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Chapter II. THEORETICAL ORIENTATION

The present chapter presents an overview of different theories and approaches concerning the study and analysis of the utilisation of the Traditional and Modern Health Information & Communication Systems (HICS), co-existing in the study community of Sukamiskin.

First, the introduction of the concept of health information seeks to shed light on the conceptualisations of health and health information, health information needs and management, and the media involved in health information. On the basis of these conceptualisations, the chapter subsequently highlights the approaches towards health information literacy and health education.

Following an initial outline of principles, the focus shifts to the concept of health communication and understanding where attention is drawn to the definition of health communication, the models of health communication, the interrelationship between health communication and health promotion, the media and the relations between traditional and modern health information and communication, and their relevance to public health. Thereafter, the new concept of the Health Information & Communication System (HICS) is described in relation to the paradigms of traditional and modern health information & communication.

The chapter concludes with an outline of the concepts of traditional and modern health information & communication systems, and the concept of development communication for sustainable community development.

Finally, the chapter highlights a new approach towards the formal integration of various forms of Health Information & Communication (HIC), thereby specifying the development of communication and the integration of Traditional and Modern Health Information & Communication Systems (T&MHICS) into Integrated Health Information & Communication Systems (IHICS). The theories and ideas described in this chapter provide a comprehensive framework for the subsequent execution of the research which has been conducted on the Plural Health Information & Communication System (PHICS) in the community of Sukamiskin in the Sunda Region of West Java, Indonesia.

2.1   Health Information

2.1.1 The Concept of Health Information

Health has initially been defined by WHO (1978) as: '*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*'. Later, Sofoluwe (1985: 3) extends this concept into community health as: '*that branch of health service which aims at achieving the highest level of physical, mental, social, moral and spiritual health for all citizens on a community basis*'. According to Naidoo & Wills (2000), health is a broad concept carrying a vast range of connotations which can be traced back to the old English word 'heal', meaning 'whole', and thereby indicating that health encompasses people as a whole including their integrity, soundness and well-being. In general, the members of a community share so-called 'common-sense' or 'lay' interpretations of health which are handed down from generation to generation as part of a common cultural heritage and can be acquired in the form of knowledge by all community members through processes of socialisation and learning. Definitions of health which have developed in the context of modern, scientific theories, initially explained health as the mere absence of disease and illness.

Kazarian & Evans (2001: 7) argue that: '*Health is a source which gives people the opportunity to manage and even change their surroundings… a basic and dynamic force in our lives, influenced by our circumstances, our beliefs, our culture and our social economic and physical environment*'.

Following the various interpretations of health, the idea of information has been studied by Hess & Ostrom (2007), who indicate that information generally contains a message and pursues an objective. As Davis (1974: 32) elaborates: '*Information is data which have already been processed to become an important shape for the receiver and have the real value which can be felt in decisions for now or in the future*'. Information can fulfil its function when it is offered to the right person, at the right time and in the right shape, and is completed with data. The present-day conceptualisation of information is well explained by Rubin (2004: 33) who asserts: '*In the past, books have played an important role in the distribution of information which was particularly true in libraries, subsequently with the advance of scientific information there has been development in the storage of media*'.

Currently, media, such as books, periodicals, documents, research reports and microfilms are used primarily and extensively as tools to search for information, thus rendering the storage of information, as it motivates users to seek information, most essential. Krikelas (1983: 8) argues that: '*there may be two different basic activities to obtain information: information seeking and information gathering*'. *Information seeking is an attempt to satisfy an immediate need by searching for relevant information. Information gathering is an attempt to satisfy a deferred need by searching for relevant information*'.

Following the advance of the Internet and the rapid development of communication technology, sources of information are no longer limited to primarily printed materials. As a consequence, converged media have become a significant information source which can be accessed by individuals seeking health information. In addition, the concept of '*the library without walls*' - also known as the 'Digital Library'- has introduced a newly-emerging type of media which includes e-newspapers and e-magazines. The phenomenon of the World Wide Web defines media as a one-way flow of information which is accessible to every individual in different places of the world. The recent expansion of the World Wide Web has given rise to the development of Web 2.0 which facilitates two-way communication through specific types of media, the so-called 'interactive media'. Web 2.0 assists the progress of sharing and discussing information in the light of numerous subjects and enables the use of social media, such as Facebook, Twitter, Path, WhatsApp, Line and You Tube as well as Podcasts and Mailing Lists. In general, these specific patterns of information-seeking behaviour have become the subject matter of the field of information science [1].

Information on health and health-related issues is in particular obtained during a search for 'health information'. The reasons which motivate people to conduct a search for health information are multiple and include the incidence of illness among an individual or a family member, or one's wish to obtain the latest information about health matters, such as immunisation or vaccination, and is usually performed in schools or hospitals. The search for health information in terms of documentation and information about health and disease generally aims at resolving health problems. As Gann (1986: 1) notes: '*Information is important as the first step for every healthy choice. Improvements in our health depend on us taking control over, and responsibility for, health as an important component of our everyday lives. This active participation requires full and continuing access to information: information about our bodies, their workings in health and illness, and the services available to us in treatment and care, support and cooperation*'. Health information forms a sound basis for a number of activities which are essential to the treatment of illness and the promotion of health. As Gann (1986: 13)

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further explains: *'Every individual is responsible for his/her own health; for looking out on signs of ill health, carrying out basic self-care measures on behalf of herself or himself or his (or more likely her) family, deciding when to consult the doctor, coping with long-term chronic illness or disability, and making adjustments in lifestyle to improve health'*.

The types of communication media described above represent rather useful channels of health information which can be acquired from a number of sources, such as doctors, families and friends, the mass media, social networks and traditional media. While different types of health information exist, patients most commonly receive health information verbally, hence in a form which is frequently in danger of being forgotten easily (*cf.* Ley 1977). However, professional health information is commonly expressed in the form of medical terminologies and technical jargon which creates considerable difficulties for lay people in their attempt to understand the information provided. The use of illustrations which offer a more helpful strategy towards improving people's understanding of guides and booklets which contain appropriate forms of health information has shown to reduce stress among patients.

Egbert *et al.* (1964) argue that the length of post-operative hospital stays have been shorter and involve fewer painkillers for those patients who receive health information. Indeed, information which is clearly readable and accurate can help patients to manage minor illnesses themselves and to decide when it is actually necessary to consult a medical practitioner. As Gann (2004: 51) underscores: *'Information is a two-way process. The individual health care consumer needs information in order to participate in his own health care and use health care resources'*.

The mass media, such as the radio, television and newspapers, also produce numerous features and articles on aspects of health and disease, and films have also been used to launch programmes of health information. In general, magazines act as channels of health information either in the form of a health magazine or as a general magazine which also provides articles on health. Similarly, the library as an information institution plays an important role in organising and disseminating health information. As Carmel (1984: 27-28) illustrates: *'Libraries can be used as a repository of health information. Since libraries play an important role in this overall strategy, the WHO has developed the concept of the national focal point library which is based on the simple idea whereby the WHO would have one nominated library in each country where its own publications could be deposited and through whom it could channel help and advice'*.

Nevertheless, a significant number of people in the communities make extensive use of the traditional media as opposed to the modern mass media. Indeed, traditional media, such as folklore, legends, traditional songs and puppet shows provide health information both formally or informally. In informal situations, friends, relatives, neighbours and co-workers act as primary sources of health information, whereas in informal situations, modern health information is provided by more authoritative sources, such as physicians, nurses and other health personnel, commonly within the context of modern health care delivery. As Thomas (2006: 36) highlights: *'By virtue of their position within the system and their presumed knowledge, doctors in particular have been a major source of information on health care'*.

