2%) who had not used them in the past 6 months ($p = 0.00001$).

This study has documented that while IEC materials are available at local health facilities, their recent use is low. Furthermore skills, self-confidence, encouragement, and opportunities for IST were found to be factors that enhanced the use of IEC materials. From the foregoing, it is recommended that practical IST on IEC materials be organised at the LGA level and that follow-up encouragement and supervision be provided to facility staff by the LGA and State Health Education Unit staff.

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I am very grateful to my supervisor, Dr. W. R. Briggs, for making himself available for consultation and granting me free access to his library facilities in Igbo-Ora. I appreciate with the sacrifice of many hours by my supervisor upon his tight schedule and other pressing international commitments on health that he devoted his limited time in reading, criticisms and editing of the various drafts of the manuscripts that allowed me to work toward time instead of waiting for time in presenting the work in this form.

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Whilst thanking Almighty God for keeping me through the rigour of the MPH programme and making this study possible, I pray He grands me the wisdom to face all the challenges ahead of me in this noble profession and all my future endeavours.

Above all, may the protection against all odds, Mercy, and Blessing of Almighty God be upon all of us, Amen.

CERTIFICATION

I certify that this work was carried out by GONI, I. A. BA'ABBA in the Department of Health Promotion and Education, College of Medicine, Faculty of Clinical Sciences and Dentistry, University of Ibadan, Ibadan Nigeria.

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CHAPTER ONE

INTRODUCTION

Information, education and communication (IEC) for health gained prominence as a terminology for health education programming in many international and donor agencies in the early 1980s (Adeniyi, 1992). IEC brought together people from the fields of communication sciences, particularly journalism, and public health education in a response to technological innovations and growing sophistication in communication media development (Adeniyi, 1992). Health educators have documented the limitations of mass media (Green, Kreuter, Deeds and Partridge, 1980; Wallach, 1981), especially in developing countries (Brieger, 1990; Adeniyi 1992). Therefore, much attention on IEC in developing countries has focussed on more easily produced materials, including posters, handbills and flipcharts, that can be developed within the setting in which they will be used, such as a clinic that provides oral rehydration for children with diarrhoeal diseases (Brieger, Ramakrishna, Chirwa and Aday-Korei, 1988).

Background to the Study

Every man, woman and child should be in a position to choose a healthy way of life. To do this, they must be adequately informed on matters that have an influence on health. The World Health Organization (WHO, 1989) has issued a particular challenge within the context of its goal "Health for All" which is to reach

people with information on how to promote and protect their health. This is done by health workers talking with mothers and community groups about related health issues, distributing educational material(s) relevant to particular health programmes, or airing information through mass media programmes (WHO, 1981a). The International Conference on Health Promotion, held in Sundsvall, Sweden in 1996, highlighted that, "After identifying a health problem or its solution, a crucial next step is to create awareness among the population through Information, Education and Communication (IEC)" (Haglund, Pettersson, Finer and Tillgren, 1996).

The IEC is enhanced by the use of educational materials or software. These materials are often used to convey messages and create awareness. These messages might be targeted at individuals or groups of people in both rural and urban centres (McDonald and Hearle, 1984). According to the Alma Ata Declaration, these materials or software are normally used to facilitate activities such as community organization for health action and to encourage participation of health consumers in health programmes (WHO/UNICEF, 1978). From another perspective, IEC materials also support health professionals' effort in educating and reinforcing messages directly to their immediate target audience, such as people attending health facilities or listening or indirectly through mass media programmes (McDonald and Hearle, 1984).

According to the concept of Primary Health Care (PHC) people must be

active partners in the healing process. Likewise that, they must take responsibility for their own health, and they have to be empowered to do so (WHO/UNICEF, 1978). The provision of knowledge and relevant health information was visualised as a means of empowering people to take responsibility for their health, and therefore, locally designed health education that involved people in the design process should form the foundation for rural health communication (Srieger, 1990).

Simple IEC materials or devices used most often in carrying out and supporting health education activities could include the following (JHU, 1983; Uso, 1987):

- Printed materials, e.g. posters, flowcharts, pamphlets, calendars and stickers, and even caps and T-shirts with printed messages,
- Electronic audio devices, for example audio-cassettes that contain songs, short spots, jingles, and interviews that could be played on the radio or to a gathering of people,
- Electronic visuals that include slide shows and video cassettes, which could contain TV commercials, dramas, and training information, such as skill demonstrations, and
- Other forms of IEC materials that include displays, models, and photographs.

Definitions of these various items are found in Appendix A.

Statement of the Problem

With insight into the developmental nature of health problems, WHO concluded thus: "Lack of health information for the populace has been identified as one of the reasons for the upsurge of a number of preventable diseases in Africa" (WHO AFRO, 1995). This issue was also stressed by Dr. Ebrahim Samba, the WHO Regional Director for Africa, during the launching of the Regional Office's Health Information Package (AFROPAC) which individuals and health workers can use as the basis of IEC material development. Dr. Samba stated that,

> *I firmly believe in the use of information as one of the tools for promoting health. I have no doubt that if properly used and widely disseminated, this publication can set off a movement for better health through self-help. For Health Education to be effective, it needs to be appropriately packaged since it constitutes the basis for health programmes* (WHO AFRO, 1997).

The challenge for IEC is certainly, in part, one of producing "appropriately packaged" materials. It is equally one of distributing such materials widely and ensuring their regular and proper use. This study focussed on the second part of the challenge, and thus there is need to document which materials are received in from the health facilities, whether they are maintained in good condition and if they are used appropriately during health education in a competent manner.

As with AFROPAC, the sources of IEC materials can be international

agencies or can be nationally produced or adapted (Editor, 1981). Most health facilities are passive receivers of those materials. Health care workers lack an understanding of the roles of educational materials or not know how to use them appropriately (Birk, 1981; Akinwande, 1993). The World Federation of Public Health Associations (WFPHA) stated, "Another key issue is that when materials were developed and produced by organizations at the macro level, and distributed at the micro level, languages may constitute a barrier to effective communication" (WFPHA, 1995). Similarly, health workers may use audio-visual aids that are beyond the comprehension of the community, and employ teaching methods that mimic modes of instruction from their own professional training (WFPHA, 1995).

Safe storage of IEC materials is of particular concern for ensuring their usefulness over a long period of time (IEC Malawi, 1991; Akinwande, 1993). These concerns cannot be complete without considering the management policy of the health facility, either private or public, and whether it supports health education activities by staff (Brieger and Edozien, 1983; CCCD-ASC/USAID, 1985; Akinwande, 1993; Goni, 1993-94).

Justification/Rationale

As stated earlier, IEC materials play an important role in the packaging of health education activities. Materials help illustrate otherwise abstract points and enhance interest of the audience. Many international donor agencies, national ministries of health, and local non-governmental organizations expend much effort

and money on producing IEC materials. Unfortunately, little is known about the extent to which these materials are acquired, used correctly, and stored safely when not in use, at the various health service units in the community. In other words, the question arises as to whether the investment in IEC materials production made by many health and development agencies is being effectively used and maintained safely.

With the foregoing question and issues in mind, this study attempted to reveal the types of IEC materials available at the various units within health facilities in local governments within the Ibadan Metropolitan area, to determine the ways by which the materials were used, and to document the condition of the available materials and the means by which they were maintained and stored. In the process, the study also aimed at determining the skills, attitudes, and perceptions of IEC materials and their use by health workers.

The information gathered in this study is intended to serve as feedback to those agencies who design and distribute IEC materials so that they might improve distribution systems, organise appropriate training in IEC material use, and conduct supervision that would enhance the durability of IEC materials through appropriate storage and maintenance procedures. From another dimension, the study should help expand the scope of appropriate technology in IEC materials as a gateway to strengthening other components of Primary Health Care (PHC).

Objectives

The broad objective of the study is to assess the availability and pattern of utilization of information, education and communication (IEC) materials by health care workers at both public and private health facilities in Ibadan Metropolis of Oyo State, Nigeria. From this, the following specific objectives were formulated.

1. To take an inventory of IEC materials at both public and private health care facilities in the Ibadan Metropolis and surrounding LGAs with emphasis on the number, types, sources, storage methods and condition of IEC materials available.
2. To document the extent of IEC material utilisation among health workers during the practice of both group and individual health education in these health care facilities.
3. To compare the utilisation of IEC materials with personal characteristics of health workers including length of service, sex, in-service training experience and endre
4. To compare the utilisation of IEC materials with behavioural antecedent factors including perceived self-efficacy, perceptions of encouragement and skills.
5. Based on the findings, to make recommendations for enhancing the use of IEC materials among health care facility staff in the Ibadan Metropolitan Area.

Organisation of the Text

The foregoing background information comprises Chapter One of the Introduction to this study. In Chapter Two, which follows, a review of literature about IEC material development and use is presented. A conceptual framework is provided to aid understanding of health worker behaviour in relation to IEC material utilisation. Chapter Three describes the methods used in this cross-sectional research. A description of the study area, the Ibadan Metropolis, and the study population, health workers in public and private health facilities, is provided. Data collection, management, analysis and quality issues are also considered.

Chapter Four contains the results. First, the inventory of available IEC materials in the facilities visited is tabled. This is followed by presentation and analysis of IEC use behaviours by health workers and the factors, such as opinions and perceived self-efficacy that influence reported levels of IEC material use. The final chapter consists of a discussion of the implication of the findings and recommendations for improving the use of IEC materials by local health staff.

CHAPTER TWO

LITERATURE REVIEW

The researcher has reviewed and presented herein literature on the areas relevant to the study. These include the role of educational materials, the communication process, the process of IEC material development and a conceptual framework for understanding health worker behaviour in the use of IEC materials.

It is pertinent to note that all health care workers, in one way or the other, are carrying out health education activities, irrespective of their training, background and working environment (WFPHA, 1995). Along the line, they apply various methods and use different types of IEC materials at their disposal in the process of creating awareness among the target audience (Birk, 1985). Although IEC materials form a central part of health education activities in health care settings, nevertheless there are numerous problems associated with their use from the design/development stage, through distribution to utilization by all category of healthcare workers, whether in public or private health care facilities, in part because these materials are so diverse in scope.

The Role of Materials in IEC

The practice of medical and health education dates as far back as the beginning of civilization (Park and Henry, 1991). The usage of educational aids

and materials as integral part of medical and health education could also be traced from that time (see Plate I). Much is known about the ancient Egyptians, because they invented picture writing and recorded their knowledge on papyrus (Park, 1995). Egyptian arts and hieroglyphics, for example, provided abundant facts which support the assertion that IEC materials and their roles existed when civilization begun. Thornton and Reeve (1982) reported that Egyptian artists and stone carvers depicted figures with ailments and the various methods of preventive education on cave walls, cave ceilings, on papyrus, parchment and even paper, executed with the materials, tools and techniques available of that period.

Today, while technology has expanded the means by which educational messages can be communicated, problems still remain in gaining access to these materials. According to Vickers (1981), materials to support education and information tasks in developing countries are usually in short supply. But as of today, this problem has been approached in different ways. International agencies responsible for the production and distribution of messages on a mass scale often seek regional and national participation in the development of materials to ensure cultural relevance (Editors, 1981).

Over the past years, the use of mass media has become increasingly popular as a strategy for delivering preventive health messages, including films, radio and television whenever available can be useful, but we have to recognize their limitations (Rani, 1989). Although television is becoming more available in

Plate 1:

This Egyptian stone carving dating from about 1300 B.C. depicts a priest with typical polio paralysis. Today this disease that crippled so many people with the contagion, has been conquered through immunization.

Nigeria, researchers have found that people still rely on radio more than television for information (Omotara, 1991 ; Miringa, 1996).

Even though radio is more pervasive, it too, has limitations. As was found nearly 20 years ago in a more urban setting in Nigeria, people showed little interest in educational radio programmes (Adeniyi, 1971). Studies have also shown that it is families of higher socio-economic and educational levels that are reached most by the mass media (Griffith, 1960), and who pay most attention to programmes of health educational import (Adeniyi, 1971).

In rural Oyo State, the availability of electricity plays an important role in facilitating radio listening, as poor rural dwellers may not always be able to afford batteries (Brieger, 1990). Even though radio does not require literacy skills, radio listening has been associated with literacy. Also there are gender differences in radio listening, with males paying more attention to news and information while females, not only listen less, but also recall less health information from radio (Brieger, 1990).

The use of mass media has been advocated by health officials who believe that mass media is a powerful tool that can solve problems of reaching large audiences in relative short periods of time and at low cost (Wisner, 1987). The findings presented above raise serious questions about mass media access for poor and illiterate segments of the populations, about which UNESCO reported that nearly one thousand million adults are unable to read, and in addition cannot afford

such electronic sets or devices.

The alternative to printed media as a more appropriate technology must be considered. Posters and other printed materials can create awareness among target audience when used by health care workers at local health facilities. Print materials can be creative, popular and attractive (Young, 1987). Unfortunately, print materials may also be as inaccessible and inappropriate as electronic mass media unless agencies involve the target groups and local health staff in the development of the materials (Akinwande, 1993). Yesin (1981) observed that in many health education programmes the information mostly imparted does not suit the needs and possibilities of the users (health care workers) and that of health consumers (target audience). These problems could be due to the fact that health care workers often lack the necessary skills to design and develop IEC materials. This short fall, according to Ajayi (1981), makes health care workers dependent on the supply of IEC materials from donor organizations.

Akinwande (1993) observed that when IEC materials are not relevant to health worker and community needs and culture, many printed materials remain stacked in storage areas to gather dust, while others are misplaced or mishandled. He also found that there are serious problems in the IEC material distribution process. Due to lack of decentralized distribution pattern many relevant IEC materials do not reach the health facilities at various levels. Some facility based health care workers erroneously feel that the use of IEC materials does not require

special skills (Standard, 1981), and that anyone can use these materials to give a talk (Skeet, 1984, p. 16). Consequently, Skeet (1984) complained thus:

> *It is alarming to contemplate the number of these ... people whom we have placed in positions ... who work ... in undesirable advice ... and who sometimes further their own interests at the expense of the health consumers ... but they will be tolerated only so long as they are properly trained.*

While Ram (1980) advocated the use of educational calendars and pamphlets to stimulate interest in health matters, others have noted that interest can fade if the materials are not changed from time to time. Young (1987) and Cull (1992) commented that when left posted for a long time, printed materials deteriorate and lose their attractiveness. They become torn and faded, detracting from the overall ambience of the health care setting.

Rowley (1986) asserted that while some believe that it may be relatively easy to get health messages across to the public and have these accepted, in actual fact new behaviours will not come into play and be sustained without the addition of interpersonal communication strategies. Therefore, health workers need to learn how to integrate the use of IEC materials with health education activities such as counselling and group educational sessions, and not expect these materials to achieve success standing alone (WHO, 1988a).

Fortunately, international organisations are responding to the need for

health worker training. The WHO Africa Region (AFRO) in July 1997, at Harare and Kadoma, Zimbabwe, organised one-week orientation workshops for Health Information and Promotion Officers (HIPOs), drawn from 18 English-speaking member countries (including Nigeria). These HIPOs were to act as the "agent and major link" between WHO's county offices and the Ministries of Health of member states in the development, production, distribution and promotion of information materials for the public. They also were to play the role of "advocates" for healthy practices, and to this end, mobilise the media and various partners in support of health development (WHO, 1997).

As a means for improving knowledge about self-care and best practices IEC should be a two-way process because effective IEC programmes aim at establishing health activities that will engage the cooperation of the target audience (World Bank, 1995). According to Ram (1989, p.9), "There is a need to demystify medicine and technology, medical knowledge needs to be put in simple and understandable language and visuals backed up by appropriate technology and established communication theories in its effective delivery."

Unni (1985) found "Experience shows that perception of media images (visuals) are culturally determined and therefore, educators must design educational aids (materials) that the audience will comprehend as intended. He pointed out that the meaning is not in words but in people, and nothing can substitute for an educator who has good rapport and understanding with the

audience. Although it is desirable that educational messages and media can be both locally appropriate and of professional quality, this is often difficult to achieve. However as Bink, (1985, p.231 stated, "Generally, the smaller the educational and cultural gaps between those who devise materials and the audience, the better the chance of successful communication."

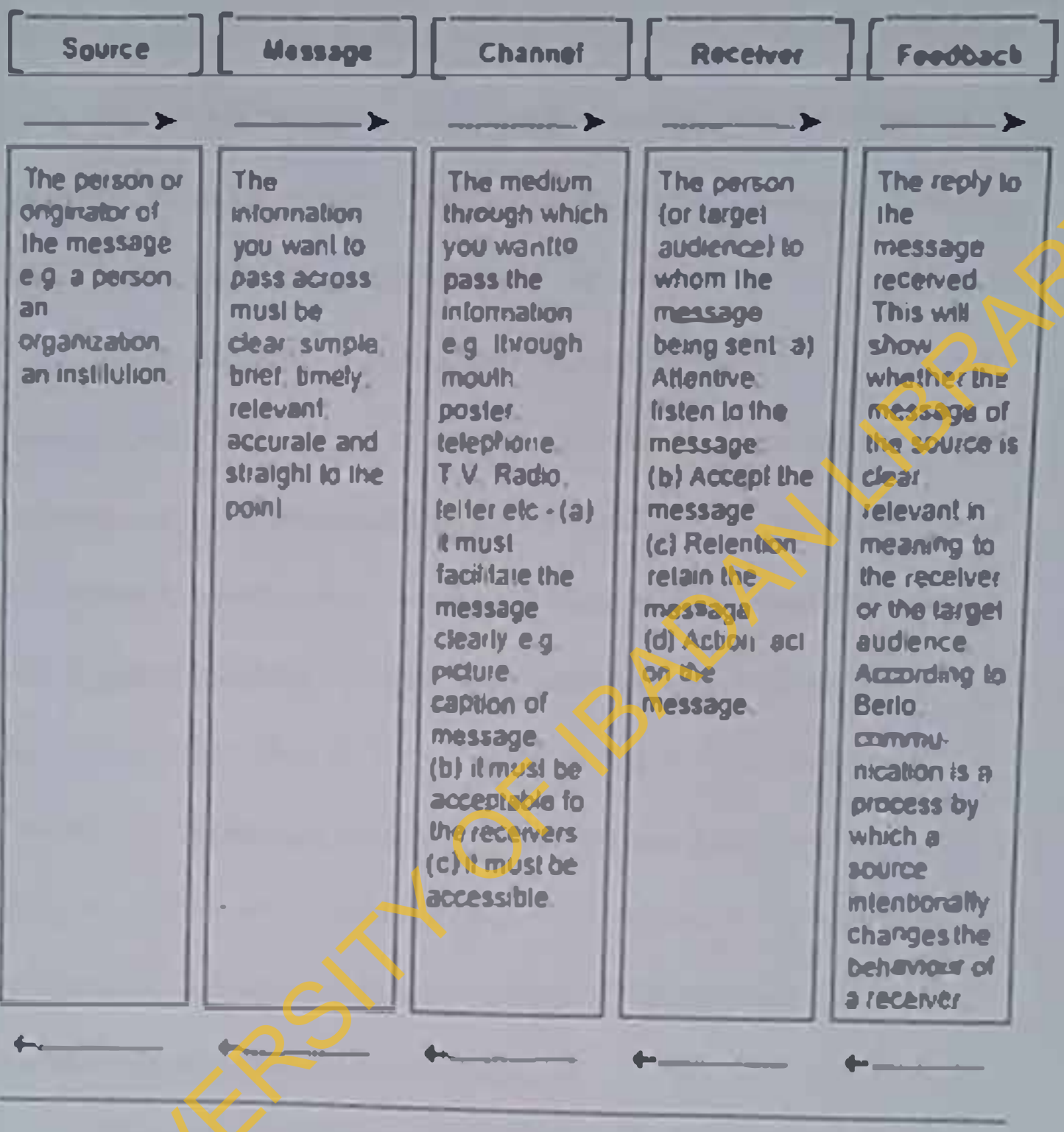
The Communication Process

Different authors have visualised the communication process in models that are either linear or interactive. These models have implications for the development and use of IEC materials.

Berlo (1960) defined the Linear Model as consisting of the following components of communication: source, message, channel, receiver and feedback as seen in Figure 1. The source is the originator of the message and could be a person, an organization, or an institution. The message is the information one wants to pass across. This must be clear, simple; brief, timely, relevant; accurate and straight to the point. The channel is the medium through which one passes the information. e.g. through word of mouth, poster, telephone, television, radio, or letter. The channel must project the message clearly e.g. through a picture and or a text, it must be culturally acceptable to the receivers, and it must be accessible, e.g. one must be able to own a radio receiver or purchase a newspaper.

The receiver is the person for larger target audience) to whom the message is being sent. Messages are best received when the receiver is attentive, actively

Figure 1. The Linear Model of Communication



Adapted from Berlo (1960)

listens to the message, accept the message, retains the message, and ultimately acts on the message. Finally, feedback consists of the reply to the message received. This will show whether the message from the source is clear and relevant in meaning. According to Berlo (1960), communication is a process by which a source intentionally changes the behaviour of a receiver.

Other proponents of linear models include Osgood (1957) who viewed communication as one system (a source), which influences another (the destination) by manipulation of alternative signals which can be transmitted over the channel connecting them. Wesley and Maclean (1957) based on Newcomb (1953) described another version of linear communication in which "Person A transmits messages about an object X to person B through gatekeeper C." According to Wesley and Maclean (1957) the message sources serve advocacy roles, the gatekeepers serve channel roles and the receivers serve behavioural system roles. This approach agrees with Berlo's (1960) perception of communication as a behaviour change process.