The information sources which are used in both formal and informal situations are usually supported by the printed media, such as magazines and newspapers as well as by electronic media, such as radio and television. Since its rapid expansion which took place in the course of the 1990s, the World Wide Web has become an important source of health information, and currently it represents a principal source of significant health-related information. As a consequence, it has become common practice among people to seek information on the Internet in order to assess current health matters or to pursue their particular interests (*cf.* Thomas 2006).

Since health information which is provided by modern media generally includes medical terms and terminology, the understanding of the available health information, however,

continues to pose a challenge to the general public. Zarcadoolas *et al.* (2006) argue that sometimes even health care practitioners themselves encounter difficulties in the full understanding of the rather specific medical terms.

2.1.2 Health Information Literacy

Recently, the exchange of information has advanced rapidly whereby information is provided and exchanged between people through multiple channels of dissemination, including verbal, printed and electronic channels, while the modern media continue to spread information rather quickly to the community. Indeed, the flow of information has become a driving force in the 'open society'. In order to determine, however, if the information provided is relevant in a way to help individuals in solving their problems, specific skills of information literacy are required among the members of a community. In other words, community members need specific skills in order to filter the enormous amount of information and to select the accurate and useful parts of information. Horton (2007: 63) defines 'information literacy' as:'*the set of skills, attitudes and knowledge necessary to know when information is needed to help solve a problem or make a decision, how to articulate that information need in searchable terms and language, then search efficiently for the information, retrieve it, interpret and understand it, organize it, evaluate its credibility and authenticity, assess its relevance, communicate it to others if necessary, then utilize it to accomplish bottom-line purposes'*.

Kulthau (1987) emphasises the importance in differentiating between information literacy and other skills and forms of literacy. Information literacy relates to a number of objectives of education, such as traditional and computer literacy, library competencies and rational thinking. Nevertheless, information literacy itself is transpiring as a distinct skill through the individual, social and economic well-being into a greater complex of the information society. Information literacy is not only associated with practices of reading or writing, but it also allows individuals to acquire certain skills and abilities through the study of civil literacy which enablescommunity members to be aware of public issues and to engage into critical dialogues, and to participate in decision-making processes. In particular, these abilities also include media literacy skills, such as the knowledge of civic and governmental systems and processes, the power and inequity in hierarchical relationships and personal behaviour within the community and society. Furthermore, Kreps & Kunimoto (1994) notice that cultural literacy information refers to the competence of different individuals in comprehending and utilising information on shared beliefs, customs, world views and social identities.

In general, an individual who has acquired literacy skills is generally called 'literate' and is hereafter expected to have different supporting abilities. 'Illiteracy', however, has been used to describe individuals who have the most basic language skills and who are generally unable to read and write. UNESCO (1958: 3) defines an illiterate person as: '*...someone who cannot, with understanding, both read and write a short, simple statement on his everyday life'*. Later, UNESCO (1988) proposed a newer definition*: 'a person is functionally illiterate who cannot engage in all those activities in which literacy is required for effective functioning of his group and community and also for enabling him to continue to use reading, writing and calculation for his own and the community's development'*.

The current health care systems require individuals to assume new roles in their efforts to seek health information and understand their rights and responsibilities, and make informed health decisions for themselves and others. In general, these new roles, assumed by individuals as part of self-management in health care, have developed considerably over the past decade, thereby enabling people to select what kind of information is viable, appropriate and in accordance with

the requirements (*cf.* Nielsen-Bohlman 2004). As Wright *et al.* (2008: 158) explain: '*It is often difficult to access the credibility of health information found on the Internet*'. Indeed, a number of websites fail to conform to the standards set by professional medical associations (*cf.* Rice 2001). While not all people enjoy the same access to information available on the Internet, as it contains a large amount of health information, health literacy skills tend to vary in accordance with general literacy among community members. The American Medical Association (1999) notices that Health Literacy is: '*a constellation of skills, including the ability to perform basic reading and numerical tasks required to be functional in the health care environment*'. Zacardoolas *et al.* (2006: xvi) argue that health literacy: '*is an individual's ability to read, understand and use health care information to make decisions and follow instructions for treatment. Health literacy is defined as the ability to understand, evaluate, and act on spoken, written and visual health information to reduce risk and live a healthier life. So people can make decisions for themselves, their family, even their community*'.

According to Neilsen-Bohlman *et al.*(2004), most of the tools which are currently available to assess the level of health literacy among individuals, are primarily measure-reading skills but fail to include other abilities which are rather critical. Furthermore, the reading abilities of adults are frequently estimated on the basis of measuring the 'grade level', an estimate which is imprecise. People's seamless interaction with educational systems, health care systems, as well as cultural and social factors, moreover suggests that these elements potentially influence health literacy and ultimately contribute to health outcomes and costs (*cf.* Neilsen-Bohlman *et al.* 2004).

According to Wright *et al.* (2008: 288): '*there are four important aspects to measure health literacy: (1) cultural and conceptual knowledge, (2) listening and speaking (oral literacy), (3) writing and reading (print literacy), and (4) numerical knowledge of statistics and data used in health care, to find out the necessary health information literacy level gauge that already meets the national standards*'. In this respect, Zarcadoolas *et al.* (2006) notice that a low level of health information literacy contributes to a number of problems, such as:

- improper use of medicines;
- inappropriate use or non-use of health services;
- poor self-management of chronic conditions;
- inadequate response in emergency situations;
- poor health outcomes;
- financial drain on individuals and society; and
- social inequity.

The health care system provides significant, but not sole opportunities and responsibilities to improve the level of the health information literacy among individuals. One pathway to reach such an objective reinforces the well-established link between education and health, and warrants further exploration (*cf.* Nielsen-Bohlman *et al.* 2004). The authors moreover assume that cultural differences are determined by individual differences within the health context, although no measuring instrument reading these differences has yet been designed. In general, abilities and actions of individuals to seek and obtain health information form a significant part of health information literacy. Kuhlthau (1980) developed a specific model of information retrieval called the 'Kuhltau Model' [2]. Likewise, Wilson (1981) launched a model of information retrieval called the 'Wilson Model' (*cf.* Wilson 2000).

The general ease of access to information which is supported by information technology challenges people's competence in choosing useful information quickly and effectively through the media and information-seeking activities, hence requiring software which can be applied in a

way to help the user to easily assess the credibility of the information at hand. In order to respond to this challenge and to distinguish the right information from valuable and adequate resources, the Research Team of the Department of Library and Information Science of Universitas Padjadjaran (UNPAD) has produced a specific communication system in order to access health information, called the *Sistem Penilaian Informasi Kesehatan Online* (*SPIKO*) ('Online Health Information Searching System – SPIKO'), represented in Figure 2.1, which can be visited through their website [3].
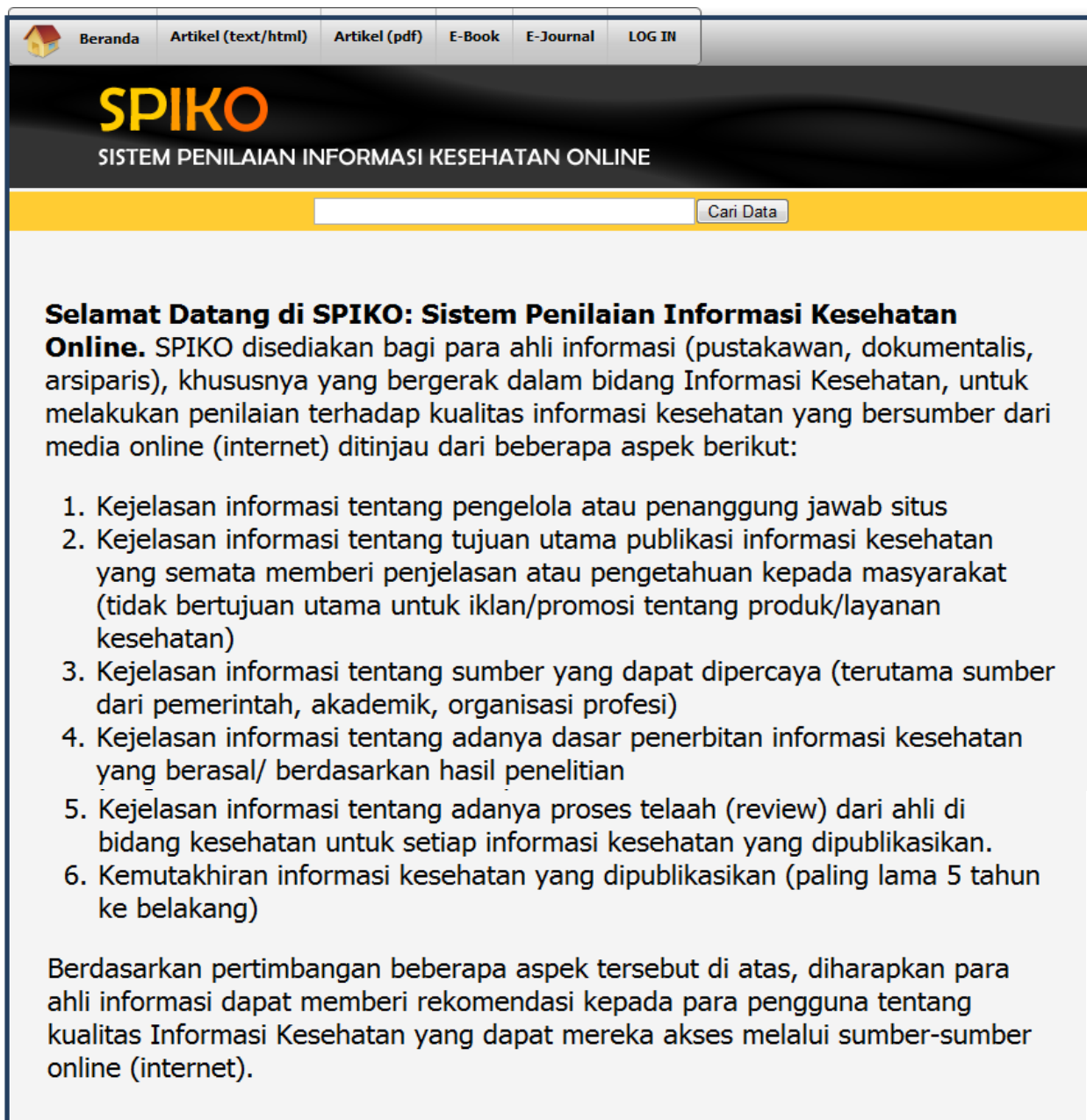

Figure 2.1   Software *SPIKO*.
        Source: Erwina, Kusnandar & Rohanda (2013) ©

SPIKO's function refers to an assessment of the quality of health information obtained from online media by information science experts on the basis of the following six criteria:

1. the clarity of information about the administrators or the people in charge of the site;
2. the clarity of information about the main purposes of the health information publication, as it aims at offering explanations or knowledge to society rather than at advertising or promoting products or health services;
3. the clarity of information about reliable sources, primarily sources provided by the government or academic, occupational organisations;
4. the clarity of information about health information publications which are based on the research results at hand;
5. the clarity of information about the review process of health experts for all published health information; and
6. the sophistication of the health information published (of at least the previous 5 years).
(*cf.* Erwina *et al.* 2013)

In view of the six criteria mentioned above, it is expected that experts can offer a number of recommendations to the users about the quality of health information available online in order to ultimately generate useful health information.

Similar to the practice of seeking information, information literacy also evokes a number of models which have been designed on the basis of research and which have originally been developed in formal educational institutions, such as the Big 6, Sconnul, ALA, Information Literacy Model 6, and the Seven-Step Model, constructed and used at the Atmaja Catholic University in Jakarta, and others. The 'Model of Scientific Literacy Information and Local Knowledge' (*Literasi InformasiIlmiah dan Pengetahuan Lokal*) is used by UNPAD in the training of literacy information for new students [4]. The model has specifically been developed in consultation with researchers and was hereafter adapted to the level of education and the information needs of individuals. In general, the purpose of achieving health information literacy is to build a society with long-life education, in which individuals are able to utilise information and information resources in a way that will meet their health information needs as well as solve problems in their everyday life (*cf.* Erwina *et al.* 2013).

Moreover, literacy is an extraordinary process which stimulates learning and awareness among people to stress the importance of the practice of paying attention to one's own health. In 1980, the American Surgeon General produced an influential report entitled 'Healthy People' which states: '*You, the individual, can do more for your own health and wellbeing than any doctor, any hospital, any drug, and any exotic medical devi*ce' (*cf.* Gann 1986:1). In comparison, low levels of health literacy information are forming a burden on health care providers in their aim to treat people who do not adhere to medical treatments and preventive measures because of their lack of understanding (*cf.* Zarcadoolas *et al.* 2006).

Nevertheless, seekers of health information may encounter obstacles in understanding the health information offered by the providers as the result of a number of reasons, such as: the complexity of written health information both in print or on the web; insufficiencies in the language used which is mostly English; the lack of cultural appropriateness of health information; incompleteness or inaccuracy of information published in the mass media; low levels of reading abilities which can be caused by factors related to education, age or ethnicity; and the deficiency in empowering content targeting on behaviour change as well as direct information or social marketing strategies (*cf.* Zarcadoolas *et al.* 2006).

2.1.3 Health Education: A One-way Transfer of Information

Health Education, as indicated by Green (1978), refers to the learning strategies and experiences designed to provoke voluntary adjustments of behaviour which promote health. It deals with the combination of learning experiences intended to facilitate voluntary actions conducive to health (*cf.* Green & Kreuter 1999). As Notoatmodjo (2003: 20) states: *'Health education is a process for increasing the ability of a community to care for and develop their health'*.

In nursing care, for example, health education describes a self-care intervention which is made in order to help individual clients as well as groups and the society at large to overcome health problems through education whereby the nurse assumes the role of the educator. According to Notoatmodjo (2003: 21), the objective of health education is: *'to improve the ability of people to care (for) and to increase the level of health, physically, mentally and spiritually, in order to be more productive economically and socially'*.

As Tones *et al*. (1990: 110) further explain, health education can be defined as: *'Any intentional activity which is designed to achieve health- or illness-related learning, i.e. some relatively permanent change in an individual's capability or disposition. Effective health education may, thus, produce changes in knowledge and understanding or ways of thinking; it may influence or clarify values; it may bring about some shift in beliefs or attitudes; it may facilitate the acquisition of skills; it may even effect changes in behaviour or lifestyle'*. In this context, Notoatmojo (2003: 56) indicates that: *'essentially health education methods are activities or efforts to inform health messages to the society, groups, or individuals'*. The definition and characteristics of health education imply that it is the principal aim of health education to seek reliable health information which may produce changes in the attitude and behaviour of individuals which, in turn, can be caused by a number factors, such as the input, method or message of health education, the educator or the person in charge as well as the education tools.

According to Tones *et al*. (1990), health education can be divided into five categories which introduce health education: (1) at the household level; (2) at the school level; (3) at the workplace; (4) in public areas; and (5) at health care facilities. The implementation of health education in the different places varies in accordance with its targets which can be family members, students, workers, the society or patients. Similarly, the learning methods in health education have been characterised as follows:

1. Individual learning method:
   a guidance and extension
   b interview
2. Group learning method:
   a speech
   b seminar
3. Mass learning method:
   a public lecture
   b speech through electronic media.