The linear model of communication biases the designer and user of IEC materials toward a teaching approach to health education, wherein the source is the expert who wants to change the behaviour of the receiver. Even when feedback is incorporated into the model, it usually takes the form of discerning whether the receiver acted on the message and not whether the message and the medium were appropriate. This approach contrasts with the Green et al (1980)

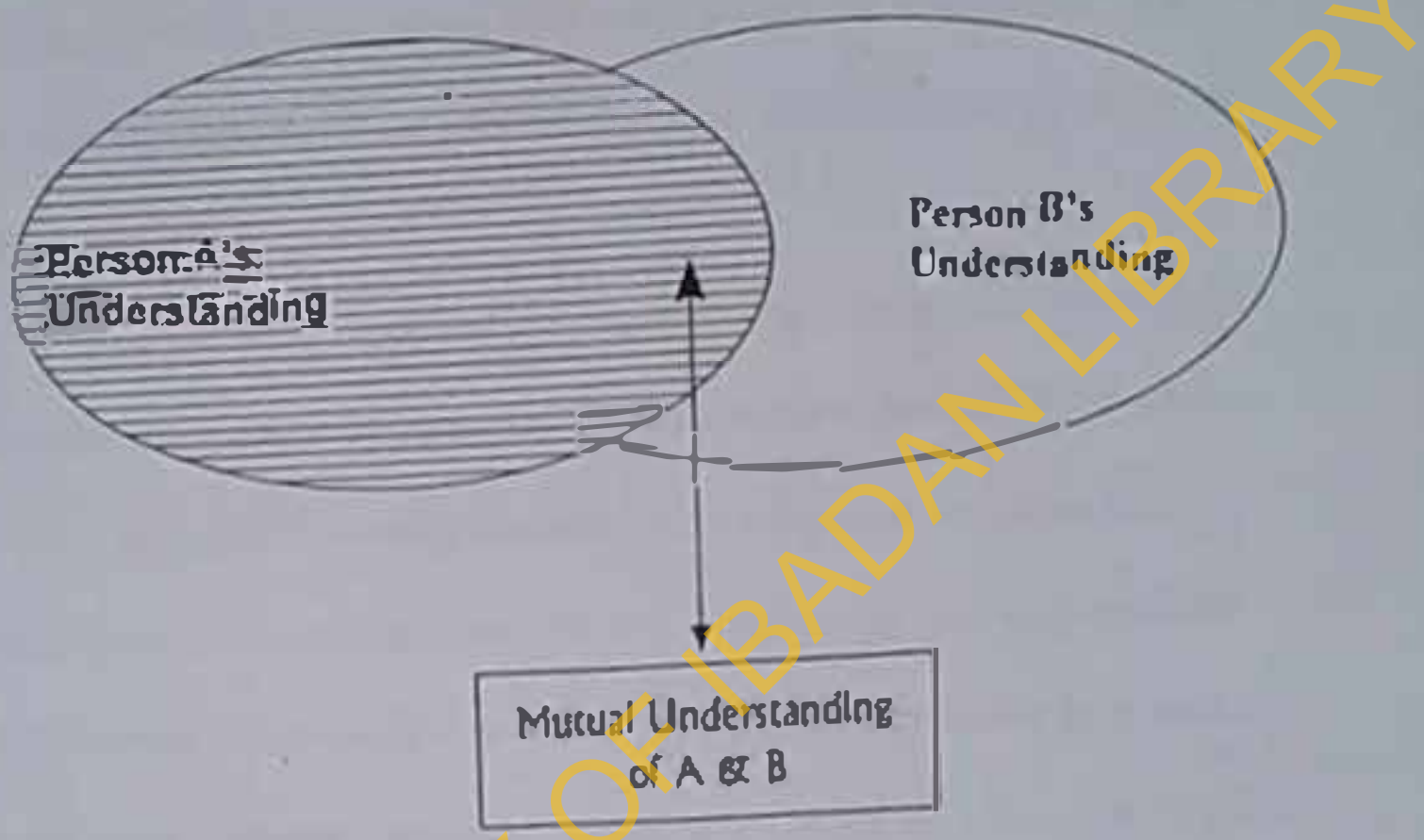
who define health education as a learning process. The most effective IEC method(s) or material(s), therefore, are those that facilitate the learning process by encouraging learner participation in the learning situation (MacDonald and Heale, 1984).

An example of an interactive communication model is The Convergence Model of Rogers and Kincaid (1979). It recognises that health education and communication is a participatory process. This model, as seen in figure 2, is based on the insight that "no concept, not even those of mathematics, is absolutely precise [because]... no man's interpretation of words is based on exactly the same experience as any other man's" (Peirce, 1966, p. 173, as quoted in Rogers and Kincaid, 1979).

Every symbol, word, sentence, or scientific formula must be given meaning by each of the parties involved in the communication process (Rogers and Kincaid, 1979). Sharing of information and mutual understanding are the dominant components of the convergence model of communication. Information shared by two or more participants in the communication process may lead to collective action, mutual agreement, and mutual understanding that creates "social reality."

The mutuality of communication for learning is also reflected in the concept of "learning nets" as voiced by Deutsche (1968) who said that "learning nets and societies do not grow best by simplifying or rigidly supporting their parts or members, but rather with the complexity and freedom of these members, so

Figure 2: The Convergence Model of Communication



(*) Source: Kincaid and Schramm (1975, p.64)

king as they succeed in maintaining or increasing mutual communication."

Schramm (1973) also proposed an interactive approach to communications known as The Relational Model This involves. "A set of communication acts focused on a set of informational signs within a particular relationship." The components of the model are informational signs relationship among participants active receivers.

The interactive models of communicotion have implications for both IEC materials development and their use. The importance of audience involvement in material design and pre-testing is explained in a subsequent section on IEC materials development. Ultimately, the key to applying an interactive model to IEC materials occurs during their use. There must be a relationship between health workers and community members. According to Cutting and Ellion (1994), to be effective, health workers need not only to know scientific facts about health and illness, but also how to communicate these to other people. Good communication is a two-way sharing of information. Health workers must therefore be willing to listen to the views of the community as well as to share their own. By listening to the people, health workers can design IEC materials that use appropriate language and offer clear explanations.

However, with all of these models, one cannot conclude that communication always flows smoothly and without barriers. Park (1997) identified the following major barriers to effective communication:

1. Physiological - difficulties in hearing, expression
2. Psychological - emotional disturbances, neurosis
3. Environmental - noise, invisibility, congestion
4. Cultural - levels of knowledge and understanding, customs, beliefs, religion, attitudes.

All these barriers should be identified and removed for achieving effective communication. Specific communication barriers that inhibit the adoption of new behaviours were identified by McDonald and Hearle (1984), including lack of awareness, no interest, non-reception, difficulty in adoption, comprehension failure, incorrect message, preoccupation, too much information, selective perception, and insufficient feedback. Any of these result in communication failure.

Effective communication for behaviour change is especially important in addressing the problem of HIV/AIDS. According to Gordon (1989, p.11), "The only real defense against the spread of AIDS is through behaviour change. No drugs, operations or other medical answers exist for its cure - just communication on how the disease can be prevented."

Akinwande (1993) explained that the use of IEC materials are ways of transmitting ideas from one person to another or group of persons, these materials or software help to facilitate understanding and sustain the interest of the people. This shows the relevance appropriate development and use of IEC materials. The

materials have been classified broadly, into two main categories, print materials and non-print materials as seen in Table 1 (Hoolaod, 1984).

The Concentric Model of Communication proposed by Winnard (1987) explains that different types of IEC materials and technologies are needed for different levels of communication (Figure 3). Pamphlets may help enlighten the individual. Posters and flipcharts can be used effectively with groups. Handbills may facilitate community-based outreach. Community outreach could utilise films and videos. Influential leaders and policy makers might be reached through newspaper articles and editorials. Television debates and radio jingles are aimed at large populations of cities and nations.

The Process of IEC Material Development

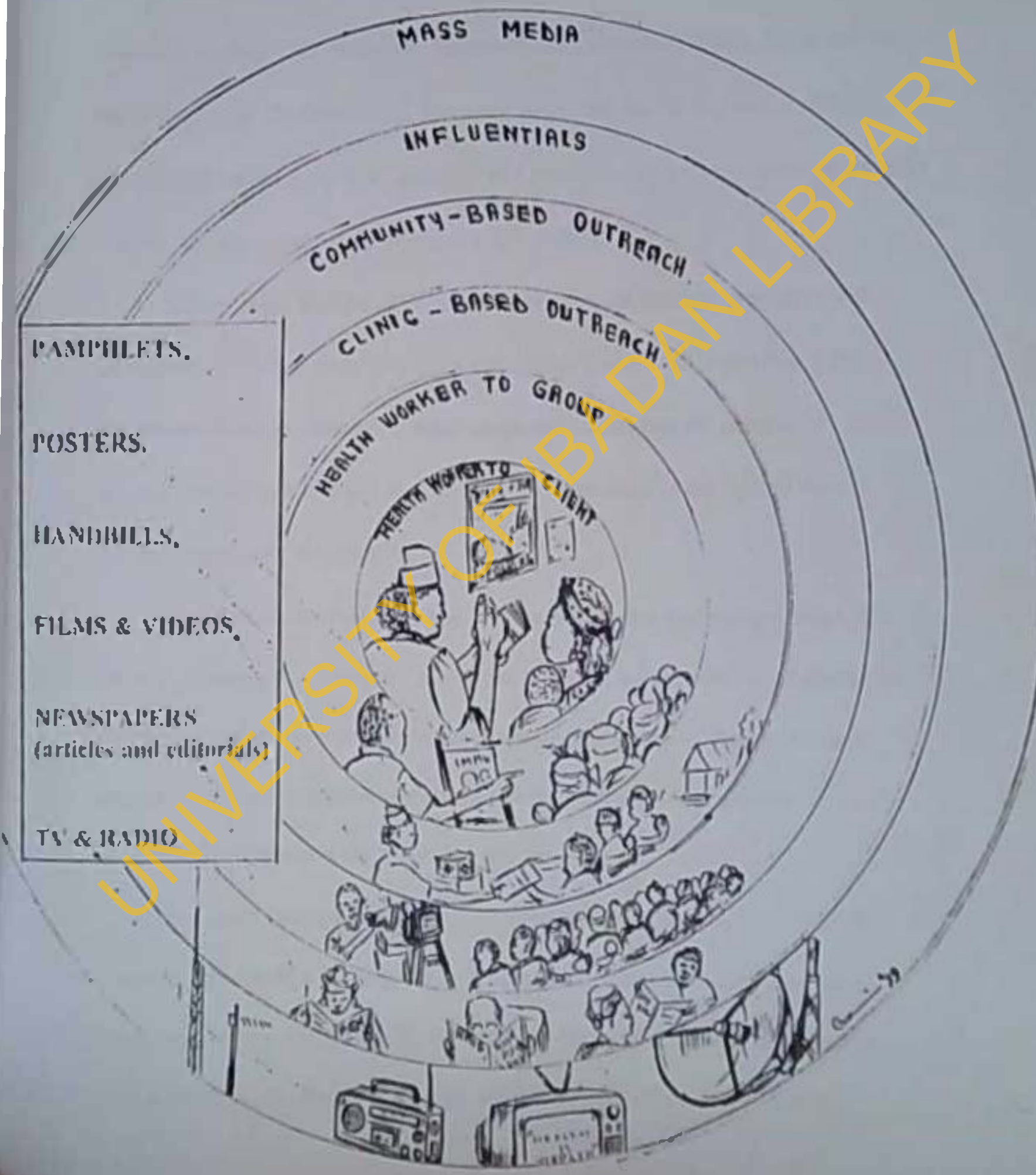
According to UNDP (1993) the process of IEC materials development progresses through four stages, 1) analysis and diagnosis, 2) design and production, 3) pre-testing and modification, and 4) distribution and evaluation as seen in Figure 4. The evaluation component serves as feedback for the improvement of existing materials as well as the development of new ones to meet programming gaps. The Population Communication Program of the Johns Hopkins University (PATH, 1987) has expanded on this feedback and regeneration. The details of these various steps in the process are described in the sub-sections that follow.

Table 1: Types of Printed and Non-Print IEC Materials

PRINTED	NON-PRINTED
Posters	Radio programme
Flipcharts	Television programme
Pamphlets	Audio cassettes - songs, radio spots, interviews
Leaflets	Video cassettes-TV commercials dramas, training video, jingles
Handbills	Video camera
Books	Film projector/overhead projector/slide projector
Comic	Slide films
Stickers	still camera/photographs
Promotional items	Megaphones/public address system
T-shirts	Songs
Face-caps	Drama/Play
Bags with messages	Puppets
Calendars	Traditional dances
Displays	real life and still-life
Exhibition	

Source: Haaland [1984] for UNICEF

Figure 3: The Concentric Model of Communication



Analysis and Diagnosis

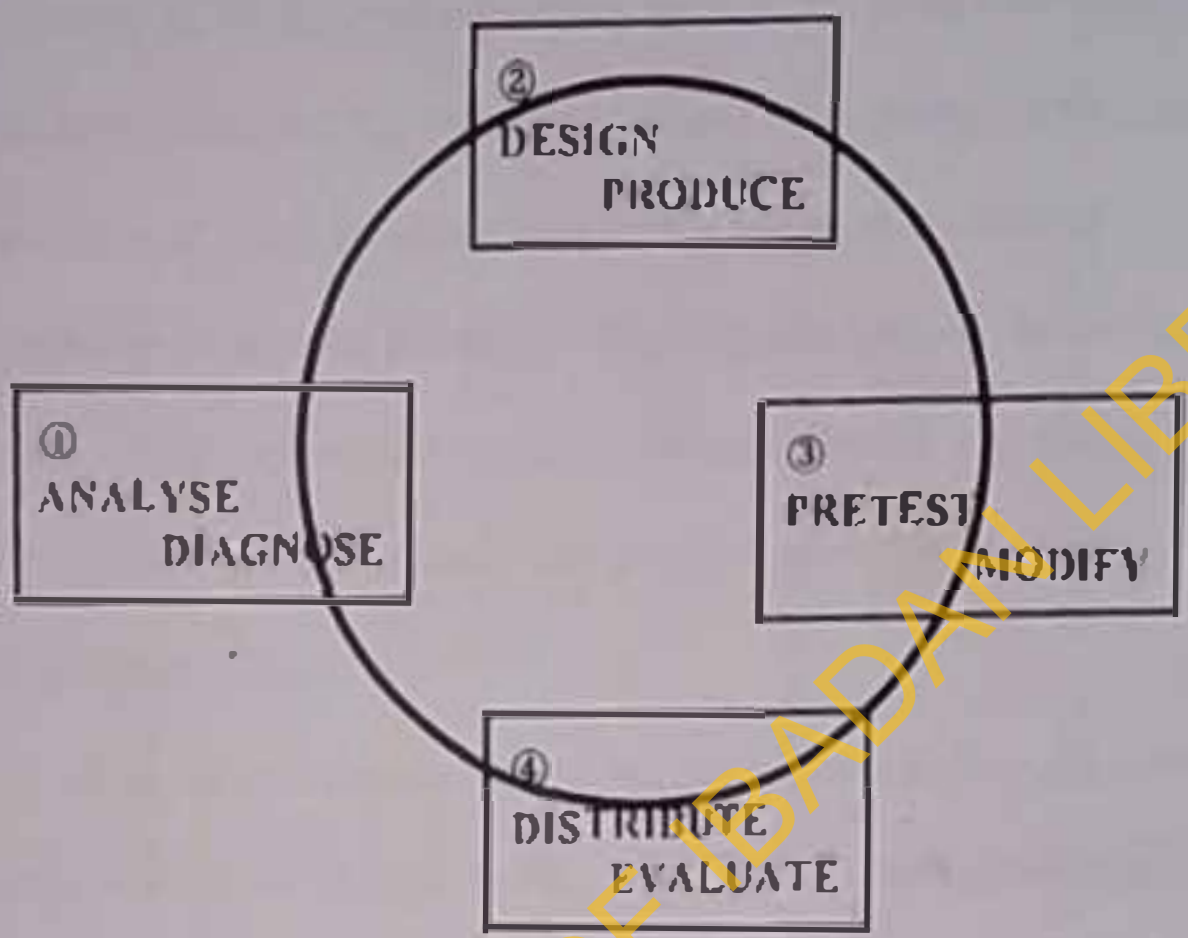
Before starting to design effective software, it is pertinent for an IEC software producer to have extensive information about the community people for whom the messages are intended. Necessary are data on historical, socio-cultural and demographic characteristics, economic activities, health and social services, communication infrastructure, marriage and family living patterns, decision-making systems, and social networks, to name a few factors.

Materials are beneficial in so far as they require learners to analyse new information relative to their own prior knowledge and values (Haywood, 1989). The incorporation of community knowledge and values into the content of materials encourages learners to analyse new information in the light of their previous experience and learning.

As such, educational materials must be posing and open-ended rather than provide set solutions. Problem - posing materials encourage analysis of alternative approaches rather than rote learning of pre-defined solutions. This had made it imperative that educational materials must reflect individuals or groups' socio-cultural values and reality (Aubel and Sia, 1995).

So, based on our subject matter for greater impact, there is need to involve "learners" in actively analysing real materials - related to health situations and to come out with something tangible acceptable to them, that will lead us to find out how to design a message, or how to go about designing effective messages.

Figure 4: The IEC Material Development Cycle



Source: UNDP (1993)

Design

According to UNDP (1993) "Correct and well packaged information supported by an effective service delivery network," is at the heart of IEC materials development. The "packaging" aspect refers directly to the stage of material design. Dook, Dook and Root (1995) suggested six areas of consideration for ensuring suitability when designing materials for the intended audience. These focused on 1) content, 2) literacy demand, 3) graphics, 4) layout and typography, 5) learning stimulation and motivation, and 6) cultural appropriateness.

Good design requires a balance between the "artistic," i.e. the layout and graphics aspect of the material, and the "scientific," i.e. the content (UNDP, 1993). When the content or message concept is being developed, attention should be paid to unique information about the target audience collected during the community analysis exercise through such techniques as focus group discussions (Akinwande, 1993).

The artist is responsible for working out an attractive and convincing message based on the concept of encouraging people to tackle existing or latent problems. The first draft of the message should be reviewed by those who are responsible for the IEC and related service programs. Guided by their opinions, the artist will then modify the draft message, which should be pre-tested among representatives of the target audience, as described later (Grant, 1993:94).

Since many IEC materials are developed at a national or even international level, consideration must be given to cross-cultural communication and adaptability. As such, Haywood (1989) offered the following guidelines for such communication:

- Firstly look for similarities in cultures and ethical standards, but beware of stereotyping.
- Secondly, be sensitive to space, planning, status symbols, personal content, methods of agreement, attitudes, cultural details.
- Pace the degree of development.
- Explore ethical dimension, What is the receiver's view of reality? What are his or her needs? What factors affect his everyday existence?

"A message needs to square with his environmental and situational realities. It needs to relate to individuals value systems and levels of understanding," added Pincus (1989, p.19). Likewise, Birk (1985) emphasized that any educator must design a poster for other learning aids by considering colour, perspective, and symbols in the context of cultural norms in order that the audience will comprehend the message as intended. Birk (1985) highlighted five rules to make illustrations more likely to be understood by an audience with low visual literacy:

- No complexity: for example, posters should have one clear picture and message
- No pictures that would be misunderstood if taken literally.

- No unimportant details
- No unusual angles
- No depth perception.

Other design factors to be considered, especially for print materials such as posters, include that the picture and message should match the topic of the talk, drawings should be easy to understand, people and things in posters should resemble local conditions as much as possible (WHO, 1988a).

Pre-testing and Modification

At this point, the IEC software producer and a team of interviewers go back to the target audience to find out if the IEC software is appealing enough. Among the suggested methods for pre-test are the focus group method and the individual face-to-face interview (Akinwande, 1993; National Institutes for Health, 1994).

After pre-testing, the IEC software producer analyses the findings. This should lead to a clear idea of what the target group felt about the pre-tested IEC software and its potential for helping to change their attitudes and behaviour. Based on these reactions the message, the illustration, the colour or the software as well as the way of pre-testing the software are modified.

Production

Issues of both quantity and quality form interrelated parts of the production process (Young, 1987). Quantity is related to the size of the area that the

programme will cover. Concerning quality, with print material, for example, it has been noted that posters should be attractive to the audience (Young, 1987).

Production processes that increase attractiveness, such as ink colours and paper quality, also increase costs. Material production budgets are usually fixed, and therefore, if one wants to get a poster placed in every health unit or classroom, in a state or nation, one must balance the costs, without a compromise in quality, so that the desired numbers of people can be reached (Centers for Disease Control, 1994). One approach to cost savings is to add production onto an existing medium, as for example was done by publishing an educational almanac by a major women's weekly magazine in Sri Lanka (WFP/A, 1995). The marketing of attractive materials can be another way to support IEC material production (CDC, 1994).

Distribution

Like any other produce, IEC materials must reach an end user before their value can be seen. The distribution process is almost non-existent when the health worker him herself produces the visual aid or other material. On the other hand, distribution may be quite complicated centrally in a country or region and then must reach health workers through a bureaucracy (such as a health or information ministry) that has national, provincial and local branches. It is not uncommon for materials to reach one level in the distribution chain, only to wind up in a store-room collecting dust. The problems concerning IEC materials for onchocerciasis

control, as observed by Brieger (1998), are a case in point, as reported below.

> *No materials except one old and torn poster about Mectizan® and signs and symptoms of onchocerciasis were found in the Borno SMOH* (State Ministry of Health). *Adamawa did have a few of these plus some other materials on hand including less than a dozen each of flipcharts, pamphlets and oncho photo identification cards. These were all packed neatly in the storeroom. CBDs* (Community Based Distributors) *at present have no IEC materials, but use home visits and village meetings for health talks. Flipcharts could be useful for CBDs as is done for VBHWs* (Village Based Health Workers) *associated with NIGEP* (Nigeria Guinea Worm Eradication Programme), *but the numbers that need producing would be in the thousands and quite expensive. The Adamawa SOCU* (State Onchocerciasis Control Unit) *has approached the local Rotary Club concerning aid in IEC production, but no answer has been given yet. There may be concern that Rotary does not want to put money into a project which it sees as primarily a state government responsibility.*

Ideally, the distribution process of IEC materials should borrow a leaf from the management of essential drugs (WHO, 1988b). This process requires an interchange between the health facility, which expresses its needs in terms of

quantity and type of materials, and the central stores with adequate lead time to ensure the materials arrive in time, for example, for use in immunisation campaigns. Inventory and shipment records are necessary. Monitoring may be necessary to ensure that materials reach those who should use them and to determine whether they were actually used, as was the case in the the African Programme for Onchocerciasis Control (APOC) in Uganda (APOC, 1998)

> *The village leaders in Kisoro District noted that during the introductory meetings, the health workers lectured about the disease as well as showed pictures under flip charts. The CDDs (Community Directed Distributors) also described the animal creatures as being educational in large part. The CDDs showed the team the flip charts they had received for use in the communities*

Utilization of IEC Materials

The ultimate purpose of the materials development process described thus far is their actual use in carrying out health education and communication programmes. In this regard, there are certain steps that have been recommended for appropriate use. The following guidelines suggest how a health worker can use one of the most common IEC materials, the poster, in a way that will enhance the educational programme and facilitate better audience comprehension of the educational message (WHO, 1988a).

- While using a poster in a health education activity it is not recommended to hold it yourself or hold it in an angle because it will not allow the user to communicate effectively with the group he is addressing.
- Posters can be used as a basis for discussion. Do not start explaining it right away.
- First, ask everyone to look at the poster carefully, give them a chance to see it well.
- Ask the audience what they see, what do they think is happening in the picture? let them think for themselves.
- If there are words on the poster, find out if someone can read, ask the person to read it for the group.
- Add your own ideas as the discussion continues
- Turn to the poster again at the end of your discussion, ask once more what the target audience think is the message of the poster, repeating and reviewing with a poster helps the audience remember

When the preceding steps are followed, the IEC material becomes more than just a supportive piece of paper, but a focal point for discussion, dialogue and interaction. It can actually stimulate interest and participation.

The question arises as to whether health service unit staff have the skills and confidence to use educational materials in the way just described. In 1993 and 1994 in Nigeria, the National Primary Health Care Development Agency

(NPHCDA) undertook a training of the trainers (TOT) workshop of Primary Health Care Coordinators (PHCC) and facilitators of the various Local Government Areas, in effective health advocacy skills, with a view to boosting the communicative and expressive abilities of the personnel in achieving and delivering efficient and effective PHC to the people (Dalley, Omoniyi and Edeghai, 1996). This is an example of the effort that may be needed to boost effective use of IEC materials.