In general, these learning methods are applied in accordance with the objectives of health information literacy. In the light of the foregoing, considerable efforts in health promotion and education are required in order to identify relevant characteristics among individuals and groups and to design effective health messages and campaigns. The success of health promotion partly depends on spreading its contents among the members of a community thereby attaching

considerable significance to the health literacy skills of individuals (*cf.* Zarcadoolas *et al. 2006*). Communicating health information which aims at bridging the gap between societal actions and knowledge about health to the society has become a major objective of health education activities (*cf.* Griffiths 1972; Glanz & Rud 1990).

2.2 Health Communication

2.2.1 The Process of Health Communication

While health information provides a rather static form of information on health and disease to the one-sided process of health education, recently health communication has introduced a more dynamic approach to the exchange of information and a more interactive education process. The important relationship between communication practices and health outcomes has been reviewed by Simpson *et al*. (1991), known as the 'Toronto Consensus Statement'. The statement emphasises eight key points:

1. *communication problems in medical practices are important and common;*
2. *patient anxiety and dissatisfaction are related to uncertainty and lack of information, explanation and feedback*;
3. *doctors often misperceive the amount and type of information which patients want to receive;*
4. *improved quality of clinical communication is related to positive health outcomes;*
5. *explaining and understanding patients' concerns, even when they cannot be resolved, results in a fall in anxiety;*
6. *greater participation by the patient in the encounter improves satisfaction, compliance and treatment outcomes;*
7. *the level of psychological distress in patients with serious illness is less when they perceive themselves to have received adequate information;*
8. *beneficial clinical communication is routinely possible in clinical practice and can be achieved during normal clinical encounters, without unduly prolonging them, provided that the clinician has learned the relevant techniques.*
(*cf.* Berry 2007: 3)

According to Sciavo (2007: 69), the: '*theoretical basis of health communication has been influenced by the behavioural and social sciences, health education, social marketing, mass and speech communication, medical models, anthropology, and sociology*'. In this way, a selection of specific theories and models has a potential or actual impact on health communication practices. The theory of 'Communication for Persuasion', developed in 1984 by McGuire, focuses on how people deal with information, and as such has an impact on health communication practices. The process of 'Persuasive Communication' refers to people who are expected to take several steps when they are assimilating and ultimately altering their behaviour. The process includes the following steps:

- be exposed to the message;
- pay attention to it;
- find it interesting or personally relevant;
- understand it;
- figure out how the new behaviour could fit in his or her life;
- accept the change which is being proposed;

- remember and validate the message;
- be able to think of the message in relevant contexts or situations;
- make decisions on the basis of the retrieved information or message;
- behave in line with that decision;
- receive positive reinforcement for that behaviour; and
- integrate the new behaviour into his or her life.
    (*cf.* McGuire 1984; Alcalay & Bell 2000)

The transfer of a message which is spread between individuals is explained by Devito (1983) as: '*the process of sending and receiving messages between two persons, or among a small group of persons, with some effect and some immediate feedback*'. This highlights that a dialogue communication allows for transferring knowledge from a communicator and receiving and responding by a communicant, *i.e.* the individual subject of health communication.

2.2.2 Communication and Health Promotion

The classical definition of 'communication' by Northouse & Northouse (1998: 56) states that: '*communication is the transfer of information between a source and one or more receivers: a process of sharing meanings, using a set of common rules*'. In its essence, communication is a dynamic process which contains the following main elements:

- two or more communicators (*i.e.* source and receiver);
- a message;
- the medium;
- the channel;
- a code;
- noise;
- feedback; and
- the context in which the interaction occurs.
    (*cf.* Hargie & Dickson 2004)

Apart from these particular elements, acts of communication can occur on different levels:
    Firstly, intrapersonal communication is established when an individual is communicating with him- or herself. Burton & Dimbleby (1995) distinguish between four main elements of intrapersonal communication: (1) the core of self; (2) need and motivation; (3) cognitions; and (4) monitoring the reactions of others.
    Secondly, communication between two individuals is referred to as interpersonal communication and can as such take place between two individuals or in a small group. Interpersonal communication is usually facilitated by verbal communication including speech and writing, and non-verbal communication such as kinesics, paralinguistics, phonemics, physical contact, environmental characteristics, personal characteristics and adornments. Likewise, group communication which refers to communication among both a small or large number of individuals, such as members of an ethnic group, a professional group or an organisation, as well as of a family, friends or co-workers, can develop verbally and non-verbally.
    Thirdly, mass communication generally involves the mass media in order to transfer a message to the wider population through a number of different media. The media include written

leaflets and brochures, advertising boards and posters, newspapers, magazines, radio, television, computer systems and the Internet (*cf.* Berry 2007).

Following the different definitions, elements and levels attached to communication, the related concept of health promotion has been explained by Bunton & MacDonald (1992) as: '*a strategy for promoting health to the entire population*'. Similarly, Green & Kreuter (1999) describe health promotion as a combination of educational and environmental support for actions and conditions conducive to healthy living. In this respect, McLachlan (2006) emphasises situations in which clinicians can act as catalysts for better health by empowering people to take charge of their own well-being. Marks *et al.* (2003: 393) define health promotion as: '*Any event, process or activity which facilitates the protection or improvement of the health status of individuals, groups, communities or populations*'.

Berry (2007: 87) argues that the main objectives of health promotion are: '*to prolong life or to improve the quality of life*'. The WHO (1984) introduced a new programme for health promotion and has since continued to address the concept during its subsequent *Global Conferences on Health Promotion*, thereby outlining areas for action.

The objective of making health information optimally available is closely intertwined with an effective strategy for health promotion, since health promotion aims at allowing each individual, who seeks well-being, to obtain useful health information. In general, strategies of health promotion are directed at shifts in public policy and community action which enable people to make changes in their lives. In this way, a phrase first coined by Milio (1986) has come to encapsulate the main concept of health promotion as: '*making the healthy choice the easier choice*'. The WHO (1986) has also identified three ways in which practitioners can promote health through their work: advocacy, enablement and mediation. Advocacy focuses on representing the interests of disadvantaged groups and may include speaking on their behalf or lobbying to influence policies. Enablement emphasises the aim of health promotion to reduce differences in the current health status and to ensure equal opportunities in a way that enables all people to achieve their full health potential. Mediation highlights the importance of coordination and cooperation among agencies and sectors in order to advance health promotion.

2.2.3 Health Communication: An Interactive Process

Scholes (2003: 220) argues that*: 'Communication is not simply a tool; all relationships require communication and all communication requires the existence of a relationship. It is a two-way process in which the receiver acts on information, attitudes and ideas by contributing his or her own, and by changing or rejecting what they receive. Ideas are shared, not moved'*. In the late 1970s, the concept of communication underwent an initial process of reconceptualisation and was hereafter defined as a two-way, interactive process involving two or more individuals or groups in which all participants encode and decode information which is perceived and interpreted until the goals of all participants are adequately achieved. In other words, the definition and practice of communication shifted from monologue to dialogue. Communication was redefined as: '*a process in which the participants create and share information with one another in order to reach a mutual understanding*' (*cf.* Phyllis *et al.* 1997; Rogers & Kincaid 1981:5). At the same time, Kincaid (1979) developed a convergence model of communication in an attempt to capture such new participatory orientation.