The flipchart is another common IEC material and consists of a number of posters on a central theme that are grouped together that are meant to be shown one after the other. In this way several steps or aspects of a central topic can be presented. The steps involved in using an individual poster also apply to each page of the flipchart. In addition, there are other steps that are unique to flipchart usage as seen below:

- Each chart or poster must be discussed completely before you turn to the next one.
- At the end of the presentation of all pages, go back through the charts to review and help people remember the ideas

Conceptual Framework

Health education focuses on the role of human behaviour in health. The use of theory by health educator in the study of health behaviour makes it possible for practitioners to develop specific strategies and interventions that will address

the main underlying factors that influence the health-related behaviours in question (Hochbaum, Sorensen and Lorig, 1992). Most often this focus is on the behaviour of the public, e.g. patients, community members, school children and factory workers. Kar (1986) has pointed out that the scope of health education must be expanded beyond individuals at risk to focus on all those whose action can improve health. Therefore, one could equally focus on the behaviour of health workers themselves and whether their behaviour sets the stage for the delivery of quality health services that the public will hopefully utilise. In this research, the various themes that health educators use to understand health behaviour were used to gain a better understanding of health worker behaviour, that is the acquisition, selection, application and maintenance of IEC materials in their various clinics and service units.

Theories aim at identifying and helping people understand elemental functions. Models, on the other hand, are basically considered as a visual construct of proposed causal linkages among a set of concepts believed to be related to a particular situation or problem. Professionally designed models with a strong background in proven theories help practitioners predict the likely consequences of various interventions, even those not encountered before (Earp and Ennett, 1991). Kok, William and Zaltman (1992) after reviewing several health communication programmes, concluded that a planned and systematic application of social science theory in intervention development is a strong

determinant of effectiveness.

This research has been based on two social and behavioural theories. Social Learning Theory (also known as Social Cognitive Theory) by Bandura (1977) and the Theory of Reasoned Action (also known as the Theory of Planned Behaviour) by Fishbein and Ajzen (1980). These rank among the four most common behaviour theories used in health education research as reported in a study of 497 health education research articles (Glanz, Lewis and Rimer, 1995).

Social Learning/Cognitive Theory

Social Learning Theory (SLT), was developed by Bandura (1977). Later (Bandura, 1977), he elaborated a paradigm which expressed the triadic relationship between the environment, the individual (person) and behaviour. This inter-relationship is termed reciprocal determinism. The SLT proposes that behaviour is mediated through cognitive processes (e.g. thinking, perceiving, and believing) and that cognitions (attitudes and beliefs) that behaviours are altered most easily through actual performance or observed performance of the behaviour in the context of the social environment.

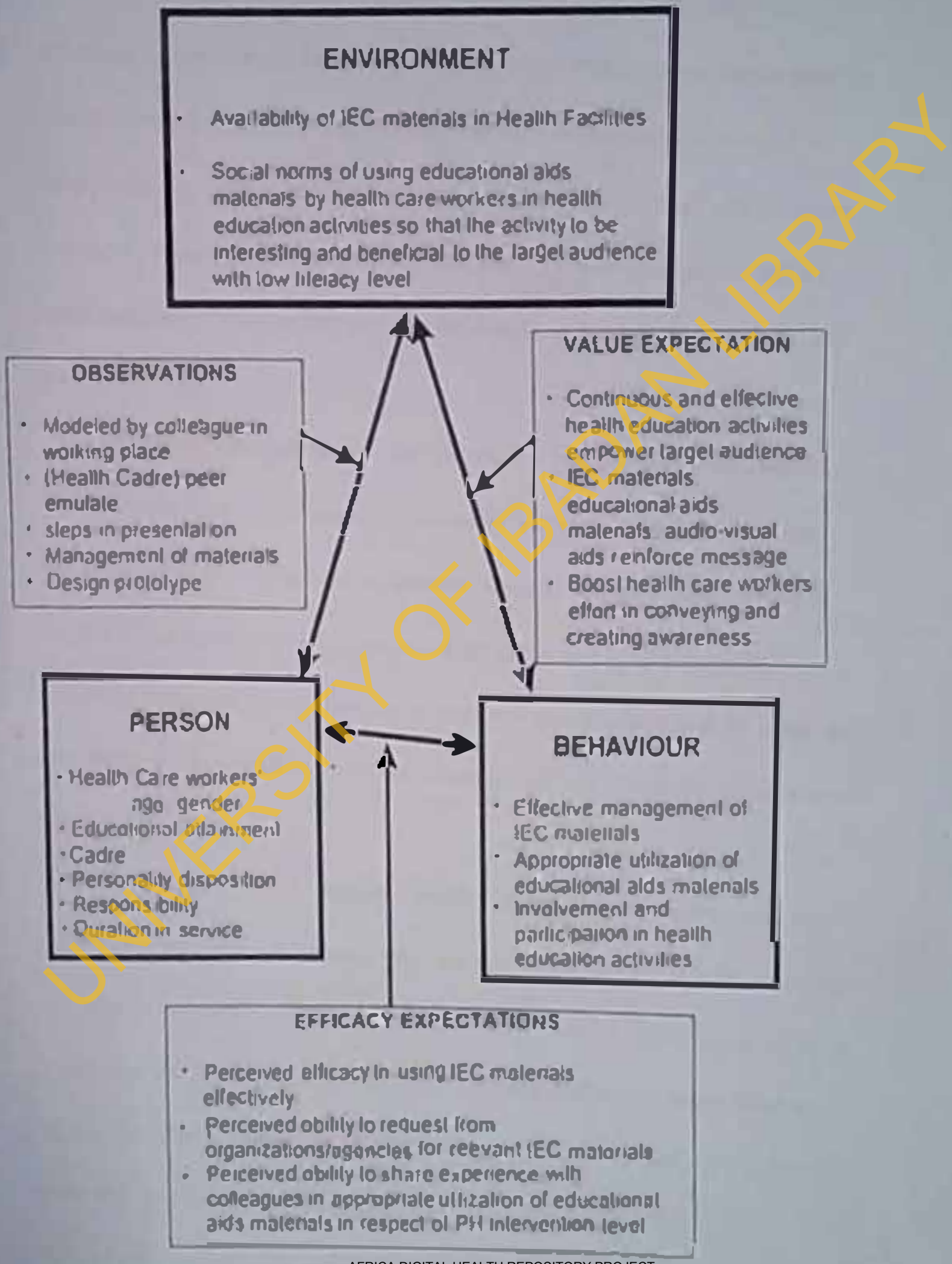
The three explanatory factors of SLT must be modified in order for a behaviour to be acquired, performed and maintained. One factor is Behavioural Capacity, that is having the skills necessary for the performance of the desired behaviour. The second is Efficacy Expectations or beliefs regarding one's ability to successfully carry out a course of action or perform a behaviour. The third is

Outcome Expectations. These are beliefs concerning the potential result of performing the behaviour and the concomitant belief that performance of the behaviour will have desired effects or consequences.

Efficacy expectations can be modified by four different processes. 1) successful performance or practice of the new behaviour 2) observational learning or vicarious experience or others who have performed the behaviour successfully, 3) verbal persuasion or providing information in relation to the subject matter, and 4) emotional arousal. These processes suggest strategies for enhancing the perceived ability and willingness of a person to undertake a new behaviour. The view in adopting SLT for this study is that behaviour does not occurred in isolation, but is a response to the environment and the people, resources and culture therein.

An application of SLT to the issue of health workers using IEC materials is found in Figure 3. Of particular interest are health workers' efficacy perceptions, that is their feelings of confidence in selecting, using and maintaining the materials. Personal factors such as previous training, and environmental factors, such as the type of health facility and availability of resources, are issues that were considered in this research

Figure 5: SOCIAL LEARNING THEORY



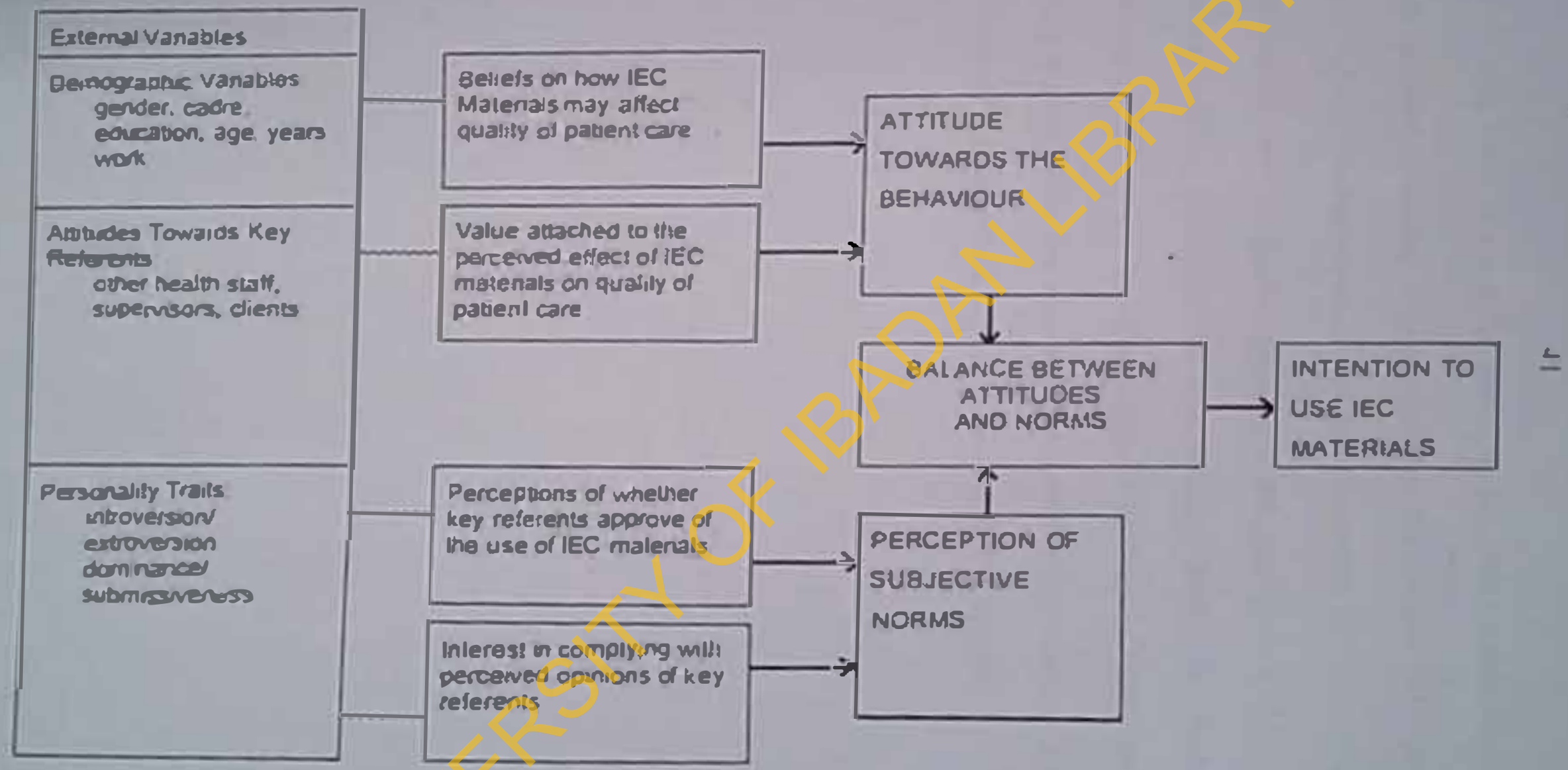
Theory of Reasoned Action

Also closely identified with health communication is the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975; 1980). which emphasises the role of personal intention in determining whether a behaviour will occur. The theory hopothesises that behaviour generally follows intention and will not occur without it. People's intentions are also influenced by their attitudes towards the behaviour, that is whether they feel that the behaviour is important and will yield beneficial results.

The theory also emphasises the 'normative' beliefs a person has, that is what he or she thinks other people, in particular influential people such as peers and family members, would do in a similar situation. There is also an approval element in the normative component in which the person considers whether influential or significant other people or reference groups would find the behaviour acceptable. Following from this is also the consideration of whether the opinion of others matters to the person.

In the case of health workers using IEC materials, one must consider their attitudes towards educational materials. Are they of the opinion that IEC materials are valuable and would enhance the quality of their work? Concerning social norm perceptions, are health workers encouraged by other staff and by their clients to use IEC materials? An application of TRA concepts to health workers' intentions to use IEC materials is found in Figure 6.

FIGURE 6: Theory of Reasoned Action



The use of SLT and TRA to define three of the key study variables and frame interview questions is described in the next chapter. The outcome and value expectancies of SLT and the attitude toward the behaviour in TRA are similar concepts and form one key variable. A second variable, derived from SLT, comprises self-efficacy perceptions, that is the perceived ability to or confidence in IEC material use with clients. The third variable of interest from TRA is the perception of social norms, and in particular, do health workers perceived that their colleagues and their clients approve of their use of IEC materials.

CHAPTER THREE

METHODOLOGY

This chapter describes what was done in order to identify what actually obtained concerning the availability and use of IEC materials in the greater Ibadan Metropolitan area based on the objectives outlined in Chapter One. Specifically, this chapter describes the study area, variables and hypotheses, study population and sample and the development, administration and limitations of the instruments and methods used.

Study Design and Scope

The study was exploratory and cross-sectional in design. The study employed survey methods, which were primarily quantitative in nature. The research aimed first at creating an inventory of the available types of IEC materials at health facilities, and documenting the sources, mode of acquisition, and storage of these materials. Secondly, effort was made to determine the nature and patterns of usage of such educational aids by health care workers in the various public and private health care structures within the study area. Interviews also determined health workers' attitudes and self-confidence with respect to the use of these materials.

The Study Area

Human settlement in the Ibadan area dates back to the 18th Century during turbulent periods of warsanning various Yoruba groups. The present day city is said to have been founded in 1829 as a warcamp, and was estimated to have a population of 100,000 by 1851 (Mabogunje, 1968). The present Metropolitan area consists of eleven Local Government Areas (LGAs). Five LGAs comprise the urban core including Ibadan North, Ibadan North-East, Ibadan North-West, Ibadan South-East and Ibadan South-West. The remaining six LGAs are contain peri-urban settlements and the surrounding farm hamlets that traditionally belong to Ibadan residents. These outlying LGAs include Akinyele, Ido, Lagelu, Egbeda, Ona Ara and Oluyole (see Figure 7).

The study area was reported to have a population of 1,829,187 after the 1991 Census (Provisional Report). The inhabitants of Ibadan are farmers, traders, shop-keepers, small-scale industrialists, craftsmen, teachers, professionals, and civil servants. Ibadan is the capital of Oyo State, and has been a caphal city since the establishment of the Western Region of Nigeria in 1952. Ibadan is reputed to be the largest indigenous city in Africa South of the Sahara (Mabogunje, 1968). Census figures for the metropolitan area LGAs are found in Table 2.

Ibadan city is the principal commercial and educational centre of Oyo State, but has a history of being an important central place, having been designated

Figure 7: Map of LGAs in Ibadan Metropolitan Area

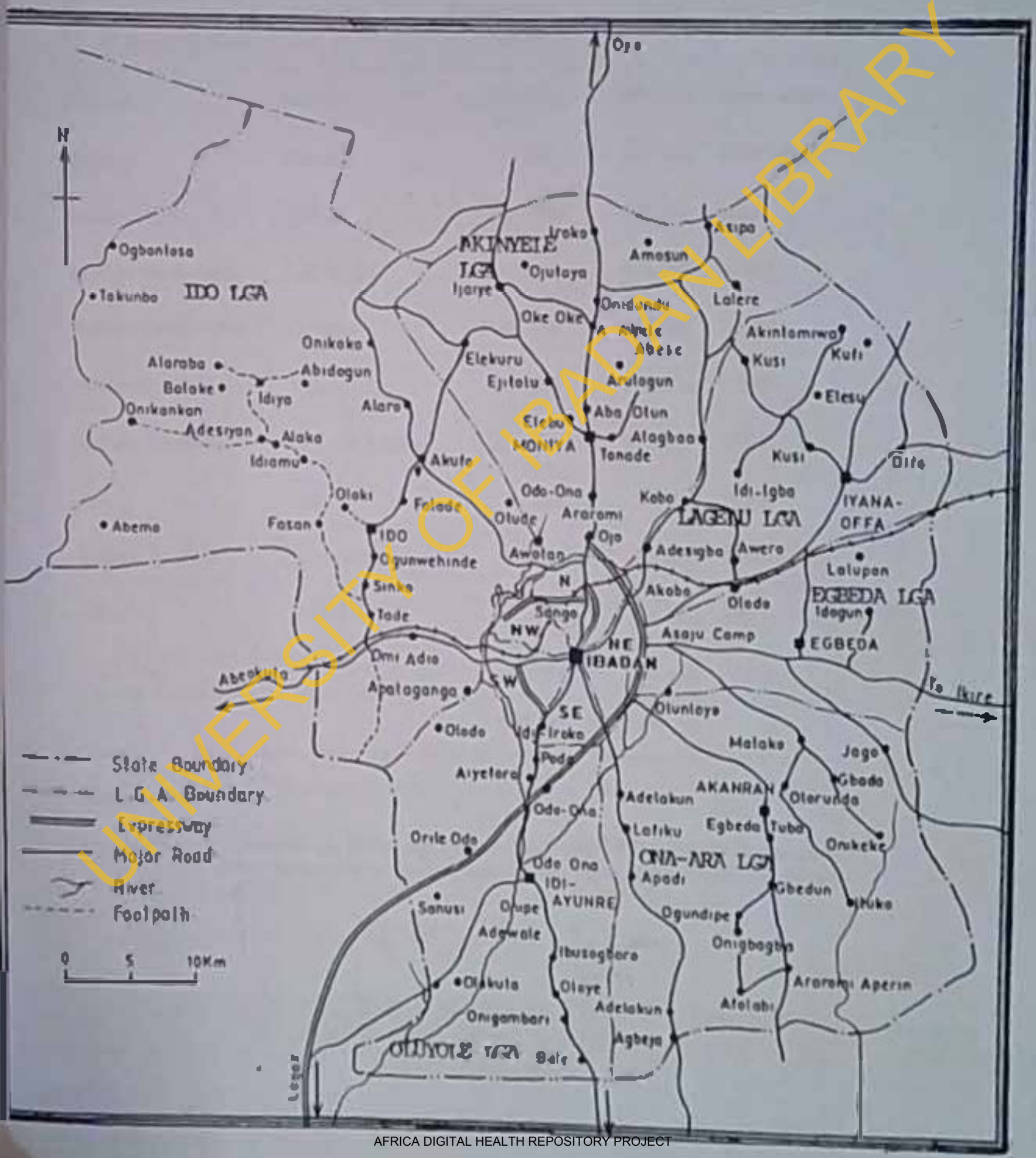


Table 2

Population of Local Government Areas within the Ibadan Metropolis

Local Government	LGA Head-quarters	1991 Provisional census	Projection 1998*	Status Of LGA
Akinyele	Moniya	139 587	167 061	Semi-urban
Egbeda	Egbeda	128 998	154 388	Semi-urban
Ibadan North	Bodija	300 939	360 172	Urban
Ibadan North-East	Iwo-Road	272 978	328 798	Urban
Ibadan North-West	Onireke	146.759	175 645	Urban
Ibadan South-East	Mapo	227.865	272 715	Urban
Ibadan South-West	Oluyole Estate	274 028	327 964	Urban
Ido	Ido	55.893	66 894	Rural
Lagelu	Iyana Ofa	68.732	82.260	Semi-urban
Oluyole	Idi Ayunre	91.020	108.935	Rural
Ona Ara	Akanran	122 387	148 476	Rural
TOTAL		1 829 187	2 189 221	

* Growth Rate = 2 8%

NB The Voice of America Radio reported on Saturday 24th October 1998 at 16 00 hours on the Hausa News Service that the 1998 population projection of Ibadan was 3 488 344

as headquarters of the Western Provinces in 1946 and capital of the Western Region in 1952 (Mabogunje, 1968). The first television station in black Africa was established in Ibadan. The first Nigerian University, the University of Ibadan, and teaching hospital; the University College Hospital (UCH) were founded in Ibadan. This teaching hospital serves as a major referral centre for patients, not only within the study area, but the entire region and much of the nation. Most of the health staff to be interviewed for this study were trained in Ibadan, not only at the University of Ibadan and UCH, but also at the State Ministry of Health sponsored School of Hygiene and the School of Nursing at Eleyele. The study area contains a large number of primary, secondary and tertiary health care facilities that are private, public and non-governmental by ownership. The government owned facilities represent the local, state and federal branches.

Ibadan City and its environs is inhabited predominantly by the Yoruba ethnic group. There are, however, other ethnic groups from different parts of Nigeria residing there too. Visitors and students are attracted to the city not only from other parts of the country, West-African Sub-Region, or Africa but reputable scholars from the world over were also living, studying, carrying out or conducting researches in subjects of interest in this Metropolitan area and other local governmental areas of the State under the auspices of University of Ibadan.

Study Population

The study population is of two types, the actual health facility service units where IEC materials may be stored, displayed and used, and the health workers who could be expected to use and maintain IEC materials. The study focused only on out-patient health care service delivery units. A small LGA dispensary may in itself constitute have only one service unit whereas a general hospital may have several out-patient departments as well as specialised units such as a pharmacy and a family planning unit.

The population of all healthcare workers focuses on only those who work in the out-patient service units described above. These workers have the potential for conducting health education using available IEC materials, and the study aimed at determining whether they actually carry out such educational duties.

The population of health facilities comprised all facilities owned by the State, Local Government Areas, Non-Governmental Organizations (NGO) and private concerns located in Ibadan city and the surrounding LGAs. The type of facility could be general hospital, dispensary, maternity home/centre or, clinic or medical centre. The number of facilities in the five Ibadan Metropolitan and six surrounding peri-urban LGAs are enumerated in Table 3.

The definition of who is the health worker that should be involved in this study must be made clear. In the broadest sense of the concept of PHC, literally

Table 3

Numbers and Types of Health Facilities Registered in the Study Area

LGA	Government Facilities			Private Facilities		
	Hospitals & Health Centres	Clinics Dispensaries Maternities	Total	Medical Centres Hospital & Clinics	Maternity Homes	Total
Akinyele	17	4	21	12	15	27
Egbeda	1	4	5	18	11	29
Ibadan North	7	5	12	45	38	83
Ibadan North-East	3	3	6	38	22	60
Ibadan North-West	6	1	7	27	5	32
Ibadan South-East	2	4	6	21	20	41
Ibadan South-West	12	3	15	83	21	104
Lagelu	13	8	21	11	12	23
Ido	10	9	19	10	12	22
Oluyole	13	7	20	9	13	22
Ona-Ara	6	16	22	5	14	19
TOTAL	90	64	154	279	183	462

SOURCE: Directorate of Secondary Health Care and Training Ministry of Health, Oyo State

everyone performing a health care task is a health worker. Within PHC there are various volunteers who have received some training and are called by various names including Village Health Workers (VHWs), Traditional Birth Attendants (TBAs), Community Based Distributors (CBDs), and Community Based Health Workers (CBHWs). This study focused only on salaried health staff who worked within formal health allopathic service units and who had received either professional or on-the-job training for their service delivery tasks. Examples of the formal health care workers who were eligible for interview in this study are classified below -

- Community Health Extension Workers (CHEW) at both junior and senior levels
- Community Health Officer (CHO) (nurse/midwives and CHEWS with experience and in-service as CHO)
- Nurses/Midwives (staff nurses/midwives, community nurses)
- Doctors
- Pharmacists
- Auxiliary Nurses (trained in private facilities)

In anticipation of the types of cadres one might find in the various facilities, the author reviewed annual PHC documents. Three types of facilities were described, the Health Clinic, The Primary Health Centre and the Comprehensive

Health Centre. The types of staff needed to run each level of care are seen in Table 4 (Shodiende, 1992). In private facilities there were auxiliary nurses who were trained-the-job. Although such staff do not have professional training, they serve an important role where health manpower is limited (Cruickshank, Standard and Russell, 1976).

Sampling Procedures

The first sampling decision was the choice of LGAs. Four urban and four peri-urban LGAs were chosen by ballot. Every government health facility was visited in these eight LGAs. Within the facility, each service unit or sub-unit was visited. A small dispensary may have only one service unit with a CHEW providing basic out-patient treatment. A health centre may have a general out-patient unit, a child health unit and a maternity unit, and sub-units, such as family planning and an oral rehydration corner. Observations on available IEC materials were made in each unit. Staff in-charge of service units were interviewed since it was assumed that they would be knowledgeable about the IEC materials kept in their units, and a second person was interviewed where available.

After completing the procedures in the public facilities, the researcher identified and visited at least one nearby private orthodox health care clinic or hospital. At that facility, the same procedures were repeated. In this way, a comparable number of service units in both sectors were studied.

Table 4

Staffing and Catchment Population for PHC Facilities

Type of PHC Facility	Recommended Staffing Pattern	Estimated Catchment Population
Health Clinic	4 CHEWs (junior and senior) 1 labourer	4-10,000
Primary Health Centre	1 CHO 1 Public Health sister 6 Registered Community Nurses/Midwives 4 Enrolled Community Nurses 2 Community Nurse Aides 3 Health Inspectors 1 Dispensary or Pharmaceutical Assistant 1 Clerk and 2 Labourers	20-40,000
Comprehensive Health Centre	2 Doctors 1 Pharmacist 1 Community Health Officer 2 Public Health Sisters/ Midwives 12 Registered Community Nurses 8 Enrolled Community Nurses 6 Community Nurse Aides 4 Health Inspectors 2 Dental Hygienists 1 Health Record Assistant 2 Dispensing or Pharmaceutical Assistants 2 X-Ray Technicians 4 Community Health Extension Workers 2 Typists/Clerks 1 Storekeeper 5 Drivers 4 Labourers	40-80,000

Source: Shodiende (1992)

Research Questions

The study was driven by several research questions as outlined below. These were transformed into the objectives presented in Chapter One and subsequently into variables and hypotheses.

- What are the numbers and types of IEC materials available at both public and private health facilities in the Ibadan Metropolitan area?
- What are the sources and mode of acquisition of IEC materials available at the health facilities?
- What is the nature and condition of the available IEC materials?
- Which cadres of health staff use available IEC materials?
- How frequently IEC materials are included in health education activities?
- What are the personal characteristics and other factors that influence health worker use of available IEC materials?

Variables for Study

Relative to the study objectives, the conceptual framework, and the research questions the variables stated below emerged. Independent variables include the demographic characteristics of health staff as well as the practice characteristics of the health facilities and include health workers' age, sex, marital status, religion, cadre, years of service, and educational status, and whether the

facility is publically or privately owned.

The main dependent variables of interest are the availability of IEC materials and the behaviour of actually using them during individual counselling or group health education sessions. Other dependent variables, which could also be seen as intermediate or intervening variables, include attitudes, skills, opportunities for in-service training, and perceived self-efficacy in the use of IEC materials.

Hypotheses

Based on the variables described above, the following null hypotheses emerged for testing:

1. There is no significant difference in the availability of IEC materials between public and private health facilities.
2. There is no significant difference in use of IEC materials by health workers in private and public facilities.
3. There is no significant association between health worker characteristics such as age, sex, cadre, and years of service and their use of IEC materials.
4. There is no significant association between intermediate variables such as skill, attitude, perceived self-efficacy, and opportunities for in-service training and health worker use of available IEC materials.

Instruments for Data Collection

Instruments for Data Collection

Two basic instruments were developed for data collection. One was an IEC materials inventory sheet (Appendix B). The second was a formal questionnaire for health staff (Appendix C). In preparation for developing the instruments, the researcher first conducted reconnaissance survey of local health facilities in the Ibadan area to gain insight into the types of IEC materials available and the means by which these were used and stored. Informal discussion with staff about IEC materials and their use also provided the basis for developing the questionnaire.

Several key aspects about IEC materials themselves were derived from the review of literature and thus, incorporated into the inventory sheet. These included type of material (e.g. poster, handbill), source (e.g. Ministry, NGO), mode of acquisition (e.g. purchase, sent from source), date acquired, storage (e.g. cupboard, wall hanger), and condition (e.g. noting of tears, stains, fading). Other identifying information on the inventory form included LGA, ownership of facility and type of facility as seen in Appendix B.

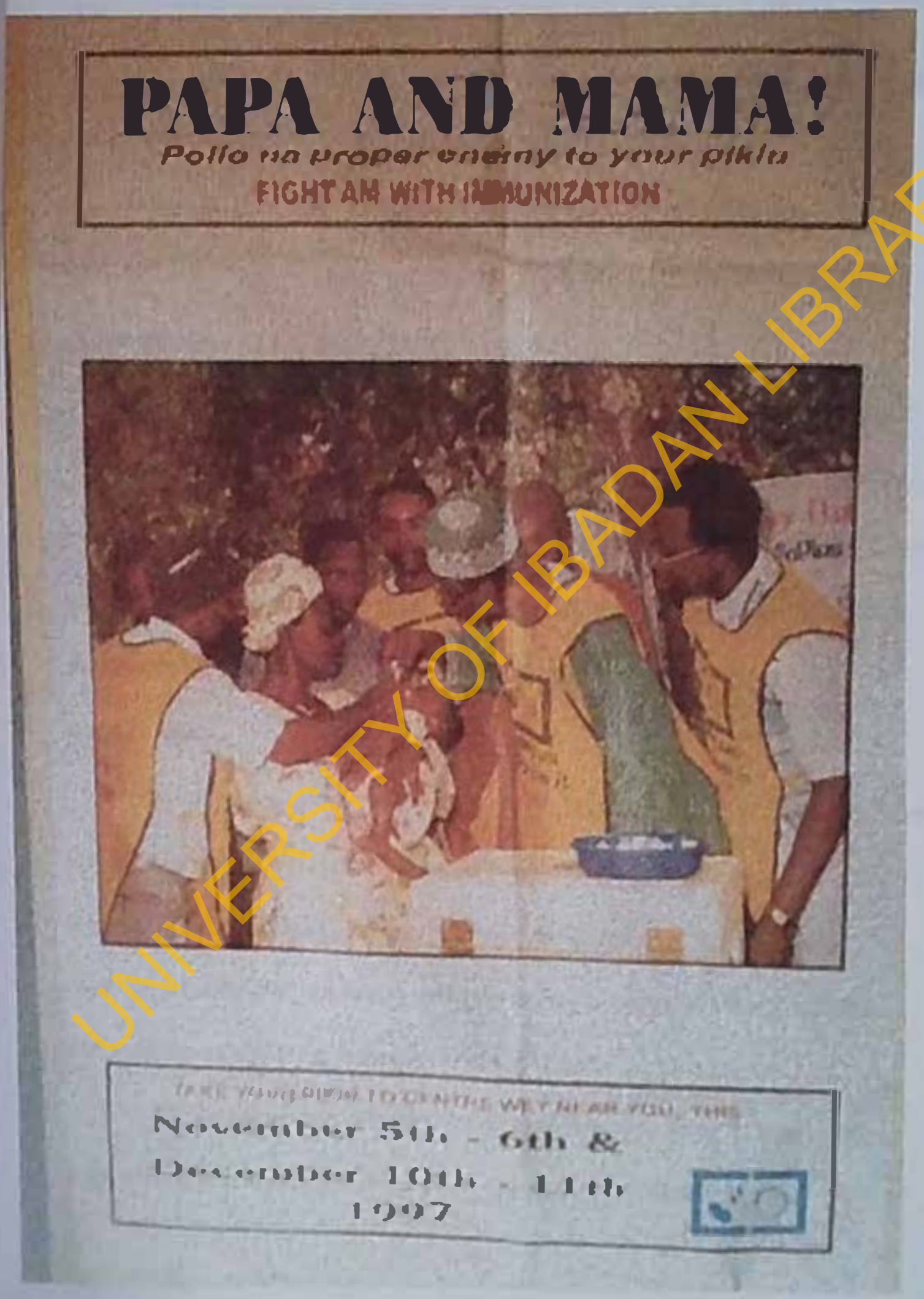
The questionnaire documented both the behaviour of health staff regarding IEC materials as well as antecedent factors that may influence or be associated with behaviour. Two key behaviours were the performance of group and individual health education and within the context of these activities, the use of

IEC materials to enhance the educational session as seen in Sections B and C of the questionnaire found in Appendix C. Section A contained background characteristics of the respondent including age, sex, cadre and years of service. Relevant experiences like learning about use of IEC materials during basic and/or in-service training were also ascertained.

Opinions about the value of IEC materials were incorporated into Sections B and C as were questions concerning encouragement for IEC material use perceived as coming from the clients of the facility. Section D determined the respondents' perceptions of self-efficacy (or confidence) in using IEC materials, their experience, if any, in designing their own materials, and perceptions of encouragement or discouragement by colleagues to use IEC materials.

Finally, Section E was used to test health workers' skills in using a simple poster. Posters are the most common type of IEC print material found in front line health clinics (Health Education Unit, Malawi, 1991), which was a reason for choosing this material for the test. A poster of current interest was chosen (see Plate 2) that depicted parents and community members involved in the National Immunization Days (NIDs) campaign. Since all health workers are expected to help out with the NIDs, regardless of cadre, it was assumed that all respondents should be able to work with a poster on NIDs.

Plate 2: Sample Poster Used to Test Health Workers' Material Use Skills



The instruments were pre-tested in Egbeda LGA where the researcher had undertaken his concurrent field work during the first year of the MPH course. Two public and two private facilities were visited. No problems were found with the instruments. What was learned was that some health staff were not familiar with the term IEC. Therefore, during the main study, the researcher introduced the process with an explanation of IEC.

Administration of the Instruments

All interviews and observations were conducted by the researcher himself. This was done after permission had been obtained for the study from the person in-charge of the health facility. Facilities were visited during the late morning or early afternoon by which time health staff would have finished most of their out-patient duties and thus be more free to show available materials and respond to the questionnaire.

Inventory procedures involved initial observation of any materials that were displayed or pasted to a wall. The health worker in-charge of the unit was asked to respond to questions about the source of the material. After all visible materials were studied, the health worker was then asked to locate any materials that were stored and bring them out for observation.

Effort was made to ensure privacy during the interview. If staff or clients were still present in the out-patient service area, the researcher asked the

respondent to locate an office where the interview could be conducted. Respondents were also assured that their responses would remain confidential.

Concerning administration of the poster skills test, the respondent was given the sample NIDs poster and asked to pretend that the researcher was a parent in need of health education using that poster. While the health worker carried out the educational role play, the researcher observed whether the respondent performed four simple tasks or not, including holding the poster so that it faced the audience, asking the client what he saw in the poster, asking the client to read any words written on the poster, and requesting the client to summarise any lesson to be learned from the poster. The foregoing steps embody a participatory educational process.

Field work for data collection required eight weeks over a three-month period beginning in late October 1998. Facilities within the Ibadan urban LGAs could be reached by public transport. Public transport to the outlying LGAs was irregular, and therefore, the researcher had to hire a car to conduct interviews in locations such as Ido LGA.

Data Management and Analysis

All instruments were hand coded by the researcher. Data entry and analysis was performed using the EPI INFO statistical package developed by the U.S. Centers for Disease Prevention and Control. Initial frequency printouts were

reviewed for inconsistencies by the researcher, which led to cleaning of the data. Frequencies were transformed into simple tables and bar and pie charts.

Descriptive data were presented in frequency tables, pie charts, bar charts and histograms. Inferential statistics were used to test hypotheses. Categorical data were tested using the chi square test, for example, the comparison of use of IEC materials and cadre of worker, Analysis of Variance (ANOVA test) and Student's t test were used to compare scores and continuous variables such as age and use of materials and factors associated with poster use skills test scores.

Validity and Reliability

The process of pre-testing of all instruments was one of the procedures undertaken to increase validity and reliability of the instruments. The researcher himself undertook all observations and interviews in order to eliminate inter-observer bias. Face and content validity were achieved by asking three lecturers in the Department of Health Promotion and Education to review the instruments. Finally, no more than two persons in a given service unit were selected for interview in order to limit the bias inherent in a cluster type of sample.

Limitations

In the process of achieving the goal of the study within the time limit as proposed, there were number of anticipated constraints and limitations that may directly or indirectly have affected the efforts of the research process. Some

possible sources of error are noted below.

- Some health workers expressed concerns about time constraints in their work. In fact, seven did not respond to the questionnaire for that reason. Four were from private and three were from public facilities. These perceived time constraints may have compromised the quality of some interviews.
- Although effort was made to keep the number of respondents per unit to a minimum of two, problems of potentially reduced variation inherent in a cluster sample could not be totally avoided. This bias was accepted as a trade-off arising from the relatively few public health facilities, which formed the basis of the study and the need to maximise the number of health staff interviewed.
- Due to logistical constraints, it was not possible to visit all health facilities in the outlying LGAs. Regular taxi service, for example, does not exist between Ibadan and Ido, the headquarters of Ido LGA, let alone to the peripheral hamlets and facilities. Therefore, the findings may not be fully representative of rural facilities.

CHAPTER FOUR

RESULTS

The findings of this study are presented in several parts. The first section concerns the availability of IEC materials in the units and facilities visited. The second section presents the demographic characteristics and IEC-related experiences of the questionnaire respondents. Subsequent sections include findings on IEC material use with individual clients and groups as well as health worker opinions, attitudes and perceptions of self-efficacy on IEC material use.

Availability of IEC Materials

A total of 195 service units in 95 health facilities were visited. Thirty-three were government owned facilities, containing 84 service units, while 62 were privately owned, having 111 service units. Overall, 178 (91.3%) of the service units had at least one IEC material. There was no significant difference between public (91.7%) and private (91.0%) in terms of the proportion having any IEC materials as seen in Table 5.

In the four peri-urban LGAs (Akinyele, Egbeda, Oluyole and Ido) only five (8.1%) of 62 service units had no IEC materials. Likewise, only 12 (9.0%) of 133 units in the urban LGAs had no materials. This difference was not significant as seen in Table 6.

Table 5

Comparison of IEC material Availability in Public and Private Service Units

Materials Available	Ownership of Facility/Unit (%)				TOTAL	
	Private		Public			
NO	10	(9.0)	7	(8.3)	17	(8.7)
YES	101	(91.0)	77	(91.7)	178	(91.3)
Total	111		84		195	

$X^2_{1\,adj.} = 0.001$, d.f. = 1, p = 0.93

Table 6

Comparison of IEC material Availability in

Urban and Peri-Urban Local Governments

Materials Available	Location of Service Unit (%)				TOTAL	
	Urban		Peri-Urban			
NO	12	(9.0)	5	(8.1)	17	(8.7)
YES	121	(91.0)	57	(91.8)	178	(91.3)
Total	133		62		195	

$X^2_{corr.} = 0.001.$ d.f. = 1. p = 0.96

A total of 849 different IEC materials were seen. The most common type of IEC material was the poster (69.3%). A wide variety of other materials were seen with the most common being stickers (10.2%), charts (3.1%), flipcharts (3.0%), and handbills (3.0%). Others, as seen in Table 7, included murals, calendars, leaflets, real objects, pamphlets and job aids. Definitions of these materials are found in Appendix A.

Table 7 also shows the distribution of materials in both private and public health service units. More posters (73.3%) were found among the 401 materials in public units than among the 438 materials found in private units (65.5%). Stickers were more than twice as common in private units (14.2%) than in public ones (6.1%). Both had similar proportions of charts (6.6% and 6.3% respectively), as was also the case with handbills (2.7% and 3.2% respectively). Although flipcharts were generally few, these materials were more common among available materials in public units (4.3%) than in private ones (1.4%).

The actual number of service units in the both sectors that possessed each type of IEC material is seen in Table 8. The majority of units in both public 185 (78%) and private 183 (78%) units has at least one poster. Stickers were found in 28 (28%) of public and 27 (9%) of private units. Similarly, 22 (6%) of public and 17 (1%) of private units had charts. A greater proportion of public units (19.0%) had flipcharts than did private ones (4.5%). Other differences are seen in the table

Table 7

Types of IEC Materials Available in Public and Private Units

Type of Material	Ownership of Service Unit				TOTAL	
	Private (%)		Public (%)			
Poster	287	(65 5)	338	(73 3)	625	(69 5)
Stickers	62	(14 2)	28	(6 1)	92	(10 2)
Chart	29	(6 6)	29	(6 3)	28	(3 1)
Flipchart	6	(1 4)	21	(4 6)	27	(3 0)
Handbill	12	(2 7)	15	(3 2)	27	(3 0)
Calendar	13	(3 0)	3	(06)	16	(1 6)
Leaflet	12	(2 7)	3	(0 6)	15	(1 7)
Real Object	5	(1 1)	10	(2 2)	15	(1 7)
Pamphlets	5	(1 1)	9	(2 0)	14	(1 6)
Job Aid	5	(1 1)	3	(0 6)	8	(0 9)
Mural	0	(0)	2	(0 4)	2	(0 2)
Number of Materials	438		481		899	

Table 8

Number of Service Units with Each Type of IEC Materials

Type of Material	Ownership of Service Unit				TOTAL	
	Private (%)		Public (%)			
Poster	93	(83 7)	72	(85 7)	165	(84 6)
Stickers	31	(27 9)	17	(20 2)	48	(24 6)
Chart	19	(17 1)	19	(22 6)	38	(19 5)
Handbill	11	(9 9)	12	(14 2)	23	(11 7)
Flipchart	5	(4 5)	16	(19 0)	21	(10 7)
Calendar	13	(11 7)	3	(3 5)	16	(8 2)
Real Object	4	(3 6)	9	(10 7)	13	(66)
Pamphlets	2	(1 8)	9	(10 7)	11	(5 6)
Leaflet	7	(6 3)	2	(2 3)	9	(4 6)
Job Aid	3	(2 7)	2	(2 3)	5	(2 5)
Mural	0	(0)	2	(2 3)	2	(1 0)
Number of Units	111		84		195	

The number of materials per service unit ranged from none to 21. The average was 4.6 and the median was 4.0 materials per unit. As Table 9 shows, there was a significant difference in the average number of materials found according to ownership of facilities. Public facilities averaged 5.5 materials per service unit. On the other hand, units in private facilities had a mean of only 3.9 materials per unit.

Table 10 compares the average number of IEC materials available in the peri-urban versus the urban HCAs. Urban units averaged 4.8 IEC materials compared with 4.2 per peri-urban unit. This difference was not significant. A more detailed look at these results is seen in Table 11 where units are classified into four groups by ownership and location. Public units in the urban setting averaged the largest number of materials (6.1). This was followed by 4.4 materials per unit in private peri-urban units. The mean for urban private (3.7) and peri-urban public (3.8) units was significantly lower.

The materials seen covered three broad theme areas as outlined in Figure 8. Included in health promotion (30.4% of all materials) were items on nutrition, family planning and hygiene and sanitation. Materials that focussed on specific preventive protective measures or prevention of specific diseases (41.5%) dealt with immunisation, the need for ante-natal and post-natal care, accident prevention (road traffic, home and occupational) and prevention of communicable and non-

Table 9

Comparison of the Average Number of IEC Materials in Service Units of Public and Private Health Facilities

Ownership of Facility	Number of Units	Mean IEC Materials	Median	Std Dev
Public	84	5.488	4.0	3.935
Private	111	3.946	4.0	2.895
Difference		-1.542		

ANOVA

Variation	SS	df	MS	F statistic	p value	t value
Between	113.716	1	113.716	9.946	0.0019	3.154
Within	2206.664	193	11.433			
Total	2320.379	194				

As variances differ, nonparametric Kruskal-Wallis H test recommended

H = 9.012. Degrees of freedom = 1. p value = 0.0027

Table 10

Comparison of the Average Number of IEC Materials in Service Units of Urban and Peri-Urban Facilities

Ownership of Facility	Number of Units	Mean IEC Materials	Median	Std Dev
Urban	133	4.820	4.0	3.666
Peri-Urban	62	4.161	4.0	2.943
Difference		0.659		

ANOVA

Variation	SS	df	MS	F statistic	p value	t value
Between	18.323	1	18.323	1.536	0.217	1.239
Within	2302.056	193	11.928			
Total	2320.379	194				

Table 11

Comparison of the Average Number of IEC Materials

by Ownership and Location

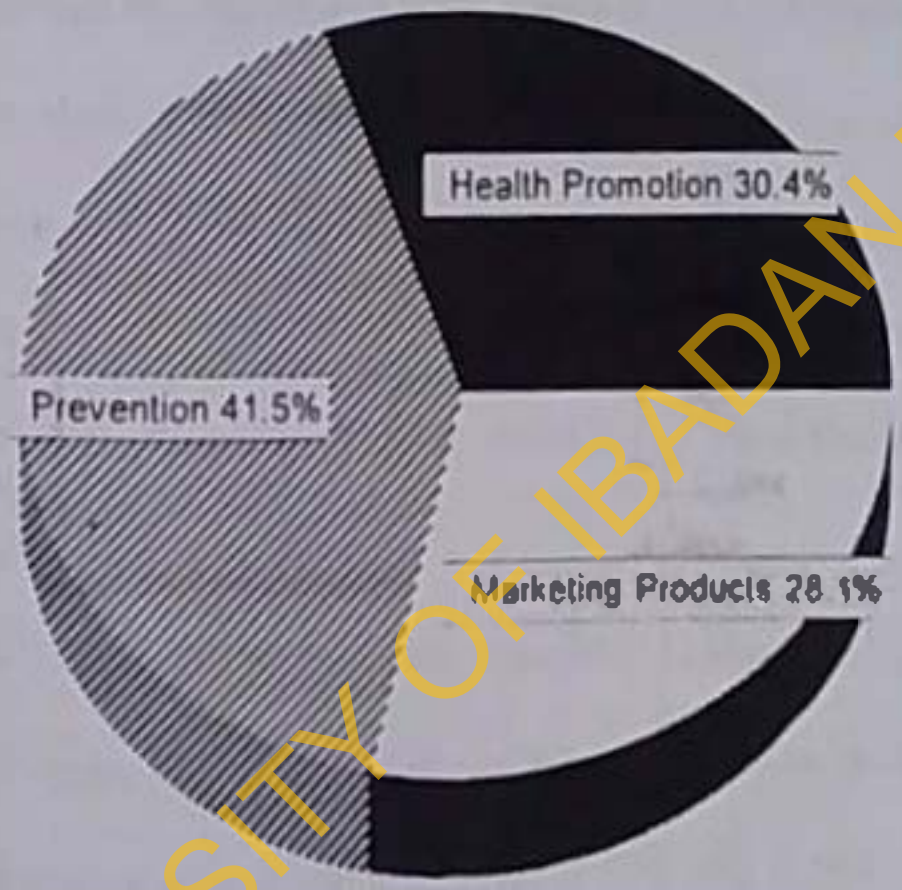
Ownership of Facility	Number of Units	Mean IEC Materials	Median	Std Dev
Urban/Private	71	3.704	3.0	2.846
Urban/Public	62	6.097	6.0	4.084
Peri-Urban/ Private	40	4.375	4.0	2.967
Peri-Urban/ Public	22	3.773	3.0	2.927

ANOVA

Variation	SS	df	MS	F statistic	p value
Between	212.933	3	70.978	6.433	0.0004
Within	2107.447	191	11.034		
Total	2320.379	194			

Figure 8:

Major Themes of IEC Materials



communicable diseases such as malaria, HIV, guinea worm and high blood pressure. Some appeared to market specific medical or curative products (28.1%) including certain drugs, dental products, oral rehydration solution (ORS), and various medical tests.