Since communication on the whole refers to the transmission or exchange of information, it involves a distribution of meaning among the communicators and generally serves different purposes, such as: (1) initiating actions; (2) making known needs and requirements; (3) exchanging information, ideas, attitudes and beliefs; (4) engendering understanding; and (5)

establishing and maintaining relations *(cf.* United States Office of Disease Prevention and Health Promotion 2004). In the light of the characteristics of communication, it becomes evident that communication also plays an essential role in the delivery of health care and the promotion of health. The concept of health communication has been defined by Rogers (1996: 15) as: '*any type of human communication whose content is concerned with health*'

In line with the reconceptualised definition of communication, Gann (1986) underscores that since health information and communication are closely-related processes, the individual health care consumers need relevant information in order to participate in their own health care utilisation. In return, each individual can give health care providers feedback on the information regarding needs and preferences by using some or all channels outlined above (*cf.* Gann 1986). As Wright *et al.* (2008) notice, interpersonal perspectives as well as social, cultural and organisational contexts and influences of technologies and the media, result in different points of view in health communication.

Health communication encompasses a number of interpersonal angles, such as among the general public and among clients and patients, but also between providers and patients. In general, the common characteristics of provider-patient relationships relate not only to the perspective of the provider on health and health care, but also to the perspective of the patient on health and health care, including socialization, perceptions and expectations, uncertainties, needs and goals, and provider-patient interaction (*cf.* Wright *et al.* 2008).

Changes in people's knowledge and attitudes towards health issues are also the result of practices and programmes of communication. Thomas (2006: 4) concludes that: '*Health communication encompasses the study and use of communication strategies to inform and influence individual and community knowledge, attitudes and practices with regard to health and healthcare*'.

The role of communication in health and disease has recently been the subject of a number of studies which conclude that most consumers want more and better health information. By consequence, the objectives of establishing effective communication which is linguistically and culturally appropriate as well as innovative on the basis of using the public health care system and improving patient-provider encounters have been brought into focus (*cf.* Zarcadoolas *et al.*2006). Practices of health communication, however, are largely unable to address more systemic problems related to health and disease, such as poverty, environmental degradation or lack of access to education and health care services. Comprehensive health communication programmes should therefore include a systematic analysis of all factors which contribute to health, and the strategies which could be designed in order to influence these factors. Well-designed health communication activities can help individuals to better understand their needs as well as the needs of their communities and take appropriate action in order to maximize their health status (*cf.* Thomas 2006).

Although practices of health communication are directed at providing the members of a community with messages which can easily be followed, a large amount of health information contains terminologies which are difficult to be understood by the community members. According to the American and European Centres for Disease Control and Prevention (CDC), health communication can occur in different surroundings which have been identified as:

- the individual;
- the social network;
- the organisation;
- the community; and
- the society. (*cf.* Zarcadoolas 2006)

In general, effective health communication is able to: (a) produce the development of health following acute and chronic conditions; (b) minimize the impact of racial, ethnic, disease-specific and socioeconomic factors in care; and (c) increase disease prevention and health promotion efficacy. Meanwhile, ineffective communication between providers and patients as well as their families, between providers and providers and between providers and health care organisations widen the gap between expectations and reality in the quality of health care (*cf.* Institute of Medicine 2001).

Thus, communication represents a practical tool for implementing health programmes in the community. At the same time, the rapid inventions in technologies and computer-based media have facilitated the access to health information, giving rise to questions about the equality of access, the accuracy of information and the efficacy of these inventions. The Centres for Disease Control and Prevention (CDC) have identified the following areas of action, in which health communication can play a crucial role:

- increase knowledge and awareness of a health issue, problem or solution;
- influence perceptions, beliefs, attitudes and social norms;
- prompt action;
- demonstrate or illustrate skills;
- show the benefits of behaviour change;
- increase demand for health services;
- reinforce knowledge, attitudes, and behaviour;
- refute myths and misconceptions;
- help coalesce organisational relationships; and
- advocate for a health issue or a population group.
  (*cf.* Thomas 2006, Zarcadoolas 2006)

In the light of the foregoing discussion, the objectives of health communication have been defined by Schiavo (2007) as*: to improve health outcomes by sharing health-related information; to create a receptive and favourable environment in which information can be shared, understood, absorbed and discussed by the programme's intended audience; and to support and sustain change'.*

2.3   Plural Health Information & Communication Systems (PHICS)

2.3.1 Traditional Health Information & Communication Systems (THICS)

In their assessment of the concept of indigenous or traditional communication, Mundy & Compton (1995) identify six different types of indigenous communication channels. In first place are the folk media which represent the indigenous equivalent of the mass media and are not only used primarily for the purpose of entertainment, but also as a means to promote education, social values and cultural continuity. In this way, folk media have commonly been adapted to transfer messages about family planning, politics and other exogenous topics. Folk media include festivals, plays and puppet shows, dance, songs, storytelling and poetry, such as the *wawacan* in West Java.

In second place for indigenous communication channels are indigenous organisations and forms of social gatherings. In Indonesia, for example, the *arisan,* a revolving loan association, which pools the contributions of its members to be redistributed through a monthly lottery, is rather omnipresent throughout the neighbourhoods of the rural and urban areas. Indigenous

forms of social gatherings in Indonesia refer to *i.a.* Islamic religious groups which meet for prayers, reading the Quran and religious instruction; village meetings; and irrigation institutions, such as the *subak* in Bali. In general, indigenous organisations and institutions provide numerous opportunities for not only informal interactions, but also formal communication among members. However, such local arrangements are not seldom overlooked by government authorities, enabling only the establishment of official co-operatives, extension groups or units dealing with subjects, such as agricultural and irrigation management. Although such official organisations may have a positive outcome, they are often confronted with difficulties when attempting to take advantage of existing indigenous communication systems.

In third place, the channels of indigenous communication highlight the concept of 'deliberate instruction'. Deliberate instruction includes practices of child-rearing, childhood and adolescent training, traditional and religious schools as well as instructions given to children by parents or family members during work or while playing at home or in the fields. Deliberate instruction continues during adolescence and adulthood in the form of initiation rites or the teaching of apprentices. In general, a rather significant part of indigenous knowledge which is crucial to people's survival is obtained through various forms of informal education and instruction.

In fourth place for indigenous communication channels according to Mundy & Compton (1995) are the records which are not always written but can be drawn, engraved, memorised and conveyed verbally. Examples of such records from Indonesia are the *lontar* ('written palm leaves') in Bali and the *dluwang* ('beaten bark or tapa') from the paper mulberry tree in Java and Madura (*cf.* Teygeler 1995).

In fifth place for channels of indigenous communication are the unstructured channels. Indigenous communication occurs in many informal settings, such as in the home, at the well, in the fields, on the road, in tea houses and coffee shops, at the market and other places where people meet and talk. Communication established through unstructured channels is not organised, but spontaneous and informal. Folk media and indigenous organisations and institutions commonly offer several opportunities for such unstructured communication before, during and after meetings and other activities.

In sixth place, channels of indigenous communication have been related to direct observation which implies that communication is not necessarily intentional, but can also be established as a result of observations alone (*cf.* Mundy & Compton 1995).

In general, local channels and tools of communication are embedded in the belief systems, customs and rituals maintained by the community members. Employing forms of vocal, verbal, musical and visual folk art, such as dance, drama, painting, sculpture, song, music, motifs and symbols, knowledge and information is transmitted from one generation to another among the members of a family, a circle of friends, as well as in or more communities through different channels of the traditional media. The practice of spreading and receiving indigenous knowledge and information among the local population in the lay domain with regard to health and healing is mostly based on traditional medicine through non-electronic traditional communication channels, and as such defined as Traditional Health Information & Communication Systems (THICS).

Following the identification of the different channels of indigenous communication, Mundy & Compton (1995) furthermore designed a matrix which divides the functions of both types of communication, the exogenous and the indigenous, into two major communication systems. The matrix presented in Table 2.1 shows a typology of the interface between the different types of knowledge & communication, thereby comparing both exogenous and indigenous knowledge & communication. As Mundy & Compton (1995: 118f.) notice: '*The four quadrants represent the communication of each type of information through each type of channel*'.