Figure 9 depicts the various ways by which the materials were acquired. Most (66.1%) had been distributed by the producer or an intermediary. Others (13.1%) were obtained by health staff when they had attended a workshop or seminar. Some (9.6%) were requested from the producer or a supplying agency. A few were either developed by the health staff themselves (4.0%) or bought (3.0%) by the staff. Respondents did not know how 4.1% of the materials had been acquired.

Table 12 lists the sources of IEC materials. The two most common were the Federal Ministry of Health (27.5%) and private companies (31.9%) such as Nestle. International agencies such as UNICEF provided 10.9%. Others, included state government, local government, institutions of higher learning, non-governmental organisations and combinations of the foregoing. The source was not known for four materials (0.8%). Public facilities were more likely to get materials from government sources (39.0%) from LGA, SMOH and FMOH than private (28.8%), while private were more likely to get from private companies (45.5%) than were public facilities (19.0%)

Figure 9:

Mode of Acquiring Materials

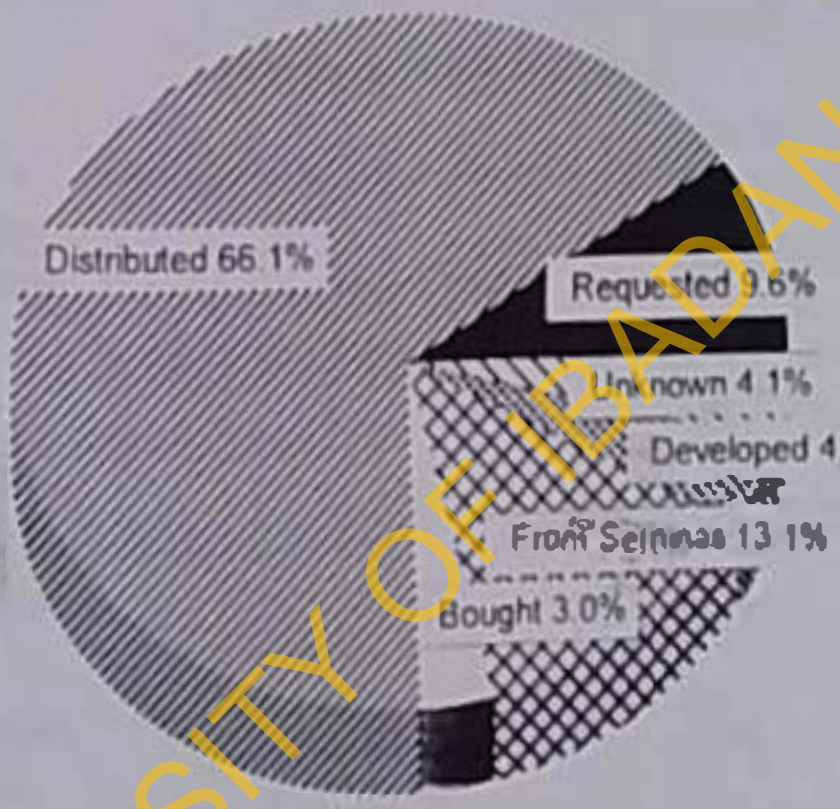


Table 12

Sources of IEC Materials

Sources	Private		Public		Total	
	Number	(%)	Number	(%)	Number	(%)
Private Companies	200	(45 5)	87	(19 0)	287	(31 9)
Federal Ministry of Health	104	(23 6)	143	(31 2)	247	(27 5)
International Organisations	43	(9 8)	55	(1 1 5)	98	(10 9)
Joint (e g NGO SMOH & FMOH)	27	(6 1)	69	(15 0)	96	(10 7)
Nigerian NGOs	27	(6 1)	33	(7 2)	60	(6 7)
State Ministry of Health	22	(5 0)	29	(6 3)	51	(5 7)
Developed by Health Worker	7	(16)	29	(6 3)	36	(4 0)
Institution of Higher Learning	6	(1 4)	6	(1 3)	12	(1 3)
Local Government	1	(0 2)	7	(1 5)	8	(0 9)
Unknown	3	(0 7)	1	(0 2)	4	(0 4)
Total	440		459		899	

Plate 3 **Sample Materials Taped to Wall of Health Facility**

The poster on 'Successful Motherhood' to the right was produced by a commercial enterprise. The one on 'educational entertainment' immediately above it was produced by an overseas University. At the top are some posters on family planning made by the health workers themselves. The poster on AIDS immediately above this box was produced by the Ministry of Health.

Plate 3 contains posters from a variety of sources. One entitled "Ten Steps to Successful Motherhood" came from a private commercial enterprise. Cowbell Milk. Another with the heading "Entertainment Educates" was produced by the Johns Hopkins University under a U.S. Agency for International Development contract. There are also some posters containing indigenous and modern family planning materials produced by the health workers themselves. Finally, there is a poster on AIDS produced by the Oyo State Ministry of Health.

Most materials (55.4%) had been acquired between 1996 and the end of 1998 (i.e. when the interviews were taking place). The oldest materials dated from 1980. Date of acquisition was not known concerning 16.7% of the materials as seen in Figure 10.

Location or storage of materials was noted, and the majority (84.5%) were seen pasted on walls of the clinics. A few (15.4%) were hung on hooks. The remainder were kept on tables, hidden in drawers, rolled up stored in cupboards, or packed in cartons, as shown in Table 13.

Plates 3 and 4 show that many materials are kept on walls, and even on windows and doors. Plate 4 also shows a flipchart hanging from a nail driving into the frame of a window. Cellotape was used to attach most posters to the walls. Plate 5 shows posters stapled and taped to a notice board. Although no direct

Figure 10:

Year When Materials Acquired

Table 13

How IEC Materials were Kept or Stored

Where Stored/Kept	Frequency	Percent
Pasted on Wall	760	84 5
Hung	49	5 4
Stored in Cupboard	24	2 7
Rolled/Folded	24	2 7
Stored in Carton	21	2 3
Kept on Table	12	1 3
Kept in Drawers	9	1 0
Total	899	

Plate 4 Examples of Materials Hung on Walls, Windows and Doors

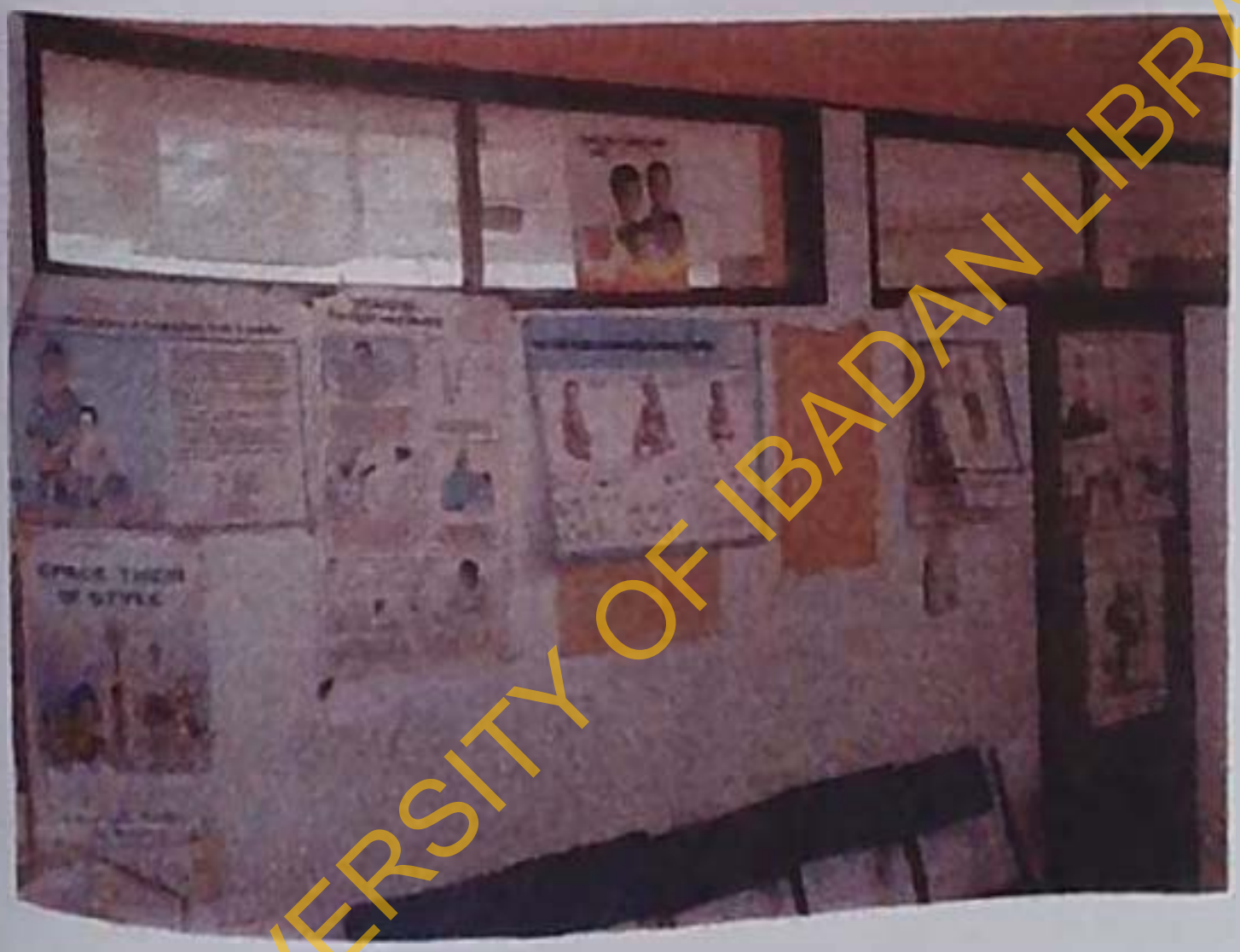


Plate 5 Example of Materials Posted on a Notice Board

question was asked concerning when the poster was put on the wall, informal discussion revealed that new posters were usually pasted on the wall as soon as they were acquired. As seen in Plates 3-5, this often crowds the viewing space.

The condition of materials was judged in four categories (Figure 11). Most (58.0%) were seen to be intact, that is not torn or mutilated, and clean. Others were dirty, faded or discoloured (28.1%). A few (7.7%) would have appeared new except that they were covered with either cobwebs, dust or had stains. Finally, 6.2% were torn, mutilated, or defaced.

The poster on AIDS in Plate 3 clearly shows damage as pieces have been torn off. The one on motherhood next to it has been torn along the left side. Constant exposure of these posters on the walls may be a factor that contributes to such damage. The proximity of these posters to light and fan switches on the same wall (Plate 3) or near doors and windows (Plate 4) increases the likelihood that people will brush up against them frequently.

The researcher also observed that only 6.1% of the materials had text in the local Yoruba language. In contrast, few (11.2%) had foreign visual content. Plate 5 shows health workers using the 1998 National Immunisation Days Poster, which has captions in pidgin English. Some members of the audience could read and understand this, and in any event, the staff themselves could translate the words if necessary.

Figure 11:

Condition of Materials

Plate 6 Health Workers Using a Poster with Pidgin English Captions*

*Papa and Mama! Polio na proper enemy to your pikin. Fight am with immunization

Demographic Characteristics of Health Workers Interviewed

A total of 250 health workers were approached for interview, and seven (3%) refused. Their ages ranged from 19-60 years with a mean of 34.6 years as seen in Figure 12. Most (82.7%) of the 243 respondents were female. The majority (71.2%) were married, 22.2% were single, and 6.6% were formerly married. Christianity (62.1%) was their most common religion, followed by Islam (28.8%) and indigenous African religions (9.1%).

All respondents had received post-primary education, but 83.5% had completed secondary school. Among the professional cadres, Nurses/Midwives accounted for 51.0% of respondents. Others included the community health cadres of CHO, JCHEW and SCHEW (26.3%), Auxiliary Nurses (9.5%), Physicians (5.8%). Others professionals (7.4%) were comprised of Environmental Health Officers (EHOs), Pharmacists, Pharmacy Technicians and Laboratory Assistants as seen in Figure 13. Twenty-four percent of the respondents held an administrative post in their facility including proprietor, matron, medical director or assistant in-charge. The average length of service of respondents was 11.2 years with a range from less than one year to 39 years as seen in Figure 14.

The majority of health workers (84.4%) said that they had received instruction on the use of IEC materials during their basic training. Only 22.7% of 23 auxiliary nurses had received this training (Figure 15), compared to 93.8% of

Figure 12:

Age Distribution of Respondents

Figure 13:

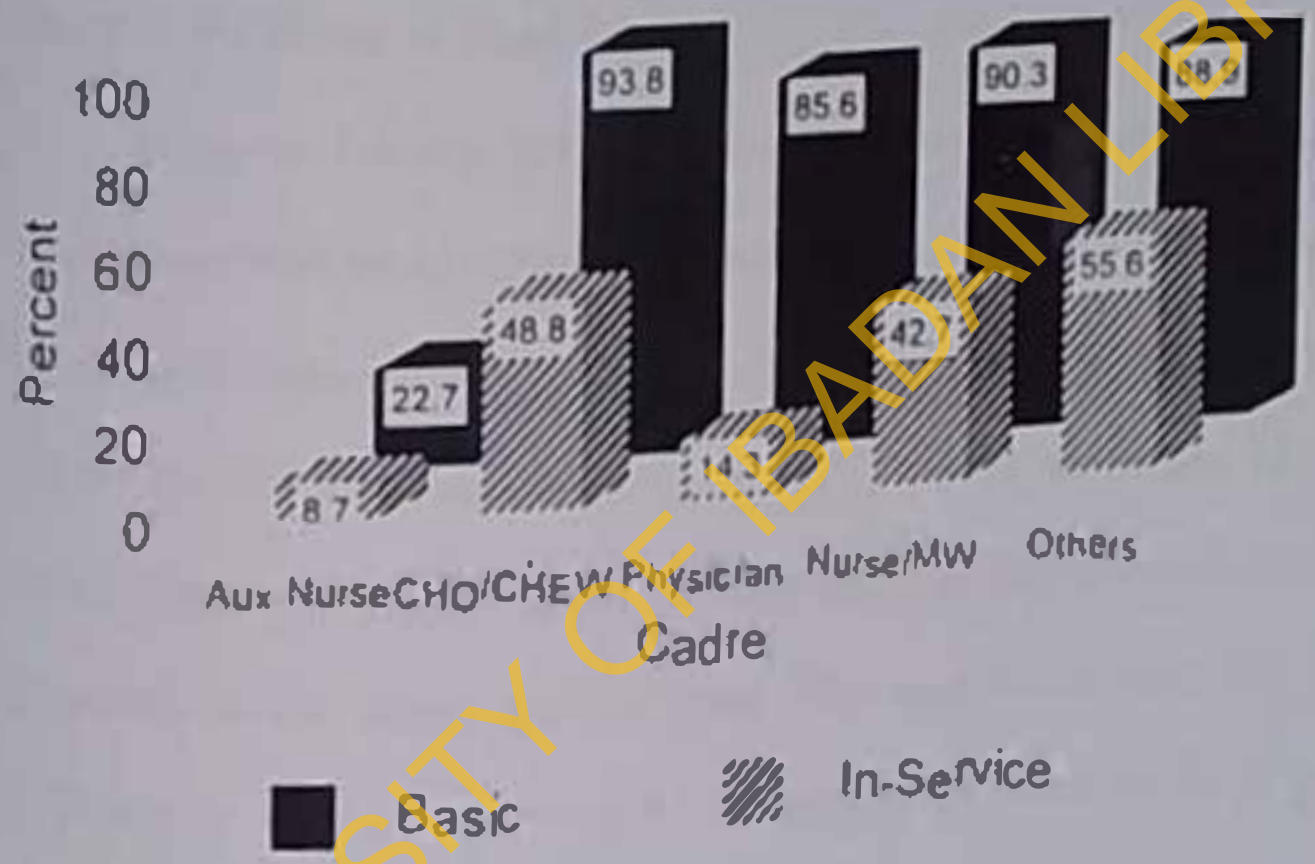
Cadres of Respondents

Figure 14:

Years in Service of Respondents

Figure 15:

Basic Training and IST in IEC Materials



64 CHEWs/CHOs, 85.6% of 14 physicians, 90.3% of 124 staff nurses/midwives and 88.9% of 18 other professionals. The common IEC materials to which these 205 health workers had been exposed during their basic training were posters (94.1%), songs (80.5%), handbills (59.0%), pamphlets (52.2%), flipcharts (48.3%), story telling (45.4%), drama (41.5%), flannel graph (12.2%) and flash cards (11.7%) as seen in Figure 16.

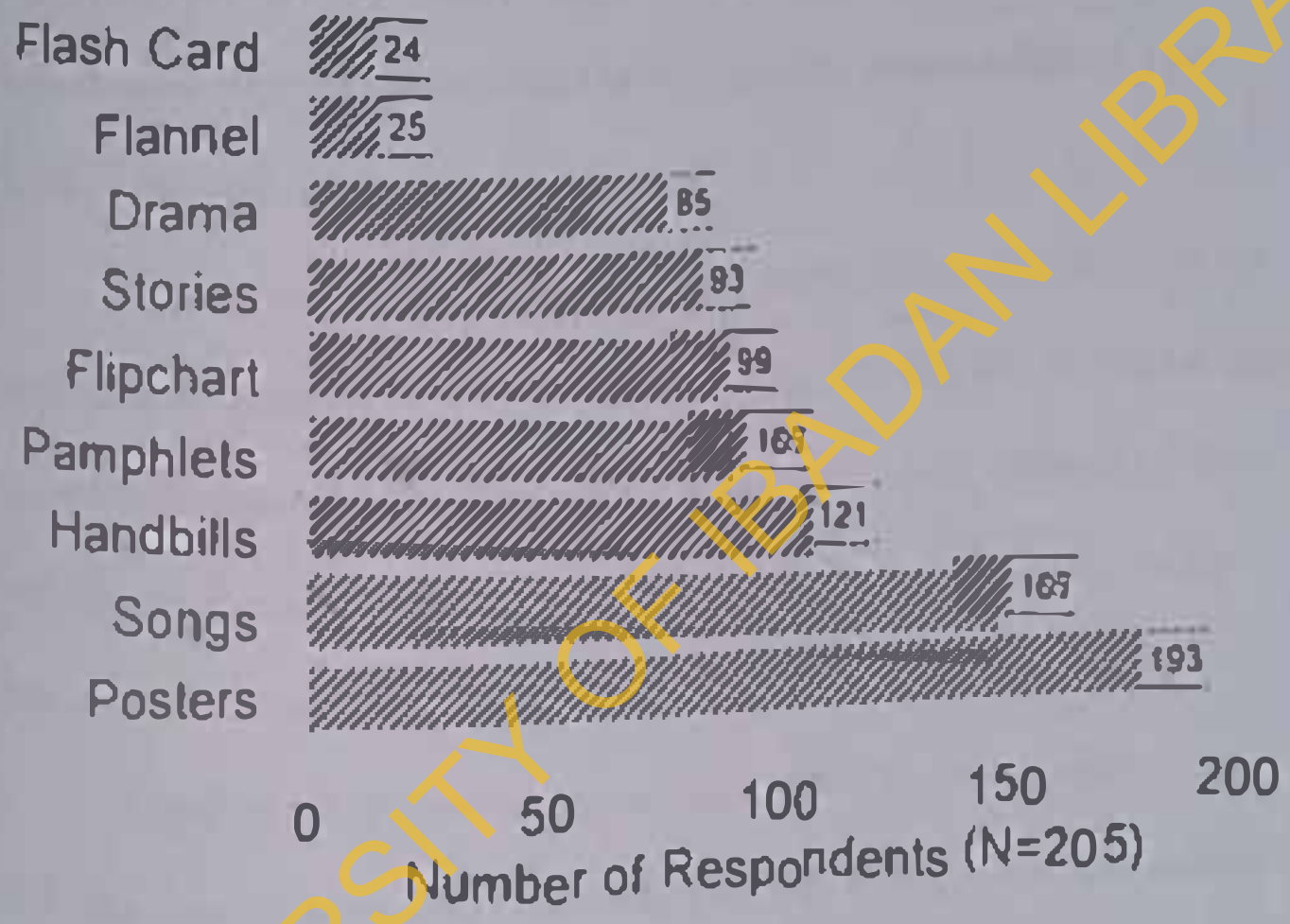
In-service Training (IST) concerning IEC materials was less common among those interviewed (40%). Other professionals, e.g. EHOs and pharmacists, had the highest proportion of persons who had attended IST (55.6%) followed by CHOs/CHEWs (48.8%) and nurse/midwives (42.7%). Few physicians (14.3%) and auxiliary nurses (8.7%) had IST experiences (Figure 15). The most recent IST experiences for IEC ranged from 1-17 years with a mean of 3.9 years. Most (57.1%) of the 97 who had received IST had attended the course within the past three years. Five could not remember when they attended the course.

Few (7.3%) reported that their IST focussed specifically and entirely on IEC materials. Most (92.7%) reported that IEC materials were introduced in the context of specific public health issues and programmes. These programmes included family planning (33.0%), community mobilisation for immunisation (14.4%), control of endemic diseases such as guinea worm and malaria (9.3%), exclusive breast feeding (8.2%) oral rehydration therapy (8.2%), health planning (7.2%) and general nursing practice (6.2%).

A variety of agencies sponsored the ISTs including LGAs, state ministries of health, the Federal Ministry of Health, local NGOs, professional associations,

Figure 16:

Types of IEC Materials During Basic Training



institutions of higher learning, and international organisations. Slightly over half (54.5%) of the 97 who had IST recalled were organised by a single agency, while the remainder were organised by two of these organisations in partnership.

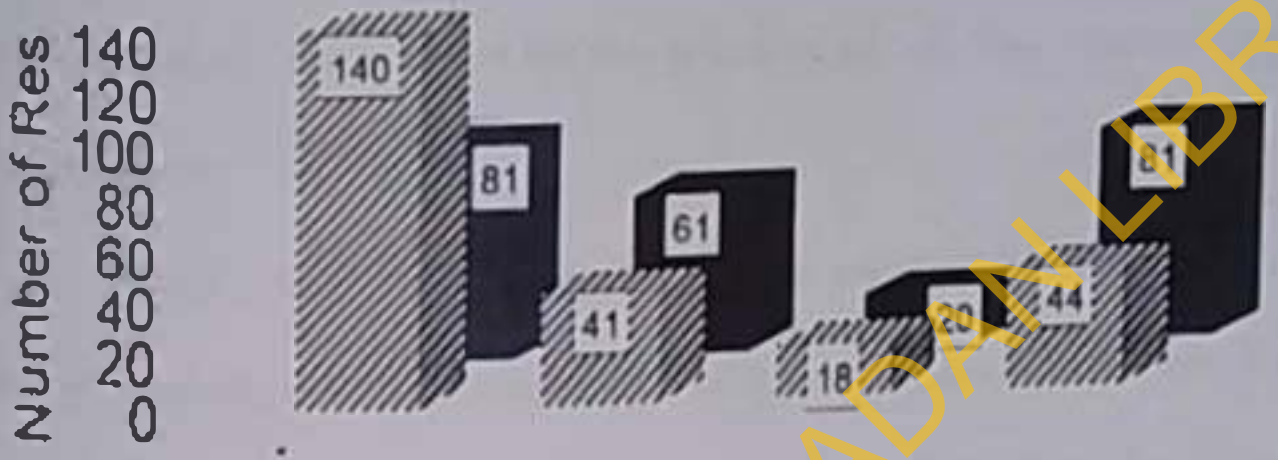
Most respondents (65.8%) reported that health education activities were carried out daily in their clinics. Some said that health education was done a few times a week (11.9%), once a week (16.9%) or a few times a month (4.1%). Three (1.2%) did not respond.

On a personal level, 81 (33.3%) of the health workers said they had not performed health education with groups of clients. Another 81 (33.3%) had done group health education within the week preceding the survey, while 61 (25.1%) had performed group education within the previous month, and 20 had done it over a month before the survey.

A total of 199 (81.9%) of respondents said that they had practised individual health education or counselling with their clients. Many respondents (57.6%) had performed counselling within the past week, 16.9% within the previous month and 7.4% longer than a month ago. These experiences are summarised in Figure 17.

Figure 17:

Health Education Experiences



Skills, Self-Efficacy, Attitudes and Encouragement

This section presents findings on four antecedent factors that may influence health worker use of IEC materials, their IEC material use skills, their self-efficacy perceptions for using IEC materials, their attitudes toward IEC materials and their perceptions of encouragement from colleagues and clients to use materials during health education. These factors are also to be compared with basic characteristics of the respondents.

In order to test health workers' respondent's skills in using IEC materials, the researcher asked each respondent to demonstrate the use of the sample poster found in plate 2. Most (72.1%) held the poster directly facing the researcher (not the client. Otherwise, few demonstrated correct use steps. The remaining three steps provide the client an opportunity to participate in the learning process. Only 10.7% asked the client what he could see in the picture. The rest simply told him what they thought he should be seeing. Few (8.2%) asked the client to read the words on the poster, while the others read out the words themselves. Even fewer (6.2%) asked the client to relate any lessons he had learned from the poster. The rest either skipped this part or told the client which lessons he should have learned.

The performance of these steps resulted in the award of one point for each step correctly done (see Section E of the Questionnaire in Appendix C). The overall skill score ranged from 0-4 points with an average of 0.98 and a median of 1.0 points. Only six health workers (2.5%) scored the maximum of 4 points, while

67 (27.6%) scored no points as seen in Figure 18

Poster use skills among the different cadres were compared. Table 14 shows that physicians had the highest mean score (1.4 points), and auxiliary nurses had the lowest (0.3). Table 15 contains analysis that compares skills according to reports that IEC materials were covered in the basic training of the respondents. Those who did have IEC in their training had a significantly higher mean score (1.0 points) than those who did not (0.5). Similarly, those who had INT that featured IEC materials use scored higher on average (1.2 points) than those who did not (0.8) as seen in Table 16. It was also observed that health workers in the public sector scored significantly higher on average (0.9 points) than those in the private sector (0.8) as seen in Table 17.

Self-efficacy perceptions concerning the use of IEC materials were elicited using four statements as seen in Table 18. The action for which the highest proportion of respondents felt very confident (70.4%) was selecting IEC materials. This was followed by 64.2% who felt very confident in using IEC materials during patient counseling, and 56.7% who were very confident that they could use IEC materials with groups. The lowest level of perceived self-efficacy was recorded for making IEC materials, for which only 23.5% felt very confident.

A self-efficacy score was computed. Each item was scored on a 4-point scale: very confident scored four points, somewhat confident received three points, uncertain was given 2 points, while not confident scored one point. A combined

Figure 18:

Distribution of Poster Use Skill Scores

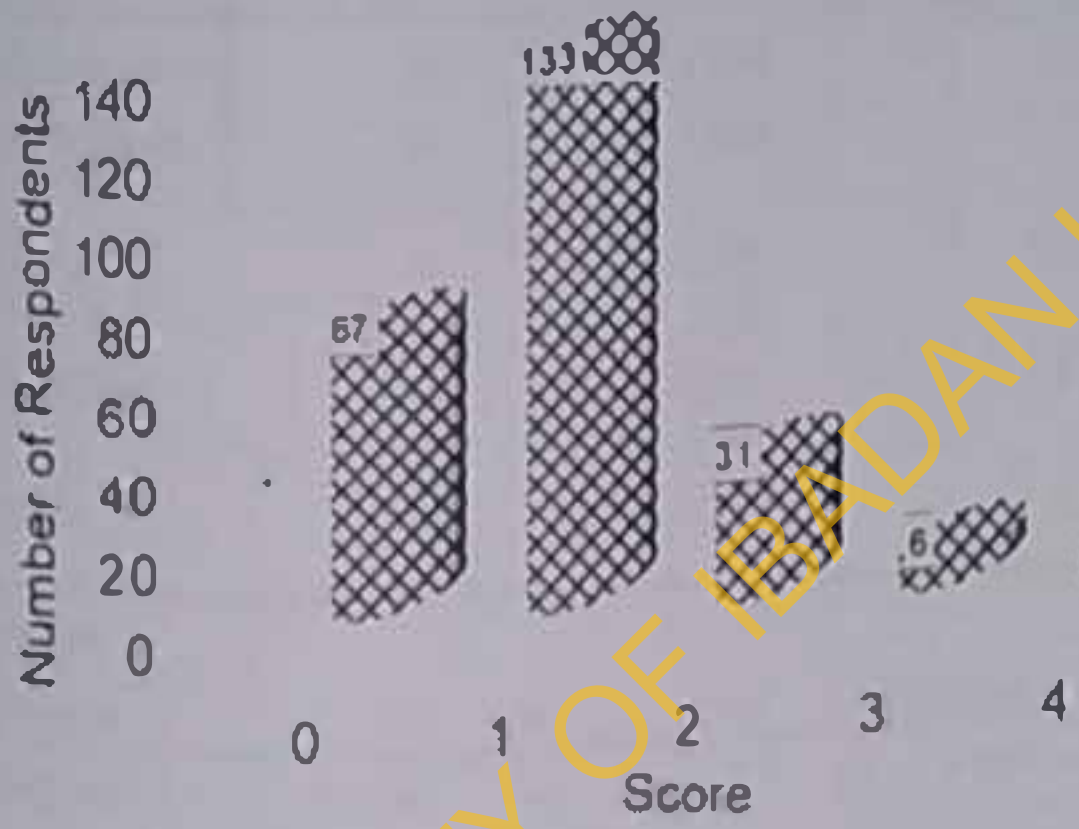


Table 13

Comparison of Poster Use Skills and Cadre of Health Worker

Cadre	Number	Mean	Median	Std Dev
Auxiliary Nurse	23	0 348	0 0	0 573
CHO/CHEW	61	1 063	1 0	0 806
Physician	14	1 357	1 0	1 216
Nurse/MW	124	1 008	1 0	0 801
Others	18	0 944	1 0	0 639

ANOVA

Variation	SS	df	MS	F statistic	p value
Between	11 734	4	2 933	4 254	0 002413
Within	164 118	238	0 690		
Total	175 852	242			

Table 15

Comparison of Poster Use Skills and History of IEC Material Use During Basic Training

IEC Materials in Basic Training	Number	Mean	Median	Std Dev
YES	205	1 059	1 0	0 855
NO	38	0 526	0 0	0 687
Difference		0 532		

ANOVA

Variation	SS	df	MS	F statistic	p value	t value
Between	9 081	1	9 081	13 122	0 000356	3 622
Within	166 771	241	0 692			
Total	175 852	242				

Table 16

Comparison of Poster Use Skills and Opportunity of In-Service Training that featured IEC Materials

IST that Covered IEC Materials	Number	Mean	Median	Std Dev
YES	97	1 258	1 0	0 927
NO	146	0 788	1 0	0745
Difference		0 470		

ANOVA

Variation	SS	df	MS	F statistic	p value	t value
Between	12 877	1	12 877	19 042	0 000018	4 364
Within	162 975	241	0 676			
Total	175 852	242				

Table 17

Comparison of Poster Use Skills and Sector of Work

Sector	Number	Mean	Median	Std Dev
Private	121	0 828	1 0	0 727
Public	122	1 123	1 0	0 941
Difference		.0 297		

ANOVA Variation	SS	df	MS	F statistic	p value	t value
Between	5 341	1	5 341	7 548	0 00646	2 747
Within	170 511	241	0 708			
Total	175 852	242				

Table 18

Self-Efficacy Perceptions Concerning IEC Material Use

Efficacy Statement	Confidence Responses in %			
	very confident	somewhat confident	uncertain	not confident
Selecting appropriate IEC materials for use in my health facility	70 4	17 3	10 3	3 8
Using IEC materials in education with groups of clients	57 6	21 4	17 7	3 3
Using IEC materials during individual client counselling	64 2	14 4	18 1	3 3
Making IEC materials for my own use in this facility	25 5	7 8	31 3	35 4

N = 243

score for all four items could therefore, range from four to 16 points.

Self-efficacy scores were found to vary according to the same variables first analysed for skill performance scores. Those cadres with the highest mean self-efficacy score were physicians (13.8), others (13.6) and CHOs/CHEWs (13.0). Nurses Midwives were lower (12.7), while auxiliary nurses scored lowest (9.7) as seen in Table 19. Those whose basic training covered IEC material use had a significantly higher mean efficacy score (13.2) than those whose training did not (9.9) (Table 20). Likewise, IST that covered IEC materials was associated with higher mean scores (14.1) than lack of IST in IEC material use (11.7) (Table 21). Public sector workers had higher mean self-efficacy scores (13.3) than private sector respondents (12.0) (Table 22).

Some (22.2%) of the health workers said they had ever actually developed any IEC materials for their own use. Among the 54 who had developed materials, 19 did so to enable better client understanding of health issues. Ten said they had developed materials during their basic professional training for various projects. Nine mentioned that they had developed materials to educate people on various family planning methods. The remainder gave reasons such as, sharing others what they had learned at a workshop (4), helping with the immunisation campaign (3), and orienting school children on relevant health problems (1). Five did it "just for doing sake."

Table 19

Comparison of Self-Efficacy Scores and Cadre of Health Worker

Cadre	Number*	Mean	Median	Std Dev
Auxiliary Nurse	20	9 750	10 0	33 54
CHO/CHEW	63	13 000	13 0	2 585
Physician	14	13 786	13 5	2 045
Nurse/RW	120	12 733	13 0	2 576
Others	18	13 556	14 0	2 406

ANOVA

Variation	SS	df	MS	F statistic	p value
Between	209 403	4	52 351	7 699	0 000008
Within	1564 018	230	6 800		
Total	1773 421	234			

*NOTE 6 people did not respond to the self-efficacy section of the questionnaire

Table 20

Comparison of Self-Efficacy Scores and History of ICT Material Use During Basic Training

Basic Training	Number	Mean	Median	Std Dev
YES	200	13 155	13 0	2 396
NO	35	9 943	10 0	3 464
Difference		3 212		

ANOVA

Variation	SS	df	MS	F statistic	p value	f value
Between	307 341	1	307 341	48 845	0 000000	6 889
Within	1466 081	233	6 292			
Total	1773 421	234				

Table 21

Comparisons of Self-Efficacy Scores and Opportunity of In-Service Training that featured I-E Materials

IST	Number	Mean	Median	Std Dev
YES	94	14 106	14 0	1 583
NO	141	11 723	12 0	2 952
Difference		2 383		

ANOVA

Variation	SS	df	MS	F statistic	p value	t value
Between	320 272	1	320 272	51 353	0 000000	7 166
Within	1453 149	233				
Total	1773 421	234				

Table 22

Comparison of Self-Efficacy Scores and Sector of Work

Sector	Number	Mean	Median	Std Dev
Private	115	12.009	13.0	2.814
Public	120	13.317	14.0	2.544
Difference		-1.308		

ANOVA

Variation	SS	df	MS	F statistic	p value	t value
Between	100.463	1	100.463	13.982	0.000231	3.740
Within	1672.958	233	7.180			
Total	1773.421	234				

Among the 189 who did not make any IEC materials, the main reason given was "I am not in a position to develop materials" (37.6%). Other common reasons were lack of technical knowledge (20.1%), lack of time due to other duties (14.3%), lack of encouragement or support (9.0%) and a perception that material development is not part of that cadre's duties (8.5%). Other reasons included the fact that materials are freely available from various agencies (4.8%), no supplies to use (4.8%), and being too old (1.0%).

Table 23 shows that there is a positive association between having developed IEC materials and self-efficacy score. Those who had made their own materials scored a mean of 14.7 points, while the average score for the others was 13.1. Similarly, those who had developed IEC materials had a significantly higher poster use skill score (1.2) than those who had not (0.9) (Table 24).

A history of material development was slightly higher among those in the public sector (26.2%) than workers in private facilities (18.2%), but as seen in Table 25, this difference is not significant.

Respondents were asked whether they perceived any benefits in using IEC materials in their work. The most common responses were that the materials helped to improve clients' understanding of health issues (23.5%), that materials were instrumental in creating awareness or enlightenment (14.5%), that materials enhanced communication (11.0%), and that IEC materials educated and empowered clients (10.3%). A variety of other responses, as seen in Table 26,

Table 23

Comparison of History of IEC Material Development and IEC Material Use Self-Efficacy Score

Developed Materials	Number	Mean	Median	Std Dev
YES	53	14 680	15 0	1 531
NO	182	12 099	13 0	2 783
Difference		2 581		

ANOVA

Variation	SS	df	MS	F statistic	p value	f value
Between	269 315	1	269 315	41 719	0 000000	3 859
Within	1504 107	233	6 455			
Total	1773 421	234				

Table 24

Comparison of History of IEC Material Development and Poster Use Skill Score

Developed Materials	Number	Mean	Median	Std Dev
YES	54	1 259	1 0	0 805
NO	189	0 894	1 0	0 850
Difference		0 365		

ANOVA

Variation	SS	df	MS	F statistic	p value	t value
Between	5 598	1	5 598	7 924	0 005282	2 815
Within	170 254	241	0 706			
Total	175 852	242				

Table 25

Comparison of History of H C Material Development and Sector of Service

Ever Developed Materials	SECTOR				Total	(%)
	Private	(%)	Public	(%)		
YES	22	(18 2)	32	(26 2)	54	(22 2)
NO	99	(81 8)	90	(73 8)	189	(77 8)
TOTAL	121		122		243	

X^2_{1a} 1.83; df 1; p 0.175

Table 26

Perceived Benefits in Using IEC Materials

Benefit	Number	Percent
Improves/Boosts Understanding	62	25 5
Instrument of Enlightenment/Awareness	36	14 8
Enhances Memory	31	12 7
Improves Service Delivery	31	12 7
Enhances Communication/Feedback	29	11 9
Educates and Empowers	25	10 3
Ensures Things Done Properly	24	9 9
Broadens Knowledge/Comprehension	23	9 5
Promotes Efficient Service Delivery	22	9 0
Motivates Regardless of Educational Level	21	8 6
Beautifies/Decorates Office	19	7 8
Gives Confidence to Educate	14	5 8
Good for Mobilisation	10	4 1
Enhances Choices	7	2 9
Attracts Attention	6	2 5
Convinces Patients	4	1 6
Increases Facility Patronage	3	1 2
People Demand for it	1	0 4
No Idea/Not Applicable	2	0 8
No Response	20	8 2
Number	243	

range from the practical such as improving memory and motivation to the aesthetic such as decorating the facility. Twenty health workers (8.2%) did not give an answer and two said they did not know a benefit (0.8%).

Several problems associated with the use of IEC materials were also mentioned. The main concern was inadequate supplies (35.3%). Another 33.7% said that supplies were completely lacking. Some (7.8%) complained that available materials were not relevant, either to the local culture or to current health issues. A related concern was the language barrier created by lack of materials in local languages or to the fact that many in the audience were not literate (5.7%). Other concerns, as seen in Table 27, included lack of funds, damaged materials, lack of encouragement, lack of knowledge in material use, and laziness. Eighteen people (7.4%) gave no response, while 22.2% said there were no problems at all.

When asked specifically about being encouraged to use IEC materials, 44.4% of respondents said that their professional colleagues had encouraged them while three people (1.2%) said that they had been actively discouraged from using materials by other staff at the facility.

Concerning how client response encourages health workers to use IEC materials, respondents were equally divided in opinion. Slightly less than half (49.4%) said that they found client response encouraging, while 50.6% said client response made no difference in whether they used IEC materials or not. None said that client response discouraged them from using materials.

Table 27

Perceived Problems in Using IEC Materials

Problem	Number	Percent
Inadequate Materials/Shortage of Supply	86	35.4
Materials not Available	62	25.5
Available Materials not Relevant to Culture Health Issues	19	7.8
Language/Literacy Barriers	14	5.7
No Time for it. Staff Clients Busy	13	5.3
No Funds Resources	11	4.5
Monotonous Like Variety	9	3.7
Old Torn Ragged	8	3.3
Lack Knowledge to Use	7	2.9
No Encouragement	5	2.1
Lack of Staff	3	1.2
Lameness	3	1.2
No Problems at All	54	22.2
No Response	18	7.4
Number	243	

Table 28 shows that physicians were more likely to report that colleagues had encouraged them to use IEC materials (71.4%) while auxiliary nurses were the least likely to report receiving encouragement from co-workers (13.0%). Similarly, a greater proportion of physicians reported being encouraged by client response to use IEC materials (57.1%) than did auxiliary nurses (17.4%) as seen in Table 29.

Mean poster use skill score was significantly higher (1.1) for those who reported encouragement from colleagues than those who did not (0.9) as shown in (Table 30). The average self-efficacy scores for those who reported encouragement from colleagues was also significantly higher (14.0) than those who did not report encouragement (11.8), as presented in Table 31.

A similar pattern was seen concerning perceived encouragement from clients. Mean poster use skill score was 1.2 for those who reported receiving client encouragement, while those who did not report receiving encouragement scored a significantly lower average of 0.7 points (Table 32).

The mean self-efficacy score for health workers who said that client response encouraged them to use IEC materials was 13.8 points. Those who said clients response made no difference to them scored a significantly lower mean of 11.7 points, as seen in Table 33.

Table 28

Comparison of Reported Encouragement from Co-Workers and Cadre of Respondent

Encouragement from Co-Workers	CADRE (%)					Total
	Auxiliary	CHO	Physician	Nurse-Midwife	Others	
YES	3	30	10	57	8	108
	(13.0)	(46.9)	(71.4)	(46.0)	(44.4)	(44.4)
NO	20	34	4	67	10	135
	(87.0)	(53.1)	(28.6)	(54.0)	(55.6)	(55.6)
TOTAL	23	64	14	124	18	243

$X^2 = 13.58$; $df = 4$; $p = 0.00875201$

Table 29

Comparison of Reported Encouragement from Clients and Cadre of Respondent

Client Response Encourages	CADRE (%)					Total
	Auxiliary	CHO	Physician	Nurse	Others	
YES	4 (17.4)	35 (54.7)	8 (57.1)	64 (51.6)	9 (50.0)	120 (48.4)
NO	19 (82.6)	29 (45.3)	6 (42.9)	60 (48.4)	9 (50.0)	123 (50.6)
TOTAL	23	64	14	124	18	243

$X^2 = 10.73$ df = 4; p = 0.02984172

Table 29

Comparison of Reported Encouragement from Clients

and Cadre of Respondent

Client Response Encourages	CADRE (%)					Total
	Auxiliary	CHO.	Physician	Nurse-	Others	
YES	4	35	8	64	9	120
	(17.4)	(54.7)	(57.1)	(51.6)	(50.0)	(49.4)
NO	19	29	6	60	9	123
	(82.6)	(45.3)	(42.9)	(48.4)	(50.0)	(50.6)
TOTAL	23	64	14	124	18	243

$X^2 = 10.72$ $df = 4$; $p = 0.02984172$

Table 30

Comparison of Poster Use Skill Score

and Reported Encouragement from Co-Workers

Encouragement from Co Workers	Number	Mean	Median	Std Dev
YES	108	1 111	1 0	0 931
NO	135	0 867	1 0	0 771
Difference		0 244		

ANOVA Variation	SS	df	MS	F statistic	p value	t value
Between	3 585	1	3 585	5 018	0 026032	2 239
Within	172 267	241	0 715			
Total	175 852	242				

Table 31

Comparison of HEC Use Self-Efficacy Score and Reported Encouragement from Co-Workers

Encouragement from Co-Workers	Number	Mean	Median	Std Dev
YES	108	13 981	14 0	2 051
NO	135	11 770	12 0	2 828
Difference		2 211		

ANOVA

Variation	SS	df	MS	F statistic	p value	t value
Between	293 341	1	293 341	46 454	0 000000	6 815
Within	1521 844	241	6 315			
Total	1815 185	242				

Table 32

Comparison of Poster Use Skill Score and

Reported Encouragement from Client Response

Client Response Encourages	Number	Mean	Median	Std Dev
YES	120	1 217	1 0	0 918
NO	123	0 740	1 0	0 711
Difference		0 477		

ANOVA Variation	SS	df	MS	F statistic	p value	t value
Between	13 810	1	13 810	20 540	0 000009	4 532
Within	162 041	241	0 672			
Total	175 852	242				

Table 33

Comparison of IEC Material Use Self-Efficacy Score and Reported Encouragement from Clients

Encouragement from Clients	Number	Mean	Median	Std Dev
YES	120	13 842	14 0	2 162
NO	123	11 691	12 0	2 832
Difference		2 151		

ANOVA

Variation	SS	df	MS	F statistic	p value	t value
Between	280 933	1	280 933	44 129	0 000000	8 643
Within	1534 252	241	6 366			
Total	1815 185	242				

encouragement from colleagues and clients was also associated with a history of whether a respondent had even developed IEC materials himself. A majority of those who had developed their own materials (75.9%) reported that other staff had encouraged their use of IEC materials compared to 35.6% of those who had never developed materials (Table 34). Likewise, most (70.6%) of those who had developed their own materials reported that they had been encouraged by client response to use IEC materials, compared to 40.7% of those who had never developed materials (Table 35).