Table 2.1 Typology of the Interface between Knowledge & Communication Types.

Communication systems	Knowledge systems	
	Exogenous	Indigenous
Exogenous	A. Technology transfer	C. Indigenous knowledge-based development
Indigenous	B. Diffusion; co-opting of traditional media	D. Cultural continuity & change

Source: Mundy & Compton (1995).

As highlighted in Quadrant A, exogenous communication systems tend to perform a number of functions, such as entertaining, informing, educating, persuading and advertising. While entertainment is most commonly provided through television and radio programmes, newspapers are the primary source of news and advertising.

Broadcasting media generally assign the transmission of technical knowledge to vacant time slots at inconvenient hours while newspapers commonly credit it on the inside pages. As a result of such decisions, the school system remains the main channel for transmitting exogenous technical information in many countries, whereas books, pamphlets, newsletters and magazines act as primary printed channels for the transmission of technical knowledge. Furthermore, the extension service is responsible for delivering exogenous information to farmers through interpersonal contacts and the mass media.

As indicated in Quadrant B, any of the six channels of indigenous communication mentioned above can transmit exogenous information. In Indonesia, the government has been using various approaches of transmitting exogenous information through indigenous channels, such as the information and communication about the family planning programme through *wayang* ('puppet') shows (*cf.* Surjodiningrat 1982). Using *wayang* as a medium of communication has showed certain advantages in delivering messages, such as obtaining solidarity and establishing communication with the community. Since the shows allow the audience to participate, they establish unity between the information and the audience, ensuring an effective transmission of information through a local and culturally appropriate communication channel. *'The advantages of using these media as an element in a communication campaign include their familiarity and credibility to local people and the potential for the involvement of the audience in performances'* (Mundy & Compton 1995: 121).

Nevertheless, the transmission of exogenous knowledge through indigenous communication channels may be challenged by two specific problems. *Firstly*, messages are transmitted through communication channels which provide primarily entertainment and are similar to the mass media. Consequently, any development-based message included in the script may not be perceived or understood as such by the audience. *Secondly*, using traditional forms of communication in a way to convey underlying messages as a practice which lies outside local control can provoke resentment among the audience. Although the transmission of indigenous information through exogenous communication channels as indicated in Quadrant C has reportedly reached only an initial stage, such practices have been interpreted as a sign of great potential. The growth in scientific literature and efforts for the study and documentation of indigenenous knowledge systems support these assumptions.

Finally, Quadrant D indicates the transmission of indigenous knowledge and information through indigenous channels of communication. Since the information which is collected and disclosed generally carries great credibility for the community members, indigenous communication channels have the potential to promote change. Indigenous channels of

communication spread local information entirely in ways which are exclusive for the transmission of indigenous knowledge and information, and relate to information about technical knowledge, social organisations, actions and decision-making processes, values and beliefs.

In contrast, entertainment, news and instructions are concealed in daily messages. Although deliberate instruction appears to be most appropriate to disseminate technical information, each of the six indigenous channels outlined above can be used effectively as a means of transmitting such information. The content of the knowledge and information spread in Quadrant D can refer to an indigenous innovation or an item of traditional knowledge and can entail skills or attitudes. Mundy & Compton (1995) furthermore add that communicating indigenous knowledge through indigenous communication channels significantly contributes to the conservation of culture. In the same way, Mphande (2004) remarks that in the case of interactions between generations, the value of wisdom of the aged and respect for the elderly can be positively strengthened by cultural programmes. The perspective of the local people as consumers of health information and communication is built on the close relationship between indigenous and exogenous information and communication, basically similar to the interrelationship between traditional and modern information and communication, encapsulated in the Plural Health Information and Communication System (PHICS).

2.3.2. Modern Health Information & Communication Systems (MHICS)

The efficacy of health care delivery depends to some extent on the characteristics of the health care system available in a specific community as it offers a legal, qualified and supporting framework in which modern medicine is practiced (*cf.* Leslie 1976). Across a large number of communities, health care is commonly delivered through a compulsory public system of modern health care which largely provides social insurance and state-owned hospitals, as well as through health care services provided by private medical practices and clinics. In Indonesia, for example, the subsidised *Asuransi Kesehatan Indonesia* (ASKESKIN) ('Social Health Insurance') has been introduced in an attempt to specifically address the needs of the poor.

A Modern Health Information & Communication System (MHICS) refers to data, information, indicators, procedures, tools, technologies and human resources which are interrelated and managed in a way to purposefully direct actions and decisions towards supporting the development and efficacy of modern health care systems, largely operational in the expert domain. In other words, the Modern Health Information & Communication System (MHICS) is a system which captures, stores, manages and transmits information related to the public health of people as well as to the activities of organisations which work within the modern health care sector. The modern system incorporates district-level routine disease information systems, disease surveillance systems as well as laboratory information systems, hospital Patient Administration Systems (PAS) and Human Resource Management Information Systems (HRMIS) for modern health workers. Present-day Health Information Systems (HIS) generally make use of the Internet by implementing an electronic system which offers devices and procedures which allow for preparing, collecting, processing, analysing, saving, displaying, publishing, transmitting and disseminating medical data and health information electronically (*cf.* Ministry of Health of the Republic of Indonesia 2012). The dynamics, provoked by prospective consumers, who are expected to be well-informed and to act appropriately on health issues, have recently stimulated the establishment and greater availability of modern communication facilities (*cf.* Thomas 2006).

The convergence of Information & Communication Technologies (ICT) has gained momentum, as the convergence of Information Technology (IT) and Communication

Technology (CT) has been driven by several factors, including the rapid increase in the availability of web-enabled mobile devices which allow access to cloud computing services. Indeed, cloud computing services act as a catalyst for the convergence of ICT. Telecommunication carriers are expected to gradually move IT systems and Internet data centres into the cloud, while telecommunications and IT industries are likely to develop uniform standards to facilitate rapid cloud development. As a result, it is expected that CT is undergoing a transformation from offering voice-services to offering services supported by integrated mobile networks, and that IT is shifting from providing traditional data centres to providing cloud computing.

If designed and implemented effectively, Information & Communication Technology (ICT) is able to improve the access to health care facilities for members of geographically isolated communities. Similarly, ICT can provide support for health care workers; aid in data sharing; provide visual tools linking population and environmental information with disease outbreaks; and represent an effective electronic means for data capture, storage, interpretation and management. In this context, ICT applied in health care refers to any tool which facilitates the communication, processing or transmission of information through electronic means for the purpose of promoting human health (*cf.* Bukachi & Pakenham-Walsh 2007). By means of modifying or advancing traditional forms of diagnosis, therapy and health care quality control, as well as substantiating biomedical research, the utilisation of ICT with regard to health is mainly directed at modern forms of medicine. Consequently, the different types of media and research which are concerned with the modern medical systems have been defined as the Modern Health Information & Communication Systems (MHICS).

2.3.3 The Theory of Development Communication

The field of Development Communication began to emerge in the early 1960s whereby preliminary research was directed at 'nation building', 'rural development', 'agricultural extension', 'health and sanitation', as well as 'family planning' (*cf.* McPhail 2009). As McPhail (2009: 3) indicates: '*Development Communication is the process of intervening in a systematic or strategic manner with either media (print, radio, telephony, video, and the Internet), or education (training, literacy, schooling) for the purpose of positive social change. The change could be economic, personal, as well as spiritual, social, cultural, or political.*' Within early development doctrines, as they have been formulated in the second half of the 20th century, the significance of communication was recognised in a number of theories which have been brought forward by different social science disciplines and scholars including sociologists, economists, anthropologists, political scientists, psychologists, social workers and media scholars. In the spirit of modernisation, these initial development-based approaches focussed also on local practices, such as communication and media habits, politics, culture, religion and language, whereby indigenous practices have been largely dismissed, marginalised, ridiculed or ignored (*cf.* McPhail 2009).