Table 34

Comparisons of History of Ill Maternal Development and

Reported Encouragement from Co-Workers

Reported Encouragement	Ever Developed Measles YES	(%)	NO	(%)	Total	(%)
YES	41	(75.9)	87	(35.6)	[illegible]	(44.6)
NO	13	(24.1)	121	[illegible]	134	(54.4)
TOTAL	54		[illegible]		247	

$X^2_{obs} = 25.95$ df = 1 $p = 0.00000035$

Table 35

Comparison of History of IEC Material Development and Perceived Encouragement from Client Response

Client Response Encourages	Ever Developed Materials YES	(%)	NO	(%)	Total	(%)
YES	43	(79 6)	77	(40 7)	120	(49 4)
NO	11	(20 4)	112	(59 3)	123	(50 6)
TOTAL	54		189		243	

X[illegible] = 23 88, df = 1, p = 0 0000010

Experiences with IEC Materials in Group Health Education

Among the 162 people who had practised group health education, not all reported use of IEC materials during their last effort. Those 107 (66.0%) who had used IEC materials use a combination that primarily featured posters (75.7%), songs (36.3%), and real life objects (29.4%). Other items included flipcharts (6.8%), handbills (5.0%), stories (4.0%) and pamphlets (1.0%).

Higher mean self-efficacy scores were associated with reported use of IEC materials in group education sessions with those who used scoring a mean of 14.0 points compared to 12.2 for those who did not (Table 36). Poster use skill score was higher on average for those who actually used materials (1.2) than for those who did not (0.9) as seen in Table 37. Those who used materials were significantly more likely to report being encouraged by co-workers (73.7%) and clients (79.7%) than those who did not use materials (53.5% and 20.5% respectively) as seen in Tables 38 and 39.

Concerning training, a greater proportion of those whose basic training covered IEC materials (64.0%) used materials during their most recent group session compared to 41.2% of those who did not have this training (Table 40)

Table 36

Comparison of Use of IEC Materials in Group Education and Self-Efficacy Scores

Used IEC Materials	Number	Mean	Median	Std Dev
NO	55	12 182	13 0	2 862
YES	107	13 977	14 0	1 840
Difference		-1795		

ANOVA

Variation	SS	df	MS	F statistic	p value	t value
Between	116 415	1	116 415	23 251	0 000003	4 822
Within	801 098	160	5 007			
Total	917 512	161				

Table 37

Comparison of Use of IEC in Group Education and Mean Poster Use Skill Score

Used IEC Materials	Number	Mean	Median	Std Dev
NO	55	0.873	1.0	0.795
YES	107	1.224	1.0	0.914
Difference		0.352		

ANOVA Variation	SS	df	MS	F statistic	p value	t value
Between	4.490	1	4.490	5.854	0.016684	2.419
Within	122.726	160	0.767			
Total	127.216	161				

Table 38

Comparison of Use of IEC Materials in Group Education and Reported Encouragement from Co-Workers

Used IEC Materials	Reported Encouragement from Co-Workers				Total	(%)
	YES	(%)	NO	(%)		
NO	55	(26.3)	29	(48.8)	55	(34.2)
YES	73	(73.7)	33	(31.1)	106	(65.8)
TOTAL	99		62		161	

$\chi^2 = 6.25$; df = 1; p = 0.01242846

Table 39

Comparison of Use of IEC Materials in Group Education and

Reported Encouragement from Clients

Used IEC Materials	Reported Encouragement by Clients				Total	(%)
	YES	(%)	NO	(%)		
NO	24	(20.3)	31	(70.5)	55	(34.0)
YES	94	(79.7)	13	(29.5)	107	(66.0)
TOTAL	118		44		162	

X^2 = 33.70 df = 1; p = 0.0000001

Table 40

Comparison of Use of IEC Materials in Group Education

and Reports of IEC Coverage in Basic Training

Used IEC Materials	IEC in Basic Training				Total	(%)
	YES	(%)	NO	(%)		
NO	45	(31 0)	10	(58 8)	55	(34 0)
YES	100	(69 0)	7	(41 2)	107	(66 0)
TOTAL	145		17		162	

$X^2_{Yates} = 4.07$; $df = 1$; $p = 0.04354695$

A greater proportion of those with IST that included IEC materials actually used materials in their most recent group education effort (76.3%) than those who did not have IST (56.1%), as seen in Table 41. There was no difference according to sex of respondent, as 69.2% of males and 65.4% of females who had performed group education used IEC materials during their last educational effort (Table 42).

Average number of years in service was positively associated with whether the health worker used IEC materials in his/her last group educational session. Those who used materials had been in service for an average of 13.5 years, compared to 10.3 years for respondents who did not use materials (Table 43).

There was a significant difference in material use between public and private health facility workers. About 72.3% of those in the public sector who had done group education used IEC materials the most recent time. A little over half (55.7%) of those in the public sector who had done group education used materials, as seen in Table 44.

Table 41

Comparison of Use of IEC Materials in Group Education and Reports of IEC Coverage in In-Service Training

Used IEC Materials	IEC in In-Service Training				Total	(%)
	YES	(%)	NO	(%)		
NO	19	(23.8)	36	(43.9)	55	(34.0)
YES	61	(76.3)	46	(56.1)	107	(66.0)
TOTAL	80		82		162	

$X^2_{cal} = 6.46$ df = 1; $p = 0.011$[illegible]

Table 42

Comparison of Use of IEC Materials in Group Education

and Sex of Health Worker

Used IEC Materials	Sex				Total	(%)
	Male	(%)	Female	(%)		
NO	8	(30.8)	47	(34.6)	55	(34.0)
YES	18	(69.2)	89	(65.4)	107	(66.0)
TOTAL	26		136		162	

$X^2_{(1)} = 0.02$ df = 1; p = 0.882

Table 43

Comparison of Use of I E C Materials in Group Education and Average Years in Service

Used IEC Materials	Number	Mean	Median	Std Dev
NO	55	10 327	8 0	7 709
YES	107	13 514	13 0	8 537
Difference		-3 187		

ANOVA

Variation	SS	df	MS	F statistic	p value	t value
Between	368 915	1	368 915	5 362	0 021853	2 315
Within	11008 838	160	68 805			
Total	11377 753	161				

Table 44

Comparison of Use of IEC Materials in Group Education and Service Sector

Used IEC Materials	Service Sector				Total	(%)
	Private	(%)	Public	(%)		
NO	27	(44.3)	28	(27.7)	55	(34.0)
YES	34	(55.7)	73	(72.3)	107	(66.0)
TOTAL	61		101		162	

X^2_{calc} = 3.0[illegible] df = 1; p = 0.0474

Experiences with Individual Counselling

Among the 199 respondents who had practised individual counselling, only 87 (43.7%) had used IEC materials during the most recent time they had counselled a client. A mixture of materials were used by those 87 health staff including posters (71.3%), real life objects (39.1%) and songs (24.1%). A few used flipcharts (6.9%), handbills (4.5%), stories (3.4%) and pamphlets (1.1%).

The mean IEC material self-efficacy score was significantly higher for those who had used materials (34.0 points) than those who had not (32.4) as seen in Table 45. Those who used materials in their most recent counselling were more likely to report being encouraged by co-workers (57.1%) than those who did not use materials (20.6%) as presented in Table 46. Encouraging responses from clients had a similar effect (Table 47). A greater proportion of those who reported being encouraged by client response (58.5%) used IEC materials during their most recent counselling than those who did not report such encouragement (26.9%).

There was no significant difference between males (40.5%) and females (44.1%) in the use of IEC materials during recent counselling as shown in Table 48. There were significant differences by Cadre. Table 49 shows that CHOs/CHEWs (64.4%) and physicians (53.8%) were more likely to use IEC materials during counselling than nurses/midwives (39.1%), auxiliary nurses (26%) and other workers (29.4%).

Table 45

Comparison of Use of IEC Materials in Individual Counselling and Self-Efficacy Scores

Used IEC Materials	Number	Mean	Median	Std Dev
NO	112	12 366	13.0	2 596
YES	87	13 966	14.0	1 883
Difference		-1 599		

ANOVA

Variation	SS	df	MS	F statistic	p value	f value
Between	125 263	1	125 263	23 437	0 000003	4 841
Within	1052 888	197	5 345			
Total	1178 151	198				

Table 46

Comparison of Use of I.E.C Materials in Individual Counselling and Reported Encouragement from Co-Workers

Used IEC Materials	Reported Encouragement from Co-Workers				Total	(%)
	YES	(%)	NO	(%)		
NO	43	(42.6)	69	(70.4)	112	(56.3)
YES	58	(57.4)	29	(29.6)	87	(43.7)
TOTAL	101		98		199	

$X^2_{(1df)} = 14.55$; $df = 1$, $p = 0.00011$

Table 47

Comparison of Use of IEC Materials in Individual Counselling and Reported Encouragement from Clients

Used IEC Materials	Reported Encouragement by Clients				Total	(%)
	YES	(%)	NO	(%)		
NO	44	(41.5)	68	(73.1)	112	(56.3)
YES	62	(58.5)	25	(26.9)	87	(43.7)
TOTAL	106		93		199	

$X^2_{(Yates)} = 18.85$ df = 1; p = 0.00001413

Table 48

Comparison of Use of IEC Materials in Individual Counselling and Sex of Health Worker

Used IEC Materials	Sex				Total	(%)
	Male	(%)	Female	(%)		
NO	22	(59.5)	90	(55.6)	112	(56.3)
YES	15	(40.5)	72	(44.4)	87	(43.7)
TOTAL	37		130		199	

$X^2_{Yates} = 0.06$ df = 1; p = 0.8039

Table 49

Comparison of Use of IEC Materials in Individual Counselling and Cadre of Health Worker

Used Materials in Counselling	CADRE (%)					Total
	Auxiliary Nurse	CHO-CHEW	Physician	Nurse-Midwife	Others	
NO	12 (80.0)	16 (25.6)	6 (46.2)	66 (60.6)	12 (70.6)	112 (56.3)
YES	3 (20.0)	29 (64.4)	7 (53.8)	43 (39.4)	5 (29.4)	87 (43.71)
TOTAL	15	45	13	109	17	243

$X^2 = 14.05$; $df = 4$; $p = 0.00714$

Inclusion of IEC materials in both basic and in-service training was positively associated with use of IEC materials during the most recent counselling session. Concerning basic training, 66.8% whose training included IEC materials used materials during their last counselling session, compared to 28.1% whose training did not include IEC materials (Table 51). Among workers who had received INT in which IEC materials were covered, 60.2% used materials during their last counselling compared to 31.6% who did not have such INT (Table 51).

Finally, poorer use skill scores were compared with whether IEC materials were used in the most recent counselling session. Those who used IEC materials in their most recent counselling session scored an average of 1.2 points, while those who did not use materials scored a mean of 0.8 points, as seen in Table 52. The implications of these findings for materials development, health worker training and health education generally are discussed in the next chapter.

Table 50

Comparison of Use of IEC Materials in Individual Counseling and Reports that IEC Materials Were Part of Basic Training

Whether Counselled	IEC Part of Basic Training				Total	(%)
	YES	(%)	NO	(%)		
No	90	(53.2)	20	(76.9)	112	(56.3)
Yes	81	(46.8)	6	(23.1)	87	(43.7)
TOTAL	173		26		199	

$X^2 = 4.26$; df = 1; p = 0.03904

Table 51

Comparison of Use of IEC Materials During Individual Counselling and Reports that IEC Materials Were Part of In-Service Training

Whether Counselled	IEC Part of IST				Total	(%)
	YES	(%)	NO	(%)		
No	35	(39.8)	77	(69.4)	112	(56.3)
Yes	53	(60.2)	34	(30.6)	87	(43.7)
TOTAL	88		111		199	

$X^2 = 16.24$ df = 1 p = 0.0000542

Table 52

Comparison of Use of IEC Materials in Individual Counselling and Poster Use Skill Scores

Used IEC Materials	Number	Mean	Median	Std Dev
NO	112	0 813	1 0	0 878
YES	87	1 253	1 0	0 918
Difference		.0 440		

ANOVA

Variation	SS	df	MS	F statistic	p value	t value
Between	9 486	1	9 496	15 147	0 000136	3 892
Within	123 499	197	0 627			
Total	132 985	198				

CHAPTER FIVE

DISCUSSION

This chapter examines the issues of availability of materials, comparison of the present findings with other studies, in-service training opportunities for health workers in respect of IEC materials utilization, self-efficacy in their use of materials, the type of respondents and their various skills and experiences, and enhanced encouragement in the use of materials. Implications for health education are drawn from the findings. The chapter closes with conclusions and recommendations.

Few other studies on IEC materials have been conducted in other places. Those that were identified were not published in the form of literature. For example, a survey on IEC messages and materials was conducted by the Health Education Unit (HEU) of Malawi (1991, p.187). That study identified 656 IEC materials from thirteen districts from around the country. Ninety-eight facilities were visited and 98 health workers were randomly selected and interviewed. In another study, Wolfheim (1994a,b) evaluated the impact of training that was sponsored by CDC, WHO and the National Institute of Hygiene and Epidemiology, Vietnam. Observation was made on 103 health workers in Hai Phong and Thua Thein-Hue provinces in order to see whether they could use simple language, ask checking questions, use printed materials effectively and

perform some practical demonstration on oral rehydration therapy solution preparation.

In both the present study and Malawi, both public and private health facilities were studied. Like the Ibadan study, the IIEC report from Malawi found that posters were the most common IEC materials available, but in Malawi, all units had at least one poster, whereas in Ibadan only 70% had posters. Flipcharts were found in less than half of the facilities (45%), but this was more than the three percent in Ibadan. The Malawi report counted only those IEC materials produced by the IIEC, and an average of 6.7 of such were found in the 98 facilities. It was noted that IIEC/MOH materials comprised slightly less than half (46%) of the available materials, compared to 30% in Ibadan. They did not break down the facility by unit as was done in the Ibadan study where a mean of 16 items was observed in 195 units, but one can calculate that the 95 Ibadan health facilities averaged 8.5 materials each. It would appear therefore that the Malawian facilities had more materials per facility than did those in Ibadan.

Observations were not made in Malawi about how the materials were displayed and their condition, but it was noted that 32% were displayed in offices, out of the public view. No attempt was made in the Ibadan study to observe offices specifically, but note was made that 6.0% of available materials in the facilities were stored in cupboards, drawers or cartons. Even though facilities in Ibadan have somewhat fewer IEC materials than their counterparts in Malawi,

they do seem to ensure that these materials are more visible to the public. Unfortunately, as observed, this constant exposure of materials may also contribute to their early deterioration.

There was no distinction made in the Malawi report about relative differences in availability of materials between public and private service units, but Malawi has the Private Hospital Association of Malawi, which was reported to have been responsible for 35% of the IEC materials observed during that study. A similar body does not exist in Nigeria and may explain in part why private clinics have less access to IEC materials. Another explanation is that private health staff in Nigeria have been found to have less opportunities to attend in-service training programmes (Onuoha and Brieger, 1991-92), and many health workers interviewed in Ibadan said that they had picked up IEC materials at such training programmes. Based on their interviews with health staff, the Malawi HEU staff did recommend that more in-service training was needed to improve their skills in IEC material use (HEU Malawi, 1988, p.187).

In Vietnam, observation was made of health workers before and two years after training while they conducted health education activities. In Province A, poster use increased from 27% to 52%, and in Province B the increase was from 37% to 77%. A similar increase was observed in the use of other visual aids, 3% to 31% in Province A, and 2% to 57% in Province B (Wilhelm, 1990b). A strength of the Vietnam study was its actual observation of health worker

behaviour. In Ibadan, reported recent use of IEC materials was positively associated with reports of having attended training where use of IEC materials was featured. Thus, the Vietnam findings help to validate those of Ibadan. On the other hand, the Vietnam study did not assess the skill level of poster use during those observations. The current study in Ibadan documented that skills were quite low, but were higher for those who had attended in-service training that featured IEC material use. Another strength of the Vietnam study was [illegible] verified. Mothers who were interviewed verified that visual aids were actually used (76%) ([illegible] Wollheim, 1994b).

Skill level on correct poster use was quite low with only [illegible] scoring the maximum four points. This is in spite of the fact that the majority of health workers (84.8%) said that they had received instruction on the use of IEC materials during their basic training (Figure 18). This questions the adequacy of basic training and points to the need for further education. As rightly pointed out by the WFPHA (1985),

Every staff member and volunteer collaborator, from physicians to drivers and cleaners, should become health educators whenever opportunities present themselves, including, as noted, in waiting rooms, hospital wards, growth monitoring and immunization gatherings, and pre-natal and well-baby clinics. Staff members cannot be expected to assume the role of educator naturally, however they must be encouraged and trained for this role.

Brieger and Akpovi (1982/83) also emphasised that training is vital to continuing development of skills in human relations, interviewing, communication and the use of educational methods and techniques. Training of health workers is one of the important aspects of the health education component of PHC.

Variation in skill scores among the different cadres studied could imply different experiences in basic training. This study found that physicians had the highest mean skill scores even though nurses do so much actual health education. At least at the University of Ibadan, physicians-in-training do receive practical sessions in conducting individual counselling and group health education using visual aids (Brieger, 1978; 1979). A review of the amount and quality of H.E. training received by other cadres is needed with a view to enhancing their exposure to the practical use of H.E. materials as part of their daily work. The fact that auxiliary nurses, who learn their profession primarily on the job, had the lowest skill scores again emphasises the need for quality basic education of health staff.

While Hirman and Sharma (1989) assert that all health workers have educational roles, those roles will not be effective if skills are not adequate. As Bowen and Margo (1978) concluded, health workers cum 'health educators' seeking to reform individuals' ways of life should themselves be reformed. In this line, a WHO Technical Committee (1996) viewed it as essential for all health workers to acquire a thorough understanding of the most appropriate educational

methods and means.

Self-efficacy in the Use of Materials by Health Workers

Self-efficacy is a built variable in Social Learning Theory, one of the behavioural theories that guided this work. Self-efficacy can be enhanced through information, encouragement, observation of others performing the behaviour and practice (Bandura, 1980; 1986). Since this is a cross-sectional survey, it is not possible to deduce whether self-efficacy preceded IEC material use behaviours or whether use enhanced self-efficacy.

The fact that self-efficacy is associated with actual material use does suggest several interventions for enhancing self-efficacy and increasing material use. First, since the results show that self-efficacy is associated with training opportunities, one could assume that the training experiences may have contributed to self-efficacy, and thus should be provided for a wider spectrum of health staff.

Secondly, at the facility level, supervisors could encourage staff to take more initiative in using materials and thus enhance their own self-efficacy through practice. One caution here is that overall skill level in material use was low, and it is not therefore, advisable to encourage people to use IEC materials incorrectly. If at least one supervisory level staff at each facility were trained in correct IEC use, he/she would be in a better position to encourage proper use of these materials at the clinic level.

available and use according to ownership of a given health facility. Ownership is also closely connected with the type of health staff found in a facility. As for example, one would not find auxiliary nurses in a UCA clinic. Although doctors had the highest poster use score, there were only 14 of them in all the facilities studied. The bulk of actual IEC work is left to Nurses, CHEWs and auxiliary nurses, whose skills were significantly lower.

The auxiliary nurses had the lowest skill score, and considering their prominent role in private health facilities, one can see that private facility patients are less likely to be exposed to quality IEC services than those in the public sector. Overall, workers in private facilities had lower skill scores than their counterparts in the public sector. Ironically, private facilities are numerous, and as found in this study there was no problem finding a minimal one-to-one match of a private clinic for each public UCA facility identified. Much of the public therefore, is either not exposed to IEC when they attend a clinic or receive IEC of questionable quality.

Health Education Activities

The study documented that the most common method for providing health education in the clinics studied was individual counselling, as 81.8% had ever performed counselling and 56.7% had done so in the previous week. In contrast, only 46.7% had ever performed group education, and only 33.3% did so in the week prior to interview. The higher frequency of individual education would

certainly match the fact that the health workers interviewed have mainly clinical duties and thus would find their individual client consultations to be good opportunities to conduct individual counselling (Brieger, 1978).

Viewed from a different perspective, 66.0% who had ever performed group education had used IEC materials as part of the presentation, compared to only 43.7% of those who had ever done counselling. The lack of IEC material use during educational sessions could be attributed to several factors. Obviously, educational sessions, especially on an individual counselling basis often involve discussions and decision making that may not necessarily require IEC materials. More importantly though is that when facilities possess few materials, it is not likely that they would have materials that cover all the health needs and interests of their clients.

Another possibility related to earlier discussions of levels of self-efficacy is that health workers have probably observed inservice educational sessions delivered in lecture form that delivered with supportive IEC materials. Their own basic training models the lecture format, and so would be only natural for them to copy this approach when educating clients in groups or as individuals. Considering the fact that many clients are illiterate or semi-literate, a lecture format would not be appropriate. The use of IEC methods such as pictures, stories and songs would be better learning aids (Brieger and Akpan, 1982:83).

A third factor associated with material use during educational sessions is

encouragement from colleagues. This again raises the issue of positive supervision of the front-line health worker. A fourth factor is proprietorship of facility. While individual counselling was practised in nearly equal proportion in both private (57.4%) and public (57.9%) facilities, group education was more likely to have occurred in the public sector (82.8%) than in the private (50.4%). This also relates to the previously mentioned issues including availability of material and type of staff available.

These experiences point to two future interventions. First would be the need to consult with health facilities to set up an enabling environment where materials, time and encouragement are available to reinforce health education and material use. Secondly, since health workers are less likely to use IEC materials during counselling and have few materials to choose from, in-service training is needed to show them how to incorporate IEC into counselling as well as how to make simple and currently relevant visual aids to use in their consulting rooms. Handbills (3.4%) and fliers (2.0%), which are ideal for individual counselling, were rare in this study, but can be typed and photocopied at minimal costs. Clients might even be willing to buy a ₦5.00 pamphlet.

Theoretical Framework

Overall the study's findings conform and support some of the concepts in the theories models proposed in Chapter Two, that is Social Learning Theory and Theory of Reasoned Action. The issue of self-efficacy has been discussed above.

the role of social support which is part of the environment in SLT and inherent in the perception of social norms in TRA has been demonstrated in findings concerning encouragement received or not received from colleagues.

Both models address the issue of expectancies. SLT includes an individual's assessment of the value of the proposed behaviour, while TRA defines this as "attitude toward the behaviour." Only two respondents said they did not see any benefit in using IEC materials, and 22 could not list a benefit, while 91% perceived benefits ranging from improving communication to enhancing understanding. Negative factors or problems registered were not inherent criticisms of IEC materials generally, but related to specific logistical concerns such as adequacy and currency of available materials. A few raised concerns about culture and literacy as barriers to appropriate use of IEC materials.

From the foregoing, it appears that while the social and attitudinal components of TRA can be explained within SLT, the issue of self-efficacy is unique to SLT. Therefore, a synthesis of the findings has been framed in the context of Social Learning Theory as seen in Figure 19.