According to McPhail (2009: 17), early theories in development communication centred on three different approaches: '*cultural imperialism, participatory communication, and entertainment-education*'. The theoretical approach of cultural imperialism relates to the dominance of a socio-political group which affects and forms the culture of weaker groups and communities through the mass media and other practices and institutions. Additionally, the use of the mass media by members of the dominant culture for propaganda purposes in order to establish control of the weaker society, and to gain economic and political advantages, is a frequent element of cultural imperialism (*cf.* McPhail 2009). Similarly, Schiller (1976) argues

that cultural imperialism refers to all processes which draw a society into the modern world system, and subsequently attract and force the dominated society to adapt social institutions in a way to which they correspond or even promote the values and structures of the dominating system.

McPhail (2009) further explains that in addition to the definition presented above, cultural imperialism can be regarded as an overarching theory which includes two notions: electronic colonialism and media imperialism. 'Electronic colonialism' follows the theory that global markets and cultures across the world are heavily influenced by communication technologies developed and distributed by American corporations (*cf.* McPhail 1981; 2006; 2009). In the overall impact which Information & Communication Technology (ICT) has on the society, media imperialism in particular represents the general domination of a limited number of media and its impact on more vulnerable groups (*cf.* Boyd-Barrett 1998).

According to the early development theories based on cultural imperialism, development communication had commonly been established through a 'top-down' approach, *i.e.* from communicators, such as government agencies or community development organisations to the target communities. In the wake of the development of technology, the mass media have come to hold considerable appeal to the public through both radio offering an audio system and television offering a combination of audio and visual systems. As a result, the mass mediahave been introduced as important elements within the field of communication development (*cf.* Fraser *et al.* 1998). The community members' level of understanding of information retreived from the mass media are usually assessed in group meetings which are facilitated by government officials. In Indonesia, such group meetings are usually held in the form of counselling, such as in the agricultural sector through so-called '*KELOMPENCAPIR*' activities, in which a community of readers and radio listeners is formed in each village.

Following the approach of cultural imperialism, participatory communication is concerned with the effects of individuals on mass communication and largely focuses on grass-roots participation and preservation of culture. As McPhail (2009: 27) notices: '*While cultural imperialism focused on the ability of the powerful to influence cultures and economies around the world, advocates for participatory communication sought to describe the power of the individual to influence the world and to find ways to further advocate and enrich such action with the ultimate goal residing in a utopian scenario of positive development for all and better inter-cultural understanding*' In this way, participatorty communication is closely linked with Paulo Freire's model of communication which consists of five main concepts, namely dialogue, praxis, transformation and critical consciousness (*cf.* Freire 1983).

In addition to the theoretical approaches of cultural imperialism and participatory communication, Singhal & Rogers (1999: 229) state that: '*Entertainment-education is the process of implementing deliberately designed objectives as a media message to entertain and to educate viewers with the purpose of increasing the viewers' knowledge about an educational issue, building favourable attitudes and behaviours*'. In other words, entertainment-education uses the popular media in an attempt to show individuals how to have a safer, healthier and happier life.

During the late 2000s, the use of social media by government insitutions was altered in a way by which each ministry began to maintain an official website. By offering the column of 'Frequently Asked Questions' (FAQ) on their official website, each organisation gave citizens the chance to directly communicate with the ministry, for example through submitting questions.

In the same fashion, government organisations came to use Twitter and Facebook in order to disseminate short and simple information, such as simple announcements, while the mass media, such as radio and television have established themselves as controlling tools in the development

of information. In general, development communication came to include not only the transfer of information, but also the sharing of information through a 'bottom-up' approach.

According to Fraser (1998: 62), community development comprises three components which are related to communication: '*social communication, educational communication and institutional communication*'. For participatory monitoring and evaluation, social communication includes a number of specific processes, such as the dialogue process, reflection, participatory analysis, consensus building and decision-making for change or development. Moreover, social communication engages both the conventional media, such as theatre, music and dance performances, and the mass media, such as radio, television and movies. Similarly, educational communication uses a variety of media, particularly audio-visual technologies designed for the purpose of education, in order to provide the audience with knowledge and skills which allow them to participate in communicaty development. Lastly, institutional communication aims at strengthening the link between organisations and institutions available in the community (*cf.* Fraser 1998).

In general, it is the main objective of development communication to create interaction between the government and the society with the expectation that the transfer of a message is followed by the sharing of information. Fraser (1998: 63) affirms that: '*The need for people to aquire new knowledge and skills is as important as ever in development programmes, but information and training activities should be developed on people's interests and needs as identified in consultation with them.*' Thus, it can be concluded that communication for development makes use of the communication process as well as related techniques and the media to help people not only to gain a full awareness of their situation and their options for change, but also to resolve conflicts, to work towards consensus, to help people plan actions for change and sustainable development, to help them aquire the knowledge and skills needed to improve individual and social conditions, and to improve the effectiveness of institutions.

In order to meet these objectives in communication development, a comprehensive approach is in need of the integration of Traditional and Modern Health Information & Communication Systems (T&MHICS) which, in turn, facilitates the realisation of the goals of sustainable community development.

2.4   Utilisation of Plural Health Information & Communication Systems (PHICS)

2.4.1 The Need of Understanding Local Utilisation Patterns of PHICS

As mentioned in the *Introduction*, the local people of Indonesia have utilised Traditional Health Information & Communication Systems (THICS) over many generations, and continue to maintain these systems as part of their indigenous cultural heritage which has been supplemented by the introduction of Modern Health Information & Communication Systems (MHICS) during the late colonial period of time and the subsequent establishment of independence. More recently, the influx of the process of globalisation together with the expansion of the digital revolution in communication technology, the influence of modern health information and communication through the printed and broadcasting media, the internet and the social media on peoples' utilisation of both the traditional and modern forms of health information and communication has substantially increased the overall utilisation of the plural configuration, defined as the Plural Health Information and Communication System (PHICS).
Social media, in particular, have recently introduced a new dimension to the delivery of health care services as they involve a means for clients, patients, health professionals and the general public to obtain information and communicate about health and disease which eventually may

lead to improved health and well-being. Besides the various benefits from the use of social media for Health Information & Communication (HIC), a number of gaps and limitations of the role of social media for health communication have also been identified.

In a recent study by Moorhead *et al*. (2013), triggered by their observation that: '*Currently, there is a lack of information about the uses, benefits, and limitations of social media for health communication among the general public, patients, and health professionals from primary research.*', the authors present a review on the positive and negative aspects of social media for health information and communication, showing six key benefits: (1) *increased interactions with others,* (2) *more available, shared, and tailored information*, (3) *increased accessibility and widening access to health information,* (4) *peer/social/emotional support,* (5) *public health surveillance,* and (6) *potential to influence health policy*. However, the same study reveals twelve limitations which primarily consist of quality concerns and lack of reliability, confidentiality, and privacy. (*cf.* Moorhead *et al.* 2013).

Notwithstanding the many technological possibilities which are rendering communication among individuals and organisations at first sight more easily and readily available, the knowledge and skills to engage in a process of reliable and effective communication still needs special education, training and socialisation of the members of the community. The communication process which basically includes a sender of a coded message, who communicates a need, thought or feeling, to a receiver who is able to decode and understand that message, is only effective, if it leads to fruitful interactions and behaviours in the life of both senders and receivers.

Expanding the results of the study of Moorhead *et al.* (2013) to the wider digital-based structure of a Health Information & Communication Systems (HICS), it is clear that there also exists a general lack of empirical information about the utilisation of both the Traditional and Modern Health Information & Communication Systems (T&MHICS) among the general public, clients and patients, specifically from primary research carried out at the community level.

As mentioned above, notwithstanding the revolutionary expansion of the Modern Health Information & Communication System (MHICS) as the result of the recent digital developments, the Traditional Health Information & Communication Systems (THICS) have also benefitted from the globalisation process and the expansion of the media, where traditional medical knowledge and practices have also found their way into the media through the process of 'development from the bottom'. The resulting pluralistic configuration of Traditional and Modern Health Information & Communication Systems (T&MHICS) identified as the Plural Health Information & Communication System (PHICS) in the Sundanese Region of West Java provides a unique opportunity to conduct primary research at the community level. This kind of study requires a special research methodology, duly provided by ethno-communication, as further elaborated in the following (Chapter III).

A better understanding of the differential utilisation patterns of the Plural Health Information & Communication System (PHICS) by the local population provides not only a unique opportunity to identify the shortcomings and misunderstandings of particular forms of information on health and disease in the public lay domain at the community level, but also offers guidelines to improve the Health Information & Communication Systems (HICS) of consumers, which in turn would pertain to better health and well-being.

2.4.2 Towards an Integrated Health Information & Communication System (IHICS)

The recent increase in interest in traditional medicine and traditional medical systems has also led to a similar growth of attention for various forms of Health Information & Communication

Systems (PHICS). As Thomas (2006) rightly notes: *'The movement toward integrated health systems that take a holistic approach to the patient emphasizes the importance of communication between healers and their clients. The critical role of therapeutic communication that formed the basis for treatment within traditional systems has been rediscovered and the health communication process is increasingly being recognized as more than a technical aspect of care but as a component of the therapy process in its own right.'* This renewed interest among both health professionals and the general public in alternative forms of medicine has indeed influenced the development of health information and communication, where the peoples' individual view is not limited to a one-dimensional attitude towards the promotion of health, prevention of disease or treatment of illness, but more open to a more multi-facetted, holistic approach to matters of health and healing, in which there is ample room to seek the best available information, albeit from the traditional or modern systems of Health Information & Communication (HIC), or sometimes from both systems.

In addition to such a community perspective of seeking knowledge and information from different related health information resources, the recognition and formal integration of these different Health Information & Communication Systems (HICS) is expected to pertain to an increased interest of clients, patients and the general public to utilise such a holistic form of an *Integrated Health Information & Communication System* (IHICS), rendering relevant health communication activities which are integrated from the beginning with other programmes more successful to different individuals, groups and communities. As Thomas (2006) also documents: *'research shows that health communication is most effective when multiple communication channels are used to reach specific audience segments with information that is appropriate and relevant to them'*.

As in the case in recent public health programmes focused on the integration of traditional and modern medical systems, the inter-professional collaboration among various health information and communication functionaries, health educators and lay persons will provide added value to such an integrated approach in terms of joint discussions, workshops, sessions, consultations and activities in the written and broadcasting media as well as in social media, focused on a wider coverage and intensity of various kinds of audiences (*cf.* Chirangi 2013).

In general, the integration of Health Information Systems (HIS) involves different data and systems, aimed at the development of an integrated health system for patients and health professionals. As Mykkänen *et al.* (2004) notice: *'The integration of health information systems (HIS) is a combination of problems, where each organization has its own set of issues which must be dealt with'*, rendering the main focus on the exchange of relevant health and illness-related data between the heterogeneous traditional and modern systems crucial for the development of an integrated system in Indonesia. Following the information-oriented integration approach succesfully implemented by Mykkänen *et al.* (2004), the integration process is basaed on information exchange and the set-up of relevant databases. In this integration process, the complicated standardisation of data would start with the formulation of a common definition of perceived and diagnosed morbidity.

In accordance with Bruun-Rasmusse, Bernstein & Chronaki (2003), the information-oriented integration process does approach potential integration problems through health information and communication exchange as the primary points of integration. In this context, another important differentiation is mentioned by Mykkänen *et al.* (2004) who refer to integration approaches which either use a 'top-down' or a 'bottom-up' process for the definition of the integration solution. While the 'top-down' approach implements an open standard or a readily-given specification as the starting point, the 'bottom-up' is initiated from practical high-priority needs operational in the community. As the information-oriented approach is rather simple, practical

and widely used, and facilitated by a 'bottom-up' orientation towards actual needs for appropriate utilisation, it will also form the basis for the envisaged design of the model of an Integrated Health Information and Communication System (IHICS) in Sukamiskin and beyond.

The benefit for the national government and its related ministries of health is reflected in the provision of the future integration of Traditional and Modern Health Information & Communication Systems (T&MHIC) which provides an empirical basis to reach the goal of 'Information Society Indonesia' (2003) for improved health care planning and development among all members of the society. As indicated in the formulation of the general aim of this study, special attention will be paid to the implications of the development of a strategic model of an Integrated Health Information & Communication System (IHICS) as a planning tool for realising 'Information Society Indonesia' (2003) within the context of public health development in the near future. Such a model would link up well with the recent successful integration of indigenous knowledge systems into programmes and projects in sustainable community development in various sectors of the society, including public health (*cf.* Warren, Slikkerveer & Brokensha 1995; Slikkerveer, Baourakis & Saefullah *in press*).

Notes

[1] The field of Information Science encompasses a number of topics: Human-Computer Interaction; Information Literacy; Information Management; Documentation; Library Management; Knowledge Management; Information Organisation; Information Society Studies; Bibliometrics; Information Seeking; and Information Retrieval (*cf.* Bawden & Robin 2012).

[2] Kuhlthau's Model differentiates between: (a) *Initiation:* a person becomes aware of a lack of knowledge or understanding making uncertainty and apprehension common; (b) *Selection*: a general area, topic or problem is identified and initial uncertainty often gives way to a brief sense of optimism and a readiness to begin the search; (c) *Exploration*: inconsistent, incompatible information is encountered and uncertainty, confusion and doubt frequently increase; (d) *Formulation*: a focused perspective is formed and uncertainty diminishes as confidence begins to increase; (e) *Collection*: information pertinent to the focused perspective is gathered and uncertainty subsides as interest and involvement in the project increase; and (f) *Presentation*: the search is completed with a new understanding enabling the person to explain his or her learning to others or in some way to put the learning to use (*cf.* Davis & Shaw 2011).

[3] SPIKO has been developed applying the software Macromedia Dreamweaver MX. The programming language used is Hypertext Pre-processor (PHP) and the system runs within the Windows XP (SP3) server application packages using WAMP5 1.4.3.

[4] *The Model Literasi Informasi Ilmiah dan Pengetahuan Lokal* ('Model of Scientific Literacy Information and Local Knowledge') is a model of information literacy developed at UNPAD. Designed by Erwina in 2014, the model addresses socio-cultural factors and systems of local knowledge, which represent one of the main indicators in the model. The development of the model shows that the different elements of the model are discussed in relation to two domains, namely information and local information. The *Model Literasi Informasi Ilmiah dan Pengetahuan Lokal* is an information literacy model designed with the capacity of determining information needs, finding the source of information, utilising and

understanding information and local knowledge, organising the information in a legal and ethical way and presenting the information to the community. The characteristics of the model furthermore differ from other models in such a way that this model includes elements, which stimulate the individual's understanding of information and local knowledge (*cf.* Trirahayu 2014). Since 2014, the model has been refined to include 5 different steps taken by all base-level college students as the information literacy basis. The steps refer to:

1. identifying the information of scientific and local knowledge needs;
2. knowing and comprehending the sources of local knowledge information & scientifically;
3. conducting research on the information of scientific and local knowledge;
4. comprehending and using the information and local knowledge & scientifically;
5. evaluating the information.

This model has been used by the new students of UNPAD since the academic year of 2015-2016.