FIGURE 19: SOCIAL LEARNING THEORY APPLIED TO STUDY FINDINGS

OBSERVATIONAL LEARNING

Many staff do not use IEC Materials, less opportunity to observe in private facilities, some opportunity to observe at IST for those able to attend

ENVIRONMENT

The environments in Public and Private facilities offer different levels of support for IEC use in terms of type of staff hired, availability of materials

Colleagues in the work environment may or may not provide encouragement to use IEC materials

VALUE EXPECTANCIES

Most see IEC materials as beneficial: enhance understanding, improve communication

Some see problems availability, currency, language and cultural barriers

INDIVIDUAL

Factors such as gender, training opportunities and skill level influence IEC material use

SELF-EFFICACY

Self-confidence linked with skill and use of materials as well as training experiences

BEHAVIOUR

Regular use of IEC materials to support individual and group health education sessions in the clinic

Conclusion and Implications for Health Education

According to Green, (1986), Health Education "is a process related to health decisions and practices." Whereas, WHO (UNESCO 1991) defined Health Education as the combination of planned social action and learning experiences designed to enable people gain control over the determinants of health and health behaviours. On the other hand, Brieger (1996) in his contribution, defined health education as any combination of learning activities that promote voluntary adaptation in health and health related behaviours. As viewed by most scholars in their reviews, "All behaviours are health related" and "health is the consequence of what people do or fail to do".

The two key behaviours in this study were the performance of health education in either group and or individual health settings and the use of IEC materials to enhance these educational session. Not only was it found that health education was not performed regularly by many respondents, but even when they conduct educational sessions, they do not enhance these with the use of educational materials.

In respect of their routine work, health workers in the communities irrespective of their training background and working environments and [illegible] different types of methods and materials at their disposal in the process of enlightening, counselling, sensitising, informing, referring, educating and even entertaining their target audience or the health consumers

The study findings revealed that there was no significant difference between public 191.7%) and private (91.0%) health facilities in terms of whether materials were available, but the average number of material in public (5.51 and private (3.9) sector units was significantly different. Posters were the most common form of material (69.5%) that indicates little and minimal variety in all the units (average median 4.5 or less). Most (66.1%) materials were acquired through distribution or through an intermediary agent/st. The most common sources of IEC materials were Federal Ministry of Health and Social Services (27.5%) and private companies (31.9%), particularly Nestle.

The majority (84.5%) of materials observed were pasted, pasted or displayed on walls, notice boards, doors and windows of health facilities as an indirect method of communicating health messages. Yet the impact intended from this type of usage contravenes health communication's/ge/ recommendation on duration of display of print materials, which is a one-month period. Effects of displays had greater disadvantages on the nature and condition of the materials with a large proportion (42%) being dirty, dusty or damaged.

Moreover, the findings revealed that health workers do perform health education activities on occasional basis, yet their general perceptions, attitudes and values placed on IEC materials acquisition, appropriate selection, application and maintenance of such materials were found to be negligible toward that direction. Nonetheless, skills, self-confidence, self-efficacy, encouragement and

opportunities for in-service training (IST) were found to be factors that enhanced the use of IEC materials in the Ibadan health facilities.

Although, all health workers are 'health educators', but personality disposition, attitudinal and logistical constraints keep the ideal of constant and effective use of the materials at local level health facilities (in both public and private) far from realities. It is important to note that IEC materials were available and attainable on request from government, non-governmental agencies etc, yet arguably it remains the most critical and least understood by the diverse cadre background of health workers and as well as in term of its immediate benefits to their work. The fact was not because IEC are very exciting and of 'least importance' in health sectors than education and information ministries, but because of the disposition of many health workers inability to be adequately exposed in during their basic training and continuing education in using it frequently and appropriately during health education activities.

H. Mahler (1984) (former WHO Director General) queried as follows: "Are we prepared, mentally and professionally ... to share with them (individuals, families and communities) appropriate information?" On technical know-how be it, or not, "We can go on and make elegant plans, nothing will happen (to empower them) unless all health workers, all health managers and key functionals in other sectors come to realize what is at stake." Finally, the [illegible] honoured the closing note of the XIII World Conference on Health

Education, which took place in Houston, USA, by Hiroshi Nakajima (former WHO Director General) in 1988 which stated that:

> *Health workers must use all the means of communication and social skills at their disposal. Only thus can they help to create a favourable social climate, ensure supportive policies, and influence attitudes and values. Only thus can they empower people with knowledge and the relevant health skills to improve their health. The time has come to galvanize our efforts. The knowledge and technologies already exist. What is needed now is determination, courage, foresight and a ground alliance of people, public workers and health professionals.*

Recommendations

Based on the objectives of the study which was to take the inventory of IEC materials in health facilities owned by the local government areas and private setups in Ibadan metropolis and after that assessment, determine the pattern of utilization of the available materials by health workers, this study findings had enable the researcher to come up with the following recommendations:

1. **IEC Materials Availability and Distribution:** The findings revealed that out of 195 service units visited, 88.7% had IEC materials with 4.7 materials as an average per unit, yet the remainder 11.3% of units were poorly supplied or with no single material in their disposal. It is therefore recommended

that State Health Education Unit should liaise with relevant agencies issuing materials, review its distribution system and ensure that IEC materials reach all health facilities not only those within Ibadan urban setting but also in the semi-urban and the surrounding rural setting facilities.

2. **Disposal of Damaged Materials:** Most of the materials displayed at service units and sub-units were posters of different themes, sizes, sources and quality. However, as observed in most health facilities, those posters were worn, torn, damaged, dirty etc. For optimum visuality, such kind of posters need to be disposed and the walls kept clean. The State Health Education Unit must be advised to make that recommendation known and in writing to all PHC Coordinators of LGAs to effect that simple cleaning exercises.

3. **Acquisition and Use of IEC Materials:** It has been assessed and documented that too much dependence is placed on distribution and passive acquisition of materials. It is the responsibility of every health worker to acquire current and new IEC materials of an on-going programme from relevant bodies such as Ministries of Health, Education, Information, NGOs etc. Those acquired materials need to be effectively used. Those displayed on notice boards, drawing pins were appropriate for the display than office pins, plaster-tape or coloured cellotape.

4. **Development of Materials:** The visits findings revealed that there was lack in

simple improvisation and adaptation technology and resources in other word as other literature had highlighted, certain media and methods depend on energy supply and transportation. These may not be available in most health facilities. Despite that, the use of existing resources is better. This study recommends that it will be of great advantage for health workers to be empowered to develop their own locally, low-cost materials for use during health education activities.

3. Supervision/Orientation and Encouragement: Health education unit staff (State) should liaise with the respective LGAs health departments to undertake an orientation of health workers at the local level in the handling and effective use of those limited available materials. Follow up encouragement and constant supervision be provided to facility staff by HEO and HA staff as well as motivate those un-willing health workers in the discharge and utilization of IEC materials in educational activities.

4. In-service Training Opportunity/Workshop: Skills, self-confidence, encouragement and opportunities for IST were found to be the positive antecedent factors that enhance the use of IEC materials in health facilities by health workers. This study recommends practical IST or series of workshop on IEC materials be organized by grouping LGAs staff and their counterparts in the private sector. Appropriate venue and facilities to be drawn from African Regional Health Education Centre (ARHEC)

Ibadan for the purpose. There is need to group 3 LGAs staff per workshop so as to reduce cost and minimize time period for the exercise.

7. **Curriculum for the Workshop/Training:** The suggested curriculum for the orientation workshop/training should include definitions of the acronym IEC and of IEC materials, general perspective of IEC materials in health delivery services, roles of IEC materials in health education activities, need of IEC materials by a health worker to overcome clients condition and satisfaction; and the general concept of IEC materials to each tiers or levels of health care (namely primary, secondary and tertiary).

8. **Feedback:** The findings of the study should be fedback not only to health workers, but also to LGA health department and private sectors in the metropolis. By so doing, necessary corrective measures will be taken in order to improve upon the current ability and fill the gaps. Such gaps in distribution, acquisition, training needs, and constant use of the materials.

9. **Advocacy:** In order to have a greater impact in its effectiveness, the State HIU should use advocacy and collaborate with other local and national agencies, such as the Department of LGA affairs, Ministries of Information, Education, Rural Development, Labour, Social Affairs and Planning as well as with such non-governmental groups both local and international status, political group, the media, unions, youths and women's movements and private pharmaceutical and allied companies in

assisting in the implementation of item 6 and 7 above without forgetting the valuable and resourceful contribution of institutions of higher learning towards that noble man-power development

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APPENDIX A

DEFINITIONS OF IEC METHODS AND MATERIALS

IEC methods are the processes used to conduct health education, while IEC materials are the physical entities that support the delivery of the content of health education. Definitions of various methods and materials follow.

I IEC METHODS

Three broad categories of methods are presented. The first is interpersonal communication where the health educator has direct contact with the persons or audiences with whom he/she is communicating. The second is mass media, which is either electronic or print. While the mass media reaches a large audience, the health educator is not afforded two-way communication and interaction with audience. Finally, there is traditional or indigenous communication. This can be both interpersonal or mass in nature but is unique in that it represents the way that people normally communicate within their own culture and community.

A INTERPERSONAL METHODS

1) A) HEALTH TALKS Health talk is the most natural way of communicating with people. This can be done with one person or with a family, with a small group or

with many people together. Health talks have been, and remain, the most common way to share health knowledge and facts. To make a talk more educational, it must be combined with other methods, especially visual aids, such as posters, slides and flannel graphs. Otherwise talk alone is too much like giving advice.

CASE STUDIES: In a way case studies are like stories except that case studies are real-life experiences. They are based on facts and present events as they really happened.

DEMONSTRATION: Demonstrations are a pleasant way to share knowledge and skills. They involve a mix of theoretical teaching and practical work that makes them lively. Demonstrations are a pleasant way to share knowledge and skills. They can be used for teaching individuals and small groups.

DISPLAYS: A display is an arrangement of real objects, models, pictures, posters, and other items which people can look at and learn from. Displays can be very simple or very

sophisticated. They are most successful if they use a variety of materials to attract people.

COUNSELLING: Individual counseling involves a person with a need (the client) and a person who provides support and encouragement (the counsellor). They met to discuss ways by which the client can gain the knowledge, confidence ,and ability to solve his own problems. During the counseling session the client is guided through four phases of involvement.

- Identify and understand the nature of the problem.
- Search for possible ways to solve the problem. Use his effort and resources as much as possible.
- Chose the best course of action and follow it through.
- Evaluate the results: decide if he is satisfied that the problem has been solve and, if not, take additional decisions and actions.

MASS MEDIA METHODS

NEWSPAPERS: The main purpose of newspapers is to spread information. They print 'news' which usually consists of reports of events. They also include

"features", which are articles on a popular topic, and "editorials", which express opinions about various subjects.

MAGAZINES: Magazines are another branch of the mass media with some uses in health education. They tend to be less accessible for the health worker than newspapers. They are generally intended for audience in a wide geographical area and are therefore less likely to be interested in local stories

RADIO: Of all the communication media, radio may now be the most effective for reaching very wide audiences with important messages. Certainly this is true in large parts of the developing world. Even in remote areas many farmers carry radios with them to the fields. Radio programmes serve many purposes. Some are purely for entertainment. They provides popular music and dramatised stories. Others are informational. In many states in this country there are daily, weekly (or even sponsored) programmes on health and related issues (in the form of songs, short plays announcements and jingles).

TELEVISION: No other medium creates such lively interest as television . It can have a great impact on people . It can extend knowledge , influence public opinion , introduce new way of life . In the health field ,in urban areas and even rural communities, it has already serve as powerful advocate of healthy behaviour in many instances . This is especially so when the health workers are able to integrate TV programmes into their local activities

LOCAL OR TRADITIONAL MEDIA

In many countries health messages may be communicated through traditional media such as art, town criers, songs, plays, puppet show and dance . Each of these media has its own role to play in dissemination of health messages if any set up for the promotion of health and prevention of diseases when and if appropriately planned and used . Traditional media can be both interpersonal (e.g. story telling) or mass media (e.g. town crier)

PROVERBS Proverbs are short commonsense sayings that are handed down from generation to generation . They grow out of experience of people in each culture . They are like advice

on how best to behave e.g. a well known Chinese proverb stated that: what I hear, I forget; what I see, I remember; what I do, I know. So it is straight forward that we best remember what we see. Relatively a well known proverb related to health in Yoruba that says "Ilera ni Ogun oro" or in Kanuri "Nglə̈la kə̈ji" or in Hausa "Lafia uwar jiki". Literary all these proverbs mean "Health is wealth".

FABLES: Fables are make-believe stories that have been told to children for generations. The characters in a fable are often animals. Purposely after listening to a fable, it will enable the listeners to behave properly or to draw values that will be of the best interest to the community or an individual.

STORIES: Stories often tell about the deeds of famous heroes or of people who lived in the village long ago. An older person, instead of directly criticising the behaviour of a youth, may tell a story to make his point. Stories can entertain, teach history, spread news and information, and also serve as lessons about behaviour. Story-telling encourage people to look at their attitudes and values. It helps people to solve their problems.

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APPENDIX A-2

INVENTORY OF IEC MATERIALS

TYPE OF MATERIAL	DESCRIPTION	AUDIENCE SIZE
FILMS MOVIES VIDEOS	People like films because they provide action colour and sound They are useful communication medium Many educational films are made these days ranging from AIDS STDs prevention Nutrition Family planning etc These films are available in most well established health education unit and centres	Large audiences numbering over 100 can watch a film depending on seating capacity of the place where it is shown and the size of the screen Videos are limited to about 30 people since a television monitor is used and the screen is relatively small In either case the educator should consider that if discussion is to follow the showing a smaller audience of 30 or less is desired for either film or video
FILM STRIPS	Strip of 35mm film color or black and white Photograph in sequence Filmstrip projected on screen or wall Uses projector with filmstrip adaptor Filmstrips horizontal or vertical format	About 30 people Though filmstrips can be used with more people the educator can stimulate better discussion with a group of this size
FLANNEL BOARD	Also called flannel graph A piece of flannel flannelette terry cloth or felt cloth attached to a rigid surface on which cut out figures will adhere if backed with flannel or felt cloth sand paper or glue sand Pictures and words can be placed on the board to reinforce or illustrate the message It helps people see more clearly what you saying during a talk	15 to 20 people Audience size depends on the size of the flannel board and the size of the figures that are being used
FLASHCARDS	Illustration made on heavy paper that is usually smaller than 21cm by 27cm The illustrations are not bound but are arranged in sequence	5 to 15 people Because the illustrations are small no more than 15 people should be in the audience

TYPE OF MATERIAL	DESCRIPTION	AUDIENCE SIZE
FLIPCHART	Illustration on paper usually larger than 21cm by 27cm bound together with rings or string They flip over in sequence A flip-chart is made up of a number posters that are meant to be shown one after the other In this way several steps or aspects of a central topic can be presented such as Salt and Sugar Solution Preparation Prevention of burns etc Flip charts are very important while giving sequence of information and instructions or in the process of recording information	15-30 people Audience size depends on the size of the flipchart illustrations
JOB AID	A large sheet of paper the size and quality of a poster It guides health workers on schedule of activities and procedure in respect of eg administration of drugs immunization schedule etc	Serves as a reference to the staff in a service unit. Must intended for 1-5 people at most
HANDBILL	Also known as flyer	Since handbills are given to individuals to take away the number of people depends on the overall size of the relevant population in the community e g mothers of pre-school children and the budget of the agency
PAMPHLET	Also known as leaflet	Same as for flyer
PHOTOGRAPHS	Photographs are a useful educational tool They can show situations and objects exactly as they are in reality Rich people have to be used to looking at photographs to be able to understand what they represent	Depends on size If photographs are enlarged greatly they can be used like posters otherwise they should be used in small groups like flash cards

TYPE OF MATERIAL	DESCRIPTION	AUDIENCE SIZE
POSTER	A message on a large sheet of paper and with an illustration and a simple written message A poster is often about 60 cm wide by 90 cm high with words and pictures or symbols that put across a message Posters are widely used by commercial firms for advertising products and to reinforce the message being delivered by other mass media	No limit because it is not necessary for everyone to look at a poster at the same time
REAL LIFE OBJECTS	Used during demonstration actual ingredients or tools to show how something is done	1 to 30 people Because it is difficult to follow up more than 30 persons this is the recommended limit
SLIDES TRANSPARENCIES	Slides are prepared from 35 mm Film Transparencies are drawn or printed on letter paper size acetate These are shown using a projector Projectors are machines that can only be used where there is electricity and an experienced person to operate them They are useful to underline the most important points in a talk or lecture Advance preparation of your talk is highly recommended	
TAPE RECORDINGS	The type of tape we are concerned about here is the cassette tape These can be played on small portable machines that use batteries The purpose of tape recordings is to provide health information and strengthen the health message Types of tape programmes are Lectures Radio Programmes Role playing and Group Discussions Statement from important people and Tape with slides	

TYPE OF MATERIAL	DESCRIPTION	AUDIENCE SIZE
SLIDES	35mm film in plastic or cardboard mounts 5cm by 5cm in color or black and white they are projected on a screen or a wall	About 30 people Though slides can be used with more people the [illegible] better discussion among a smaller group
VISUAL AID	Film in Color or black and white 16mm or 8mm cinema film with sound projected on a screen or wall	30 to 100 people Group can be larger than 100 but it is difficult to have any discussion with larger groups
VIDEO/ VIDEO TAPE	Used in transmission or production of TV image Magnetic tape on which to record television programme using video apparatus The latest model is video projector	1-30 people can comfortably watch video film

SOURCE WORLD NEIGHBORS IN ACTION "COMMUNICATION"

APPENDIX B: IEC MATERIALS INVENTORY

LGA ☐ NE ☐ NW ☐ SE ☐ SW ☐ N Page No ____ of ____
☐ Akinyele ☐ Egbeda ☐ Ona Ara ☐ Iddo ☐ Oluyole ☐ Lagelu

Name of Facility _____ Ownership ☐ LGA ☐ State ☐ NGO ☐ Private

Type of Facility ☐ General Hospital ☐ Dispensary ☐ Maternity Home/Centre ☐ Clinic

Type of Unit/Clinic ☐ GOP ☐ Maternity ☐ Paediatric ☐ Other _____

S/N	IEC Material	Main Theme/ Message	Source (Produced by)	How Acquired	Date Acquired (Age)	Responsible - who i/c	Storage/ Location	Condition	Remarks
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									

APPENDIX C

LETTER OF INTRODUCTION AND QUESTIONNAIRE FOR HEALTH WORKERS

African Regional Health Education Centre
Sub-Department of Health Promotion and Education
Department of Preventive and Social Medicine
College of Medicine, University of Ibadan
Ibadan, Nigeria
20 October 1998

TO WHOM IT MAY CONCERN

UTILISATION OF IEC MATERIALS

This letter introduces Mr. Ba'Abba Gana, a Masters of Public Health student in our Department. He is conducting a project on the use of Information, Education and Communication materials in government and private health facilities in the Ibadan metropolis and surrounding LGAs. Your assistance in answering his questions and showing him available IEC materials at your health facility will be much appreciated. Thank you for your cooperation.

Yours sincerely,

William R. Rueger, MPH, CHES, DrPH
Reader in Health Education

QUESTIONNAIRE
AVAILABILITY and PATTERN OF UTILISATION of IEC MATERIALS at HEALTH FACILITIES

LGA _____ Date _____

Health Facility _____ Unit/Section _____

Greetings Purpose of Interview Seeking of Consent Confidentiality

A DEMOGRAPHIC INFORMATION

Please provide the following information about yourself

1 Age (or year of birth) ____ 2 Sex ☐ Male ☐ Female

3 Religion ☐ Muslim ☐ Christian ☐ African ☐ Other _____

4 Basic Schooling Completed ☐ Primary ☐ Jr Secondary ☐ Sr Secondary

5 Professional Education _____

6 Current Designation/Cadre _____

7 Number of years in service ____ 8 No years at this facility ____

9 During your basic training as a ____ did you receive any instruction on the use of IEC materials and methods? ☐ YES ☐ NO ☐ Can't Remember

10 If yes What materials and methods were you exposed to?

☐ Posters ☐ Flipcharts ☐ Songs ☐ Story Telling
☐ Pamphlets ☐ Handbills ☐ Drama/Role Play ☐ Flannel graph
☐ Flash Cards ☐ Others _____

12 Since you finished your basic training have you ever attended any in-service training that included instruction on IEC materials and methods?
☐ YES ☐ NO ☐ Can't Remember

13 If Yes

a When was the IST? ____.

b What was the main topic/theme of the IEC? _____

c Who organised it? _____

8 IEC MATERIALS USED IN GROUP EDUCATION ACTIVITIES

1 When and on what topic did you last carry out a health education activity with a group of clients

When _____ Topic _____

Type of Client _____

2 What were the methods and materials you used in this last group education?

_____ _____

_____ _____

3 Please describe why you chose/used the particular method/material just mentioned

METHOD	REASON

4 Please let me see the IEC materials that you have just mentioned using (Enter these on the IEC inventory form and tick the serial number to indicate recent use)

5 Would you say that the use of these materials -

- ☐ detracted from the quality of your presentation?
- ☐ made no difference in the quality of your presentation?
- ☐ improved the quality of your presentation?

Please explain your answer

6 Generally, how do your clients respond to the use of IEC materials?

7 Does client response -

- ☐ encourage you to use IEC materials?
- ☐ make no difference whether you use IEC materials?
- ☐ discourage you from using IEC materials?

C IEC MATERIALS USED WITH INDIVIDUAL CLIENTS

1 Specifically when and on what topic did you last carry out a health education or counselling activity with an individual client?

When _____ Topic _____

Type of Client _____

2 What were the methods and materials you used in this individual education/counselling?

_____ _____

_____ _____

3 Please describe why you chose/used the particular method/material just mentioned

METHOD	REASON

4 Please let me see the IEC materials that you have just mentioned using (Enter these on the IEC inventory form and circle the serial number to indicate recent use)

5 Would you say that the use of these materials during individual counselling -

- ☐ detracted from the quality of your counselling?
- ☐ made no difference in the quality of your counselling?
- ☐ improved the quality of your counselling?

Please explain your answer

D IEC MATERIALS - PERCEPTIONS & OPINIONS

1 How confident do you feel concerning the following

	very confident	somewhat confident	uncertain	not confident
Selecting appropriate IEC materials for use in my health facility				
Using IEC materials in education with groups of clients				
Using IEC materials during individual client counselling				
Making IEC materials for my own use in this facility				

2 What are the problems encountered in using IEC materials in this health facility?

3 What are the benefits derived from using IEC materials in this health facility?

4 Have you yourself ever actually developed any IEC materials/methods for use in your work?

☐ YES ☐ NO ☐ UNCERTAIN

5 a If yes please describe when and why

(If available inspect and add to inventory list with a star *)

b If no please explain why not

6 Concerning other staff in this facility or LGA health service -

a Have any ever encouraged you to use IEC materials?

☐ YES ☐ NO ☐ UNCERTAIN

If yes what did they do or say to encourage you?

b Have any ever discouraged you from using IEC materials?

J YES .J NO .J UNCERTAIN

If yes what did they do or say to discourage you?

E USE OF A SIMPLE POSTER (SKILLS)

I have with me a simple poster Would you mind showing me how you would use this with a small group of clients If there are any clients in the waiting area we can show t to them otherwise you can pretend that I am among a group of clients

✔	Do s	x	Don t s
	holds the poster directly facing clients		holds poster at angle, watching it
	asks clients what they see		tells clients what is there to be seen
	asks a volunteer to read		reads the messages herself
	asks clients what lesson can be learned		tells clients what lesson there is

Thank you for taking the time to share your ideas and experiences with me